

# *HOWARD COUNTY*

## Short-Range Transportation Development Plan

**February 24, 2009**



**Office of Planning**  
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Baltimore, Maryland 21202-1614

# KFH GROUP, INC.

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## HOWARD COUNTY SHORT-RANGE TRANSPORTATION DEVELOPMENT PLAN



February 24, 2009

*Prepared for the  
Maryland Transit  
Administration  
and  
Howard County*

# TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY.....	ES-1
I. Purpose, Introduction, and Contents.....	ES-1
II. Needs Analysis.....	ES-2
III. Existing Services.....	ES-3
IV. Stakeholder Input.....	ES-6
V. Alternatives.....	ES-7
IV. Recommended Plan.....	ES-10
CHAPTER 1 - HOWARD COUNTY POPULATION AND LAND USE PROFILE.....	1-1
Purpose, Introduction, and Contents.....	1-1
Howard County - Location.....	1-2
Howard County Studies.....	1-4
Population Needs Assessment.....	1-7
Summary.....	1-44
CHAPTER 2 - REVIEW OF EXISTING TRANSPORTATION SERVICES.....	2-1
Introduction.....	2-1
Public Transportation Services.....	2-1
Services.....	2-12
Inventory of Other Transit Providers.....	2-41
Human Service Agency Transportation.....	2-59
Summary and Conclusions.....	2-62
CHAPTER 3 - PUBLIC OUTREACH.....	3-1
Introduction.....	3-1
Preliminary Outreach Efforts.....	3-1
Presentations and Other Comments.....	3-2
Summary.....	3-4

## Table of Contents (continued)

	<u>Page</u>
CHAPTER 4 - SERVICE AND ORGANIZATIONAL ALTERNATIVES.....	4-1
Service Concepts .....	4-1
Service Alternatives .....	4-4
Capital Program .....	4-42
Policy Options .....	4-49
CHAPTER 5 - TRANSIT PLAN .....	5-1
Introduction .....	5-1
Strategy and Phasing.....	5-1
Plan for Vehicle Capital Replacement.....	5-4
Summary by Phase .....	5-7
Expansion routes and Services - Operating.....	5-9
Near-Term.....	5-15
Medium-term.....	5-15
Long-Term.....	5-16
Proposed BRAC Services .....	5-17
Other Recommendations .....	5-20
Policy Guidelines .....	5-22
Regional Connections.....	5-22
Land Use and Transit Planning .....	5-24
Results.....	5-25

# Executive Summary

## I. PURPOSE, INTRODUCTION, AND CONTENTS

This document is an update to the Howard County Short-Range Transportation Development Plan (TDP), which is a short-term (typically a five-year period) plan to guide transit system development. The TDP provides a vision of the future public transportation system.

Howard County's (County) last TDP was completed in 2003. Since that time the transit program has undergone significant change. The TDP called for service expansion in several areas, and for the County to develop its own maintenance facility. Initially transit services were expanded, but in FY 2005 funding cuts reduced the amount of service by 21%, leading to a 4.3% drop in ridership. However, overall ridership recovered, and so ridership has increased from 672,178 in FY 2004 to over 818,182 in FY 08. In part this reflects expanded service hours and miles, but it also reflects other service improvements since that time. These include development of services that cross jurisdictional boundaries, providing regional linkages, such as the Silver Route. It also reflects improved marketing efforts, including bi-annual customer surveys of both the fixed-route and paratransit services, marketing and information materials in additional languages (Spanish and Korean), expanded hours of toll-free information lines and expanded customer service staffing to reduce waiting. The County has instituted a policy that all new transit vehicles will be hybrid gas- or diesel-electric to reduce the carbon footprint of the transit system. This policy uses County funding to pay for the incremental costs of the hybrid vehicles. New hybrid vehicles delivered so far include hybrid sedans for the paratransit system (offering improved access for those persons not using wheelchairs), and heavy-duty hybrid transit coaches for the busiest routes. In addition, the County has purchased low-floor buses to provide for easier access and quicker boarding.

This TDP includes an assessment of current and near-term unserved potential need (Chapter 1), an inventory and review of existing services (Chapter 2), documentation of stakeholder and community input (Chapter 3), alternatives to address identified needs and performance concerns (Chapter 4), and a recommended plan for improvements (with phased implementation) including capital and operating budget projections (Chapter 5).

## II. NEEDS ANALYSIS

Chapter 1 identifies and assesses population characteristics and land use in Howard County, and their impact on public transportation services. This chapter begins with a brief overview of plans and policy documents related to land use and transportation in Howard County. This base of planning information is then supported by an analysis of population characteristics; which are used to assess the population concentrations most likely to use transit. Finally, we compare the county population characteristics, and identify travel destinations and origins.

Taken together, these studies present several key land use considerations for the update of the TDP:

- County population growth will be concentrated in the eastern third of the County, while the western portion of the County will remain predominantly rural.
- The United States Highway (US)-1 Corridor will be a major focus of redevelopment.
- Columbia Town Center will be a second major focus of redevelopment.
- Additional higher density planned unit development will take place in the southeastern portion of the County, along US-29 (Maple Lawn), Maryland State Highway (SH)-216 east, and adjacent to Laurel.
- Howard County's population will be aging, with expected major increases in the senior population calling for expanded services to address the needs of this group – including transportation.
- The BRAC shift of staff to Fort Meade will create a demand for additional housing and other services in the County, including transportation to reach primary jobs at the Fort, and secondary employment at other locations serving the new employees and residents.

Areas of Moderate to High Relative Need based on the density of transit-dependent populations are located along the US-29 and the Interstate (I)-95 /US-1 corridor that connects Ellicott City, Columbia, Elkridge, Scaggsville, and North Laurel. There is an area bounded by I-70, US-40, and MD-144 that includes portions of Turf Valley outside of Ellicott City with moderate to high needs.

The categories of land uses identified as potential major destinations that are represented in table and map format include:

- Major Employers
- Educational Institutions (K-12, colleges/universities)
- Medical Facilities
- Human Service Agencies
- Shopping Centers
- High Density Housing

For the most part, the population most likely to need and use transit services, and the identified trip generators are mostly located in proximity to existing transit services. The Columbia and Ellicott City areas each have the highest concentration of trip generators. Specific areas of unserved high need and destinations were identified in each category, and are considered in the development of service alternatives for new or revised transit routes.

### **III. EXISTING SERVICES**

Chapter 2 discusses and assesses the existing public transportation services that operate in the County. The fixed-route public transportation service in the County is provided by:

- Howard Transit (HT) and HT Ride (service contract managed by CTC),
- CAR (service provided by CTC), and the
- Maryland Transit Administration (MTA).

The primary focus of the TDP is the Howard County service, HT and HT Ride.

#### **Howard Transit (HT)**

HT is the local public transit service for Howard County and is a service sponsored by Howard County Government. HT is overseen by the Planning & Zoning Department of the Howard County Government. HT provides fixed-route, and specialized transit services – HT Ride and Job Access Reverse Commute (JARC).

Fixed-route service is primarily provided in the more densely populated areas of Columbia and Ellicott City, along the US-1 corridor on the eastern edge of the County, and in the North Laurel area. HT operates nine fixed routes in Howard County. All routes operate Monday-Friday, while some routes also provide express service on weekdays and limited weekend service. All routes except the Purple Route (serving the

Route 1 corridor), connect at the Columbia Mall transfer center. HT also provides service outside the County on a route linking Baltimore/Washington International (BWI) -Thurgood Marshall Airport with Columbia (the Silver Route). This route also serves the MARC/Amtrak Station at BWI (on the Penn Line) and the MARC Dorsey station (on the Camden Line). CAR also provides services in the North Laurel area, and routes linking Laurel, Savage, and Columbia.

HT Ride provides specialized curb-to-curb transportation for senior citizens and individuals with disabilities. HT Ride is provided for those individuals who cannot use the fixed-route HT services. This specialized service is categorized in two forms: 1) General Services transportation is provided, for those eligible, to and from locations in Howard County with limited service available to medical centers in Baltimore and 2) Americans with Disabilities Act (ADA) transportation service is limited to areas that are within 3/4 of a mile of HT fixed-route service.

### *Transit Fleet*

The HT fleet is composed of 28 fixed-route vehicles (commonly known as “truck buses” because they are built on a truck chassis) that can seat 20 and 24 passengers and all are lift-equipped; and 23 paratransit vehicles (cutaways, vans, and sedans) that can seat 3 - 20 passengers and 21 are lift-equipped. Peak fixed-route service requires 22 vehicles, resulting in a minimal spare fleet of six vehicles, which satisfies the 20% criteria recommended by the Federal Transit Administration (FTA).

Twelve vehicles have been requested for replacement in the Annual Transportation Plan FY09 (ATP FY09) to the MTA. An additional six truck buses and eight cut-away vehicles are eligible for replacement in FY 2009 under state guidelines. Twenty-six more vehicles are anticipated for replacement in the next three to five years. The large number of replacement needs are the result of a lack of capital funding in the recent past, leaving a large number of overage vehicles, which has resulted in service reliability problems, lift failures, and a lack of air-conditioning and heat—as well as higher maintenance costs.

### *Budgets and Funding Sources*

Under the Annual Transportation Plan (ATP) program for the Locally Operated Transit Systems (LOTS), administered by the MTA Statewide Planning program, Howard County applies for funds that support the operation of public transit services in Howard County. In terms of the overall operating budget for transit services, the primary source of funding for HT services is provided through the County General Fund. For the FY 2009 ATP, the County has budgeted approximately \$7.4 million dollars to continue support for HT operations, approximately 73% of the total operating



budget. In terms of Federal/State assistance for Section 5307, Section 5311, ADA, Statewide Specialized Transportation Assistance Program (SSTAP), and Rural and Community Based Services (RCB) program funds, the County has been awarded \$2.3 million. State and federal funding provides a higher percentage of the capital costs, with local dollars for the FY 2009 program providing ten percent of the total ATP capital budget. It should be noted that, in the past, Howard County has purchased vehicles with 100 percent local funds to address urgent vehicle replacement needs.

### *HT System Performance*

The route analysis is based on the MTA adopted standards for evaluating productivity. With the improved performance in FY 2008, only the Blue and the Purple Routes failed to achieve the MTA productivity standard of eight trips per hour.

### **Human Service Agencies**

A number of other human service organizations provide transportation to eligible groups or clients. Key providers include:

- **Neighbor Ride** -- provides volunteer transportation to older adults.
- **Health Department/Medical Assistance Transportation** - Contracts with the Area Agency on Aging providing transportation for County residents who are Medical Assistance / HealthChoice recipients for medical purposes

### **Key Issues**

Based on the overall assessment of the existing services, the following concerns need to be addressed in the TDP:

- All HT services:
  - Focus on capital replacement to address the deferred replacement backlogs—this is needed to maintain service quality and reduce maintenance costs.
  - Continue support for the Central Maryland Transit Operations Facility as a strategy to eventually reduce hourly contract operating costs and improve maintenance.
- Fixed-Route Service:
  - Revise the Blue Route to improve productivity and/or reduce costs.
  - Revise or eliminate the Yellow Express to reduce costs or increase ridership.

- Restructure and expand the Yellow Route to serve the Circuit Court and provide additional service in the Ellicott City area.
- Retain the Purple Route to support US-1 Corridor redevelopment, but review it together with the MTA Route 320 in the same corridor to eliminate any service duplication and improve service.
- Paratransit:
  - Focus on productivity and service quality improvements.
  - Plan on expanding the availability of services to address growth in the older adult population.
  - Consider options to meet additional needs, such as taxi-voucher programs for older adults and persons with disabilities.

#### **IV. STAKEHOLDER INPUT**

Chapter 3 identifies and incorporates information received from residents and transit stakeholders of Howard County during public outreach efforts.

Generally, comments relate to the increasing demand for transit service as fuel prices continue to fluctuate and the needs of the population, as it continues to increase. Concerns included:

- More hours of operation (particularly for paratransit services),
- Larger vehicles,
- Increased frequencies (shorter headways)—30-minute headways in the peak hours, and
- The addition of service to areas that are not served by fixed-route services, including:
  - service to the Circuit Court,
  - fixed-route coverage linking Columbia Town Center and APL/Maple Lawn,
  - a fixed-route link between Ellicott City and US-1 corridor,
  - better services in the US-1 corridor,
  - BRAC-related service to NSA and Fort Meade,
  - more fixed-route service in the Ellicott City area,
  - express linkages to the Gateway area, BWI Thurgood Marshall Airport.
- A transit orientation to the redevelopment of the Columbia Town Center area, including improved transfer facilities and frequent shuttle services to key destinations and higher density residential and employment sites,

- Improved regional connections, including links to regional services and improved regional services (MTA)
- Other paratransit options including taxi user subsidies (particularly for older adults and persons with disabilities), support for volunteer transportation programs, and travel training to help persons begin using fixed-route service
- Improved service quality, particularly on paratransit—addressing late trips, circuitous routing, scheduling issues, etc.. On fixed-route service early trips, and on all services vehicle condition particularly as it affects air-conditioning and heat, and wheelchair lifts
- Organizational structure of transit administration in the county, including concerns with the line of authority as it affects service quality, the cost of the current structure with separate management and operating contractors, and the desire to raise the overall visibility and importance of the transit program

## V. ALTERNATIVES

Chapter 4 documents the “menu” of potential service and organizational options that were considered by the Public Transportation Board (PTB) and the Technical Steering Committee. It includes service alternatives developed to address areas without service or with productivity issues, detailed route-by-route service alternatives, capital requirements (both vehicles and facilities), a discussion of organizational issues, and proposed service guidelines. It also includes cost estimates, and an assessment of the options in terms of implementation issues.

### Service Alternatives

One set of alternatives addresses the costs of increasing frequencies from the current 60-minute headways to 30-minute headways during the peak hours, beginning with the busiest route, the Green Route. Thirty-minute peak hour headways are then presented for other routes in order of their ridership, including the Red, Brown, and Silver Routes.

South County service needs were conceptualized as a need for fixed-route HT services connecting Columbia new residential and employment sites, including Johns Hopkins Applied Physics Laboratory (also known as APL), the Montpelier Research Park, Maple Lawn, Emerson, the new North Laurel Community Center, Laurel, Reservoir High School, and connections to the Burtonsville Park and Ride lot in Montgomery County to allow connections to Metrobus services. Alternatives were developed to address all these needs.

In the Town Center areas, the alternatives presented include a conceptual mid-day shuttle for the Town Center area, designed to improve access and address public input calling for transit links to the offices and services that are east of Little Patuxent Parkway. A second concept is an expanded shuttle serving new development, at a higher-frequency and with greatly expanded hours of service, to facilitate connections in the Town Center area from the beginning of commute hours to the time that movies let out.

For the northeastern portion of the County, public (and Court) input has made clear that public access to the Court requires transit service. For that reason alternatives have been developed to restructure the Yellow Route to provide for additional coverage and service hours, to serve the Court, and to serve Mount Hebron High School. A related issue is the need identified in the outreach to link the Ellicott City area with the US-1 corridor, without requiring a trip through Laurel and Columbia. A route alternative linking Ellicott City and the US-1 corridor is included. It also serves some previously unserved areas along Marshalee Dr and Montgomery Rd.

Areas of likely BRAC-related residential concentration in the County appear to be limited. One traffic zone predicted to have significant peak hour travel to Fort Meade is in the eastern part of the County, near I-95, US-1 and MD-100. A route alternative was developed to serve this area, linking the Gateway area to the Dorsey MARC station, NSA and FGGM with peak-hour service. Peak-hour services from Clarksville and Columbia to Fort Meade are planned for FY 2009 implementation.

Paratransit alternatives were developed to address anticipated increases in demand due to an aging population. One alternative for paratransit services is to assume that the County will add capacity to HT Ride that would address 50% of this projected increase in demand, and that other strategies would be used to meet these needs. This alternative would therefore require an increase in HT Ride trip costs of \$477,225 in each of three phases, and an increase in the fleet of 15 vehicles, also spread over three phases. Another paratransit alternative presented for consideration is a taxi-subsidy program similar to those operated in Anne Arundel, Montgomery and Prince George's Counties.

### **Vehicles: Replacement**

Whether or not there are any service expansions requiring existing vehicles, prudent management and public input all call for a capital replacement program that replaces existing vehicles based on the years of service and mileage accumulated, given the design life of the vehicle. Based on the state vehicle replacement criteria, a vehicle replacement plan for the Howard County fleet for a five-year period was developed, along with the estimated costs by type of vehicle. All proposed vehicles are hybrids,

and costs include digital fareboxes, security cameras, automatic vehicle location, and stop annunciators. The County fleet is still recovering to some extent from a period of deferred replacement, so the investment in the early years is significant.

### **Passenger Facilities**

Passenger facilities used by HT riders and administered by the County include the transfer point located at Columbia Mall, and the bus stops located along routes throughout the community. The GGP plan Transportation Strategies for Columbia Town Center includes a call for development of an improved transit center as part of the ongoing redevelopment of this area. It is seen as having improved amenities, and becoming a key connection point between expanded Town Center shuttles, HT routes, and commuter buses. A proposed Bus Stop Improvement Program would include a Bus Stop Study, an Annual Bus Stop Capital Improvement Program, and a Shelter Program. The TDP calls for planning efforts to establish the scope and feasibility of such a center, with a process leading to eventual construction.

### **Other Capital Needs**

The study also reviewed options including Smart cards for fare payment. Another potential capital need considered is the acquisition of Mobile Data Terminals for the HT Ride paratransit vehicles, particularly if combined with navigation databases. Further analysis is recommended.

### **Organizational Issues**

During the outreach process for the study, at least some stakeholders expressed interest in examining alternative organizational structures. Given the number of potential organizational alternatives and the need to develop detailed assessments of the job functions, pay rates, overhead, and support costs for different options, it is recommended that an additional organizational study be undertaken if the County wishes to seriously address the possibility of change in the organizational structure of transit planning, management, and operation of services for the County.

### **Policy Guidelines**

Another issue that emerged from the stakeholder input is the lack of any formal statement of County policy on transit services based on these examples, and the implied standards used by CTC and the PTB to measure service quality. This chapter of the TDP presents guidelines for consideration by Howard County.

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## IV. RECOMMENDED PLAN

Chapter 5 presents a three-phase plan for service improvements, with the phases defined as near-term (next two fiscal years), medium-term, and long-term, with these periods defined in relation to the availability of resources for implementation. The proposed service improvements and the general phasing both have been presented to the public and the PTB. The service improvement plan includes the capital requirements for the additional operations. A separate plan is presented to address the need for replacement vehicles, and this is defined in terms of fiscal years, because the existing vehicles continue to operate and the need for replacements needs to be addressed in relationship to the anticipated service life of the vehicles. For that reason, the vehicle replacement plan is uncoupled from the phased service expansion plan, and is presented as a separate element by fiscal year. The need for a new, enlarged transit center in the Columbia Town Center is also identified. Finally, recommendations are made for additional planning and policy studies.

### Strategy and Phasing

The proposed plan involves a selection from the menu of services, policies and capital projects that was presented in the previous chapter. Given that context, the proposed phasing was developed to:

- 1) Focus first on vehicle replacement.
- 2) Allow for on-going operational changes.
- 3) Address growing needs for specialized services in the short-term through demand management and increased operating efficiencies.
- 4) Address growing needs for specialized services in the medium-term and beyond through service expansion.
- 5) Initiate service expansion in the medium-term by improving existing routes.
- 6) Add new routes in later phases.
- 7) Begin planning for capital projects--the Central Maryland Transit Operations Facility, a new Town Center Transit Center, and a Bus Stop Inventory and Assessment.
- 8) Address the organizational structure providing transit with a more detailed study of the alternatives, including the cost and other impacts.

The phasing is designed to indicate approximate timing and priority.

## **Vehicle Replacement**

As indicated above, the first priority for transit investment is to provide for sufficient capital for replacement of the existing fleet. Transit vehicles are designed to meet particular service life requirements, which vary by vehicle. With good maintenance, the vehicles can usually operate beyond their design life for a period before service quality drops (leading to missed trips, road failures and lack of air-conditioning/heat) and maintenance costs become excessive. While the County has had an aggressive vehicle replacement program recently, even using County funding to replace vehicles, there is still an accumulated need for vehicle replacement just to be able to maintain current service levels.

Table ES-1 presents the overall “realistic” vehicle replacement plan proposed for the next five years by year. It is based on the data included in Chapter 2 as the vehicle inventory. Howard County policy is that all new transit vehicles will be hybrids (with higher fuel economy), and that the County will pay the incremental cost of the hybrid over the conventional gas or diesel vehicles funded by MTA. So, the County local share will be the conventional local share required by MTA, plus the incremental costs for hybrids or a higher quality vehicle (a 12-year low-floor bus as opposed to a 7-year high-floor bus).

If the number of vehicles required to meet currently scheduled routes and the current level of paratransit service are not available, the result may be that services have to be cut. Cutting fixed-route service because of a lack of vehicles may well mean cutting entire routes, not just frequencies or hours of service. Cutting demand-responsive service because of a lack of working vehicles may mean that users must schedule trips much further in advance, and face the danger of having a scheduled trip cancelled by the transit system.

## **Summary by Phase**

This plan is intended to be a multi-year plan—as a TDP its plan horizon is intended to be five years, but it is recognized that organizational changes and funding availability may well make it necessary for the program to take longer or be phased differently.

Table ES-1: Howard County Vehicle Replacement Plan

Fiscal Year	Proposed Vehicle	Replaces	Service Type	Seating Capacity (Seats/Wheelchairs)	Estimated Total Unit Cost (Hybrid)	Estimated Cost (State) (Diesel)	Potential State Funding (at 90%)	Estimated Local Share (at 10%)	Hybrid Incremental Cost (Local)	Estimated Total Local Share
2009	LF Transit	57	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	Truck Bus	58	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	79	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	77 <sup>1</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Cutaway	70	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	71	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	72	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	36	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	39	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	40	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$2,680,000	\$1,233,300	\$1,109,970	\$123,330	\$1,446,700	\$1,570,030
2010	LF Transit	80	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	82	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	84 <sup>2</sup>	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	86	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	Cutaway	35	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	38	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$2,800,000	\$1,985,871	\$1,787,284	\$198,587	\$814,129	\$1,012,716
2011	Truck Bus	85 <sup>3</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Truck Bus	81	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Cutaway	33	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2011	Cutaway	32	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	34	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	30	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	29	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
	Subtotal				\$1,620,000	\$558,529	\$502,676	\$55,853	\$1,061,471	\$1,117,324
2012 <sup>4</sup>	Truck Bus	9512	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9513	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9516	FR	20/2 <sup>5</sup>	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9517	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9518	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9519	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Cutaway	31	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2012	Cutaway	5	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,820,000	\$592,234	\$533,011	\$59,223	\$1,227,766	\$1,286,989
2013	LF Transit	9510	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	LF Transit	9511	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	Cutaway	6	PT	18/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2013	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,500,000	\$1,023,914	\$921,523	\$102,391	\$476,086	\$578,477
2014	Truck Bus	9504	FR	27/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2014	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	29	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,150,000	\$635,871	\$572,284	\$63,587	\$514,129	\$577,716
<b>Totals</b>					<b>\$11,570,000</b>	<b>\$6,029,719</b>	<b>\$5,426,747</b>	<b>\$602,972</b>	<b>\$5,540,281</b>	<b>\$6,143,253</b>

- (1) Current Spare #63 will be sold, and #77 will become a spare.
- (2) Current Spare #66 will be sold, and #84 will become a spare.
- (3) Current Spare #67 will be sold, and #85 will become a spare.
- (4) Vehicles 1, 2, 3, and 4: Toyota Prius Sedan (County Funded); in 2012 replacement at \$25K each.
- (5) For the 20/2 seating capacity, based on MTA information, there is no vehicle price. The price of the vehicle type with similar seating capacity was used.

\*For Year 2014, "Vehicle Type" was determined based on previous year information that shows correlation between "Service Type" and "Proposed Vehicle"

FR = Fixed-Route  
PT = Paratransit  
LF = Low-Floor



Table ES-2 summarizes the operating costs for the three phases, using FY 2009 as a base year for operating costs, and then rolling in the full implementation of the previous year phase as the base for the next phase. Table ES-3 presents the capital costs of expansion vehicles needed to operate the expanded services, and Table ES-4 presents the summary of the operating and capital costs by phase.

**Table ES-2: Operating Expansion Plan-Summary**  
(In Current Dollars)

	<b>Base Operating Budget</b>	<b>TDP Planned Expansion</b>	<b>Total Operating Budget</b>
FY 2009	\$10,144,376		
Near-Term	\$10,144,376	\$115,000	\$10,259,376
Medium-Term	\$10,259,376	\$1,361,000	\$11,620,376
Long-Term	\$11,620,376	\$2,545,000	\$14,165,376

**Table ES-3: Expansion Capital Plan**  
(In Current Dollars)

<b>Phase</b>	<b>Expansion Vehicles</b>	<b>Other Capital<sup>1</sup></b>	<b>Total Capital</b>
Near-Term	\$550,000		\$550,000
Medium-Term	\$3,950,000	\$575,000	\$4,525,000
Long-Term	\$4,470,000	\$325,000	\$4,795,000
	\$8,970,000	\$900,000	\$9,870,000

1. "Other Capital" costs include: Computer and Software for dispatch (if needed) and a bus stop improvement program.

**Table ES-4: Expansion Capital and Operating Plan Summary  
(In Current Dollars)**

	Operating Expenses			Total	
	Base	Expansion	Total	Capital	Total
Near-Term	\$10,144,376	\$115,000	\$10,259,376	\$550,000	\$10,809,376
Medium-Term	\$10,259,376	\$1,361,000	\$11,620,376	\$4,525,000	\$16,145,376
Long-Term	\$11,620,376	\$2,545,000	\$14,165,376	\$4,795,000	\$18,960,376
			\$36,045,128	\$9,870,000	\$45,915,128

There are two major capital projects not included on these tables. One is the Central Maryland Transit Operating Facility, which is an ongoing project that has already received partial funding while planning and environmental work continues. The cost estimates for this project are continuing to evolve with changes in the site possible, which would affect costs. The second project not shown on these pages is the recommended Town Center Transit Center. At this point this facility is completely conceptual, and planning is needed to fully identify the functions, size, layout, space requirements, and potential sites for this project.

All figures are in constant dollars, but the fiscal analyst will know that inflation costs will add five percent or so each year—we have not assumed that these phases would occur in any particular year, and so have not incorporated year of expenditure figures. In terms of funding, it should be noted that a substantial part of the mid- and long-term expansion is funding for the paratransit program. Also, the BRAC related portions are treated separately in a BRAC section of the plan, as it may have a better chance of receiving outside funding. Implementation of any one element is a function of funding availability. There is an annual budget process and the MTA grant application process that both allow for public input and revisions to the anticipated project phasing based on need and funding. Acceptance of this TDP does not obligate the County or the State to fund any particular element at any time.

### **Routes and Services - Operating**

Proposed routes and services have been developed from the alternatives presented in the previous chapter, but it should be noted that the baseline network at the beginning of the Near-Term Phase includes additional services to be implemented in FY 2009, including half-hour headways on the Green Route in the peak (implemented in October 2008), and BRAC-related peak hour routes from Clarksville and Columbia (replacing the current Blue Route). All the additional new routes are presented as

conceptual services that would need final operational planning to determine exact routing, stop locations, timetables, etc. prior to final implementation.

In the Near-Term the focus on new services is limited to revisions to the Yellow Route to provide access to the Circuit Court, and added peak express frequencies on the Red Route. In the Medium-Term the major focus is on improved peak frequencies, with full thirty-minute peak headways added to the Red and Brown Routes, and additional service on the Silver Route (either as peak express trips or additional peak frequency). New service would be a mid-day shuttle service around the Columbia Town Center and expanded paratransit service hours. In the Long-Term route coverage is addressed, with a proposed restructuring of the Yellow Route, an Ellicott City-Elkridge Connector, service to the south County, and a full-day Town Center Shuttle. More expansion for paratransit is included.

### **Proposed BRAC Services**

In addition to the services identified above, a separate element of the plan includes services proposed to serve needs resulting from the BRAC expansion at Fort Meade. These include the peak-hour routes from Columbia and Clarksville to Savage, NSA and Fort Meade, and a new service linking the Columbia Gateway area, US-1, Dorsey MARC and NSA/Fort Meade. It could be linked with the Red Route. Estimated annual operating costs are \$401,300, and additional capital costs for vehicles on these routes would be \$1,860,000.

### **Other Recommendations**

The proposed plan includes several additional studies to address issues identified in this study in more detail. These include the following:

- Organizational Assessment
- Paratransit Performance Review and Taxi Voucher Feasibility Study
- Bus Stop Assessment
- Transit Center Scoping Study

### **Policy Guidelines**

Table 4-4 in Chapter 4 presents the recommended policies and guidelines.

### **Regional Connections**

As noted in Chapter 2 there is a substantial amount of transit service provided in Howard County by other entities to provide regional services linking County residents

with jobs and services in other jurisdictions. The major comment, which is included here for consideration by the MTA, is that the services to and from Baltimore need improvement. Low frequencies, a need for more reverse commute orientation (more outbound morning/inbound evening trips) and long overall travel times were mentioned in public meetings and submitted comments. Current funding limitations have led the MTA to propose reductions in these services, but an agreement with the County will provide for continued peak-hour service to Baltimore.

### **Land Use Planning and Transit**

Developers could be encouraged to support transit facilities or services to provide for the needed service. There are several recommendations that could be supportive of transit.

### **Results**

Implementation of this TDP would result in a significant improvement in the quality and coverage of transit services in the County, including the following key changes:

- **Frequency Improvements:**
  - Thirty-minute peak hour headways on the Green, Red, Brown and Silver Routes.
  - Thirty-minute mid-day service on the Green Route (linking the Town Center with Howard County General Hospital and Howard Community College).
  
- **Expanded Coverage:**
  - BRAC commuter service will link Columbia, Clarksville, and the Gateway/Jessup area to NSA and FGGM.
  - Ellicott City served by three routes linking it to Columbia and to Elkridge/Dorsey MARC.
  - Maple Lawn/APL/Montpelier Research Park and Cedar Lane will be connected to Columbia Town Center.
  
- **Town Center:**
  - New higher-frequency transit services linking the Town Center to much of Columbia.
  - New high-frequency shuttle services in the Town Center.
  - Planning (and hopefully construction) of a new Transit Center in the Town Center, linking all routes and services.

- **Paratransit:**
  - Capacity increased to address the growth in the population using this service.
  - A possible taxi subsidy program, travel training, and policy and management changes to manage demand, improve service, and better utilize these resources.

The program laid out in this study was developed to a great extent as the result of the substantial community input throughout the process. With the continuing support of the community this program can be achieved, even if it stretches beyond the five-year horizon of a TDP.

# Chapter 1

## Howard County Population and Land Use Profile

### PURPOSE, INTRODUCTION, AND CONTENTS

This document is an update to the Howard County Transportation Development Plan (TDP), which is a short-term (typically a five-year period) plan to guide transit system development. The TDP provides a vision of the future public transportation system.

Howard County's (County) last TDP was completed in 2003. Since that time the transit program has undergone significant change. The TDP called for service expansion in several areas, and for the County to develop its own maintenance facility. Initially transit services were expanded, but in FY 2005 funding cuts reduced the amount of service by 21%, leading to a 4.3% drop in ridership. However, overall ridership recovered, and so ridership has increased from 672,178 in FY 2004 to over 818,182 in FY 2008. In part this reflects expanded service hours and miles, but it also reflects other service improvements since that time. These include development of services that cross jurisdictional boundaries, providing regional linkages, such as the Silver Route. It also reflects improved marketing efforts, including bi-annual customer surveys of both the fixed-route and paratransit services, marketing and information materials in additional languages (Spanish and Korean), expanded hours of toll-free information lines, and expanded customer service staffing to reduce waiting. The County has instituted a policy that all new transit vehicles will be hybrid gas- or diesel-electric to reduce the carbon footprint of the transit system. This policy uses County funding to pay for the incremental costs of the hybrid vehicles. New hybrid vehicles delivered so far include hybrid sedans for the paratransit system (offering improved access for those persons not using wheelchairs), and heavy-duty hybrid transit coaches for the busiest routes. In addition, the County has purchased low-floor buses to provide for easier access and quicker boarding.

This TDP includes an assessment of current and near-term unserved potential need (Chapter 1), an inventory and review of existing services (Chapter 2), documentation of stakeholder and community input (Chapter 3), alternatives to address identified needs and performance concerns (Chapter 4), and a recommended plan for improvements (with phased implementation) including capital and operating budget projections (Chapter 5).

The purpose of the remainder of this chapter is to identify and assess population characteristics and land use in Howard County, and their impact on public transportation services. This chapter begins with a brief overview of plans and policy documents related to land use and transportation in Howard County. This base of planning information is then supported by an analysis of population characteristics; which are used to assess the population concentrations most likely to use transit. Finally, we compare the County population characteristics, and identify travel destinations and origins. Understanding origins and destinations allows for an assessment of the existing and potential role for transit in connecting high-need populations with key destinations.

## **HOWARD COUNTY - LOCATION**

Howard County is located between the two metropolitan centers of Baltimore and Washington D.C. The major population concentration is the planned community of Columbia, and the growth of this new-town is the result of a vision that integrates development with its natural environment. Historically, the meandering road network, emphasis on low-density village centers, and support for green space have supported the development of a strong sense of community, but recently a new round of visioning has been initiated for Howard County as it prepares to manage the needs of the future in several areas. Howard County is the beneficiary of location and accessibility; see the Base Map in Figure 1-1. Its location in central Maryland provides for an opportunity to enjoy the rural and natural environment and allows for commuter access to two major metro areas. The County's eastern section, along the United States Highway (US-) 29 and Interstate (I-) 95 corridors, has been the focus of development, including higher density population centers and employment, while the western sector maintains a rural nature due to its low-density residential nature.

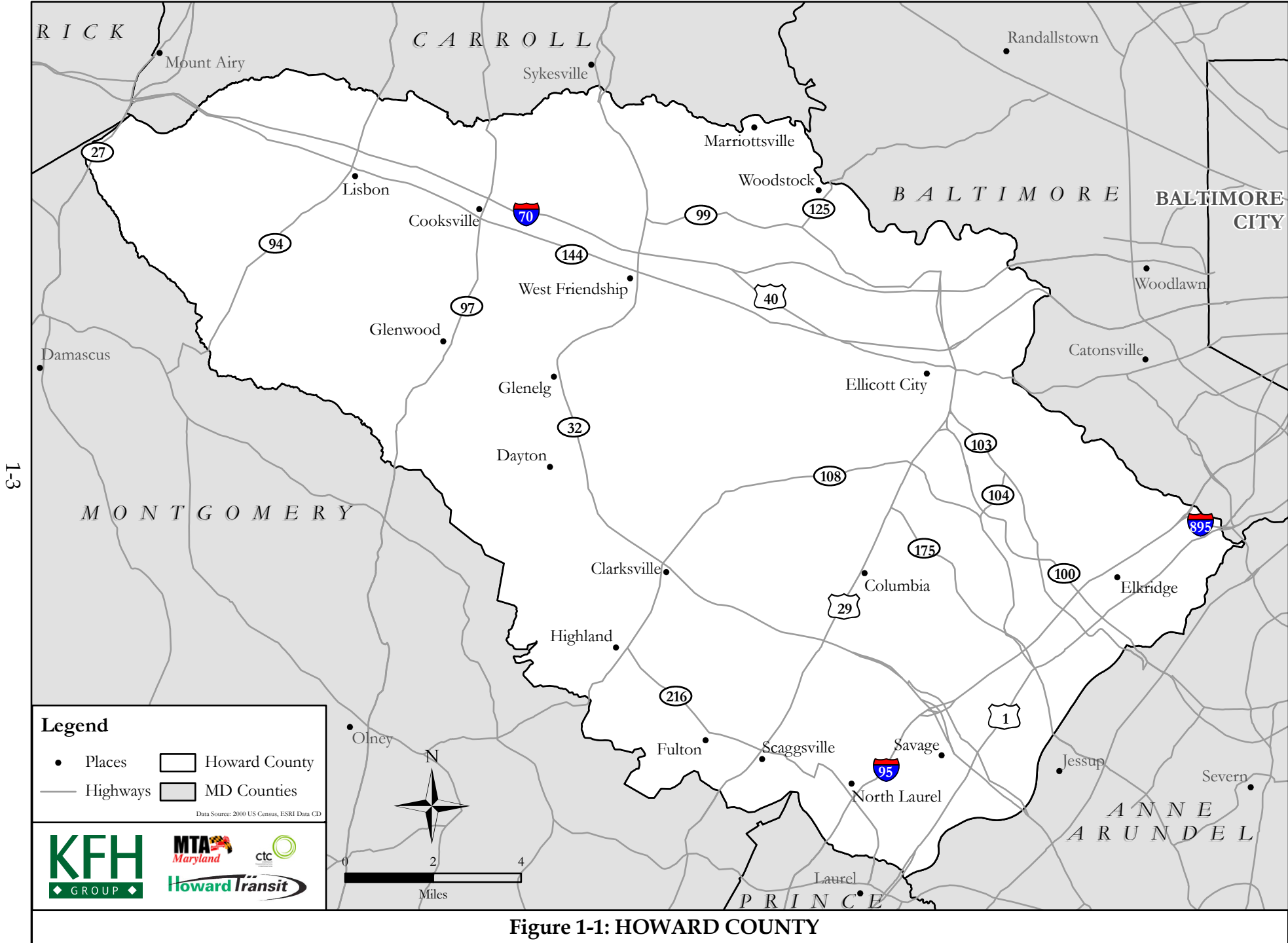


Figure 1-1: HOWARD COUNTY



## HOWARD COUNTY STUDIES

This section provides an overview of relevant planning studies and efforts that have significance in the development of Howard County. The following studies present a compendium of overall County strategies for land use, human service, and potential Fort Meade impacts. The Howard County Land Use Plan provides the bulk of guidance here, as it is this document that provides guidance on the overall development patterns of the County. The other plans address specific aspects - the pedestrian plan, Columbia Town Center redevelopment, human services, etc. - of the County and are also discussed in this section.

### Howard County Land Use Plan (2000)

The Plan is founded upon the following principles: Responsible Regionalism, Preservation of the Rural West, Balanced and Phased Growth, Working with Nature, and Community Conservation and Enhancement. Key implementation priorities of the plan include leveraging additional Federal and State funds to accelerate regionally important highway improvements in Howard County. The plan also supports efforts between the County, Maryland Transit Administration (MTA), Washington Metropolitan Area Transit Authority (WMATA), and neighboring jurisdictions to improve coordination and implement priorities for improved regional transit. A component of the balanced and phased growth is the investment in transit improvements that meet the needs of the transit-dependent populations and reduce dependence on single occupant automobiles.

### General Plan Monitoring Report (2005)

Every two years, the Citizens Implementation Monitoring Committee prepares a report that provides a brief overview of accomplishments to date on the implementation of General Plan *Policies and Actions* and tracks progress based on the indicators recognized in the Howard County General Plan. In this report it was noted that investment in transit, especially Federal Transit Administration (FTA)/MTA funds for Howard Transit, have increased with each subsequent fiscal year. Ridership has also increased during this time as a result of efforts to promote the use of fixed-route service - including improved scheduling and accessible vehicles. The report noted that the previous TDP was completed in November 2001, and since that time increased local funds have been provided for capital improvements: additional vehicles, new bus shelters, an automatic vehicle location system, and preliminary efforts addressing the feasibility of a central operations facility that could serve both Howard and Anne Arundel Counties. Fixed-route service was expanded into the US-1 corridor and a centralized toll-free telephone number providing Howard Transit information was established in FY04.

## **Downtown Columbia: A Community Vision**

This plan for the center of Columbia includes a focus on the provision of amenities that contribute to the quality of life, the amount of development consistent with that, and the transportation infrastructure required to serve this redevelopment effort. The principles of the plan are a subset of the overall vision of Columbia, as provided by Jim Rouse. In the Downtown Plan, transportation improvements are needed to include new amenities and make development accessible. A traffic study was prepared that addresses traffic capacity and multimodal approaches. The plan supports the enhancement of multimodal connectivity through a variety of safe, convenient, and innovative transportation alternatives. Specifically, transit is identified as a vital component and should be improved and expanded. The Downtown should be promoted as a central hub for the local bus system and, connectivity to Baltimore should also be enhanced by increasing hours of service for existing commuter bus routes.

### ***Howard County Government Human Services Master Plan (2007)***

The Human Services Master Plan recognized several primary concerns that impact a number of population groups in the County: housing/homelessness, transportation, access to human services, and language barriers. Transportation is a vital component of the overall human services system, as it makes these services accessible. Specifically, the plan has identified that the older adult population will increase dramatically over the next 10 – 20 years. Estimates included in the plan reveal that most of the older adult increases will occur in the US-1 corridor and the Columbia and Ellicott City urban areas; western Howard County accounts for the rest. The plan recommends that older adults should have transportation options available to them – taxi vouchers, public transportation expansion, medical assistance transportation, and volunteer transportation services. The plan also supports increased programming on Government TV to promote local resources, survey of disability service providers, and identifying other potential transportation providers.

### **Base Realignment and Closure (BRAC) (Fort Meade)**

Fort George G. Meade is one of the largest military bases in the United States. Although located in Anne Arundel County, its presence has an impact on Howard County residents and infrastructure and the Baltimore region due to its large number of employees and its status as one of the nation’s premier defense, intelligence, and technology centers. It is currently a focus for County planning because of its role as a receiving area for additional employment, as a result of the most recent round of BRAC decisions by the Department of Defense (DOD).

Fort Meade consists of 5,415 acres with 65.5 miles of paved roads, 3.3 miles of secondary roads, and approximately 1,300 buildings. There is a modern base Exchange Mall, bank, credit union, post office, chapels, and many other facilities.

The proposed base realignment will consist of an increase of approximately 5,400 military, DOD civilian and contractor employees that will work at Fort Meade, as well as approximately 4,900 family members. An estimated three to 7,000 employees will serve as contract support personnel for these activities (excluding family members). These additional personnel will occupy facilities in and around the local communities.

### ***Howard County Pedestrian Master Plan (2007)***

Given the ad hoc fashion in which the current pedestrian network was developed, Howard County developed this document to promote improvements that will establish a comprehensive network of sidewalks, crosswalks, pathways, shoulders, and pedestrian signals. These improvements will close existing gaps, provide greater uniformity and predictability, and improve access to public and commercial land uses. Priority improvements include reducing hazards, establishing a network along and between minor collector and higher classified roads, and connections that provide access to transit stops. A ten-year implementation horizon is recommended.

Taken together, these studies present several key considerations for the update of the TDP:

- County population growth will continue, with the concentration of new employment and higher-density residential development occurring in the eastern third of the County, while the western portion of the County retains its low-density residential character.
- The Route 1 Corridor will be a major focus of redevelopment, including additional high-density housing and employment.
- Columbia Town Center will be a second major focus of redevelopment, also with additional office employment, commercial facilities, and higher-density residential development concentrated around the existing shopping mall and offices. The vision for this redevelopment includes a substantial increase in the transit mode share for residents and employees, supported by the development of a new transit center where routes and services connect, and improved local routes and frequencies.

- Additional higher density planned unit development will take place in the southeastern portion of the County, along Route 29 (Maple Lawn), Route 216 east, and adjacent to Laurel.
- Howard County's population will be aging, with expected major increases in the senior population calling for expanded services to address the needs of this group – including transportation.
- The BRAC shift of staff to Fort Meade will create a demand for additional housing and other services in the County, including transportation to reach primary jobs at the Fort, and secondary employment at other locations serving the new employees and residents.

The next section examines the relationship between key population characteristics and transit services.

## POPULATION NEEDS ASSESSMENT

This section describes the existing population and land use characteristics of Howard County. Data has been compiled to identify population groups that exhibit greatest need, based on industry indicators and, the land use discussion considers development patterns and how it impacts the feasibility of public transportation services. The beginning of the section evaluates population data based on the Year 2000 Census, to determine where, given certain indicators, the population of greatest need is located. The second section reviews and analyzes land use data to determine the connection between the needs identified previously and existing public transportation services.

### Demographics

One method for evaluating the success of transportation services in satisfying these needs is to determine if there are areas within the County that have a higher relative potential need for transportation service, and treat these as potential trip origin or destination areas that should be served as a matter of policy, or are most likely to generate ridership.

This analysis provides a review of transit needs of those population segments that are potentially transit-dependent as well as the representation of overall population distribution in Howard County. Potentially transit dependent population segments are those segments of the population that, because of certain demographic characteristics,

such as age, disability, income, or automobile availability, may potentially require transit services to meet mobility needs (as an alternative to the private automobile).

The results were used to calculate both the percentage and density (number of persons per square mile with that characteristic) of the population likely to need transit service; the more appropriate type of service - paratransit, route deviation or fixed-route - can be determined later during the development of alternatives process.

### *Population Profile*

Demographic and economic characteristics of the population are associated with the need for public transportation services. Specifically, the need for any type of transit service depends upon the size and distribution of an area's population and, to some extent, the composition of the population.

The following analysis provides a review of relative transit needs in Howard County in terms of those population segments that indicate a potential need for transit service. Potentially, transit-dependent population segments are those segments of the population that, because of demographic characteristics such as age, income, or automobile availability, may potentially require transit service to meet mobility needs (as an alternative to the private automobile). Using 2000 Census data from the Bureau of the Census these segments are:

1. Youth (persons age 12 to 17): students, mostly from junior high and high schools, typically fall into this age range; these persons often do not have access to an automobile.
2. Senior/Older Adult (persons age 60 and above): Advancing age can mean diminished ability or desire to drive (particularly on a long trip) and a need for access to medical facilities on a regular basis.
3. Persons living below the poverty level: Persons that typically do not have the economic means to own or operate a vehicle, or a vehicle perceived as capable of a long trip.
4. Persons over the age of 16 with a disability, who may be reliant on local accessible public transit services and would therefore also consider public transit options to make non-local trips.
5. Autoless households: Persons without access to a car must rely on alternative transportation services.

These characteristics were chosen as a result of previous study efforts and industry research on the characteristics of transit users.

### ***Methodology***

In order to conduct this analysis of transit needs, it was first necessary to extract the data for the total population for each of the above five variables from the 2000 Census. The first step in this analysis was the extraction of the relevant raw data from the Year 2000 Census Files STF1A and STF3A. Once extracted, the data was then summarized and analyzed at the Block Group level with respect to each category identified above. The raw data was summarized for the targeted variables and is displayed in the Technical Appendix, Appendix A, Table A-1. The numbers of people in each category are not added together in each Block group because the categories are not necessarily mutually exclusive. A person 65 years of age may also have an income below the poverty level and/or have no automobile available to them for personal use. Instead, each category is considered individually. Also, “autoless households” refers to occupied housing units and not persons.

Land areas among the Block Groups also vary, and subsequently, it is not particularly meaningful to compare the raw numbers of persons in each category. Therefore, population density (persons per square mile) of persons with these high need characteristics was calculated for each Block Group. This method gives us a measure of the relative size of the population by identifying Block Groups with more concentrated populations. Those Block Groups with higher densities of persons with characteristics indicative of transportation need require a higher level of service. Subsequently, it is also important to evaluate the percentage of the population with respect to each of these characteristics as more sparsely populated areas may lack population density, but still exhibit need. However, these areas may have a high need for service, but may not be able to support as high a level of service as the high density areas.

In each needs category, each Block Group was ranked relative to the other Block Groups. Such rankings were performed twice, once based on the density of the population within each category, and a second time based on the percentage of the population in that category as described above. Individual variable rankings were then summed by Block Group, resulting in two combined rankings that represent relative transportation “need” based on:

1. The density of potentially transit dependent persons, and
2. The percentage of potentially transit dependent persons.

However, the number of potentially transit dependent persons is also of importance. In evaluating all of the information discussed, the “autoless household” component factor was isolated and examined on its own merit, as this variable is of particular importance in determining transit need due to the reliance of this population group on others or public transportation for mobility services.

To simplify the rankings and assist in mapping, the rankings were divided into natural breaks representing ranges of “very low” “low”, “moderate”, “high”, and “very high” relative needs among the Block Groups. This was done for both the density-based ranking and the percentage-based ranking.

### ***Numeric Ranking of Transit Dependent Populations***

The initial summary ranking analyzed each Block Group based on the total number of potentially transit dependent population for each for the five variables. Each of the five variables were numerically ranked by block group and then summed to provide an overall numeric ranking as displayed in the Technical Appendix, Appendix A, Table A-2. The results of this process are presented in Figure 1-2. The areas of highest relative need based on this ranking include Ellicott City, Woodstock, Greenwood Farms, around Elkridge, Savage, and North Laurel. This ranking analysis, however, is significantly impacted by overall population distribution and geographic area of each Block Group.

### ***Density Ranking of Transit Dependent Populations***

The density summary ranking involved analyzing the population density of each of the five variables by Block Group. This ranking identifies and reveals concentrations of potentially transit dependent persons. Each of the five variables were ranked with respect to density by Block Group and then summed to provide an overall numeric ranking as displayed in the Technical Appendix, Appendix A, Table A-3. A geographic representation of this ranking is provided in Figure 1-3. Areas of Moderate to High Relative Need based on the density of transit dependent populations are located along the US-29 and the I-95/US-1 corridor that connects Ellicott City, Columbia, Elkridge, Scaggsville, and North Laurel. There is an area bounded by I-70, US-40, and MD-144 that includes portions of Turf Valley outside of Ellicott City with moderate to high needs. As areas to the west are relatively less populated, the density rankings do not indicate a high level of transit need. However, as previously mentioned, that is the reason for including a numeric and percentage ranking in this analysis.

### ***Percentage Ranking of Transit Dependent Populations***

The next summary ranking undertaken was based on the percentage of potentially transit- dependent persons for each of the five variables by Block Group. As

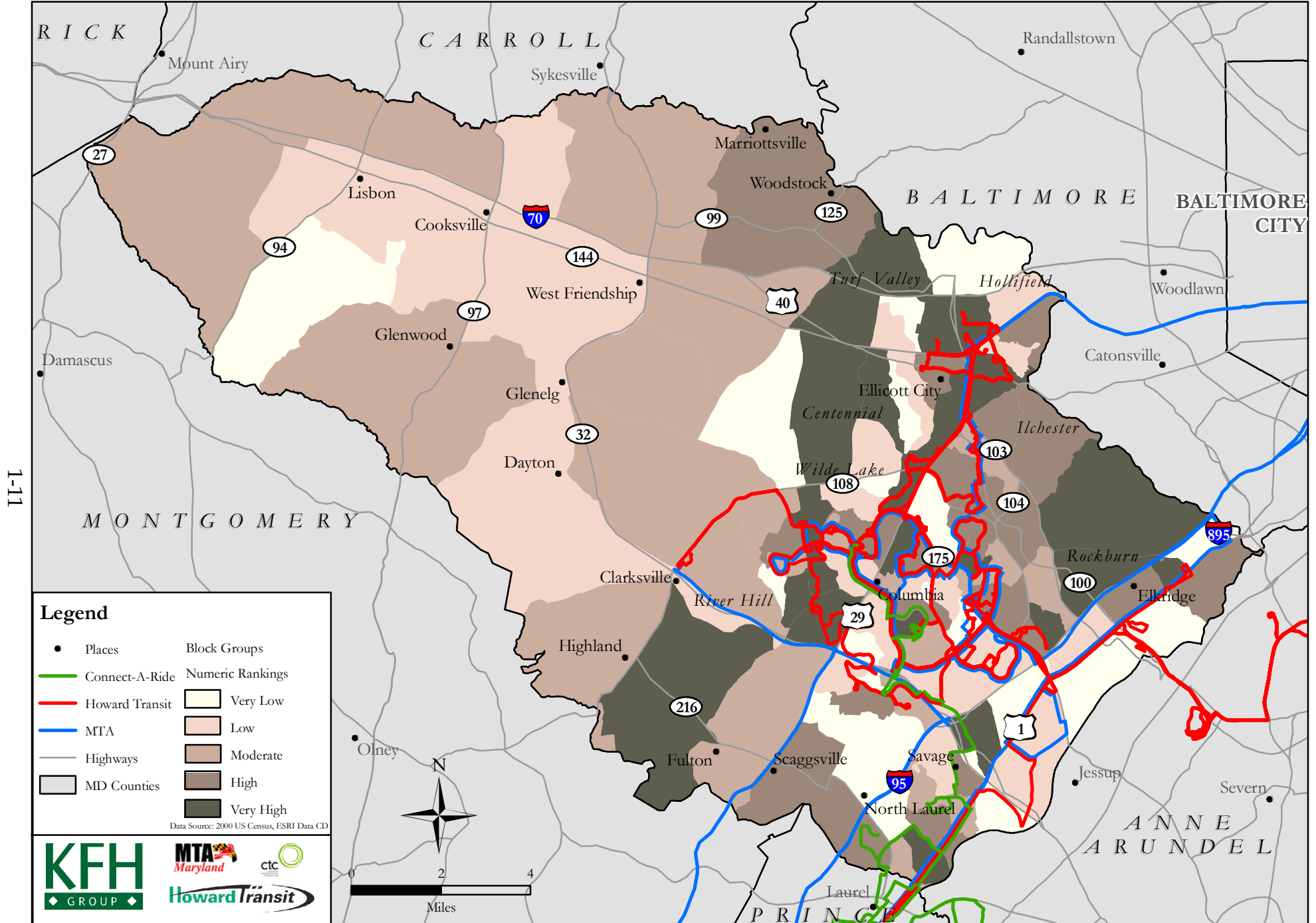


Figure 1-2: NUMERIC RANKINGS OF TRANSIT DEPENDENT CHARACTERISTICS & EXISTING COVERAGE FOR HOWARD COUNTY



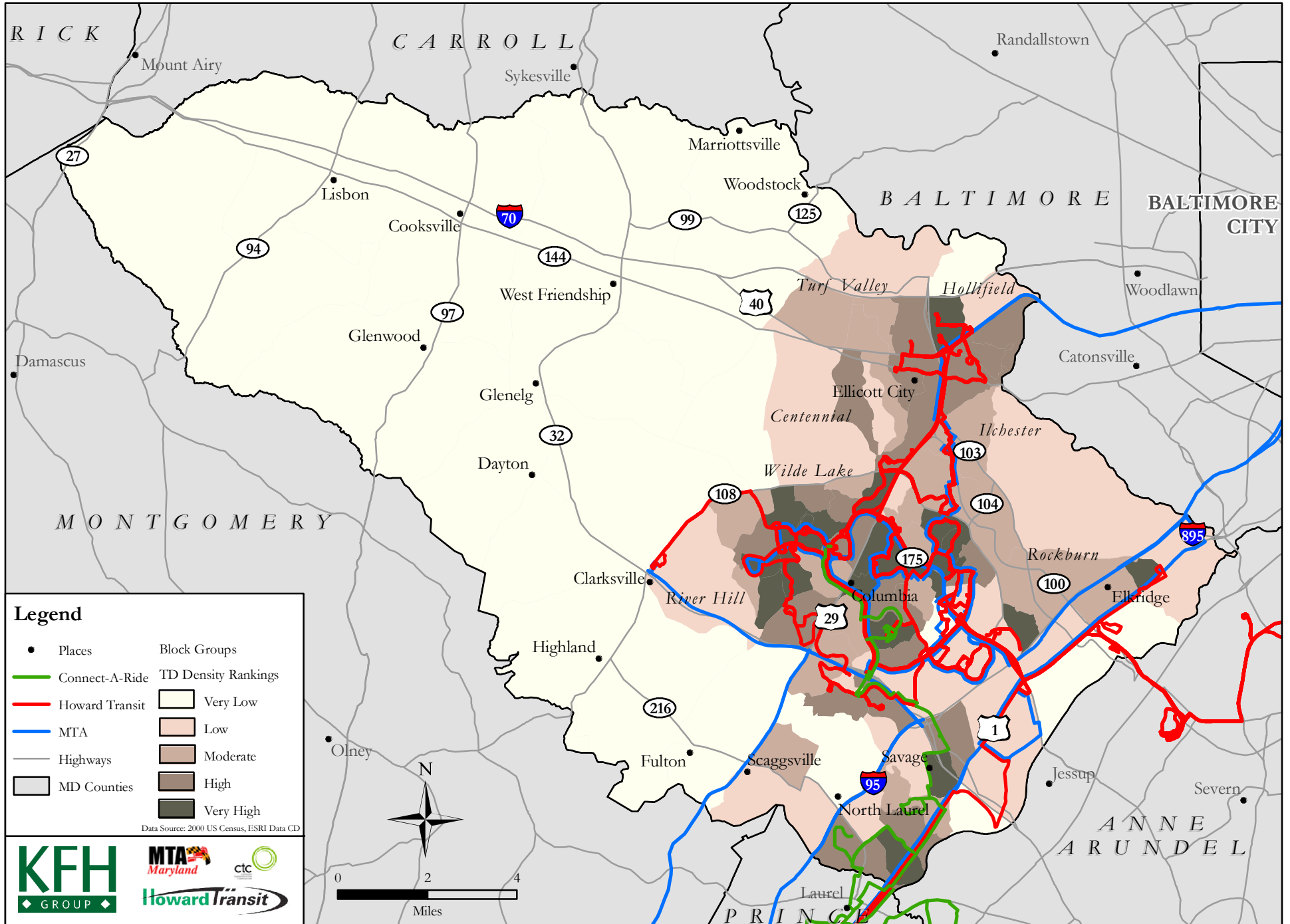


Figure 1-3: DENSITY RANKINGS OF TRANSIT DEPENDENT CHARACTERISTICS & EXISTING COVERAGE FOR HOWARD COUNTY

with the density ranking, the five variables were ranked separately based on the percentage of potentially transit dependent persons and then all five rankings were summed to create an overall percentage ranking. This percent ranking was the overall ranking compared to all of the other Block Groups in the study area. Each of the five variables were ranked with respect to percent by Block Group and then summed to provide an overall numeric ranking as shown in the Technical Appendix, Appendix A, Table A-4. A graphic representation of this ranking is presented in Figure 1-4. Block Groups with a “moderate” to “very high” percentage-based need are located mostly in the east and southeast section of the County, and also along the I-70/MD-144 corridor along the northern portion of the County and heading west. Some areas of high percentage need include Woodstock, Dayton, Lisbon, Ellicott City, Columbia, and Savage. As noted above, some of the areas exhibiting high percentage needs also show high need in the numeric ranking, including areas around Columbia and Ellicott City. It should be noted that while the density ranking can neglect to identify needs in sparsely populated areas, the percentage ranking can make an area with a relatively small population count and a few transit dependent persons appear to have a high need.

### *Autoless Households*

Concentrations of autoless households are particularly important in identifying transit need given that without access to an automobile, persons in these households must rely on alternate modes of transportation, such as public transportation. In the Technical Appendix, Appendix A, Table A-5 provides a summary ranking based on numbers of autoless households per Block Group in Howard County. For this reason, we conducted our geographic analysis of the density of autoless households by extracting information from the aggregate rankings of the five variables. The rankings of the density of autoless households are also presented in Figure 1-5.

Generally, concentrations occur along the US-29 and US-1 corridors around the Columbia area and around Elkridge. North of Ellicott City to the south of Columbia, presents the highest density of autoless households. There also appear pockets along the MD-144/I-70 corridor near West Friendship and Lisbon. Much like the “moderate” and “high” need areas identified previously, these Block Groups are located along the same corridors.

### *Overall Population Distribution*

The final component of the population profile analysis is the overall distribution of population in the County, particularly in terms of population density. Figure 1-6 illustrates the **overall** population of each Block Group in Howard County and Figure 1-7 displays the population **density** of each Block Group. As previously noted, the density and percentage rankings of potentially transit dependent persons should be



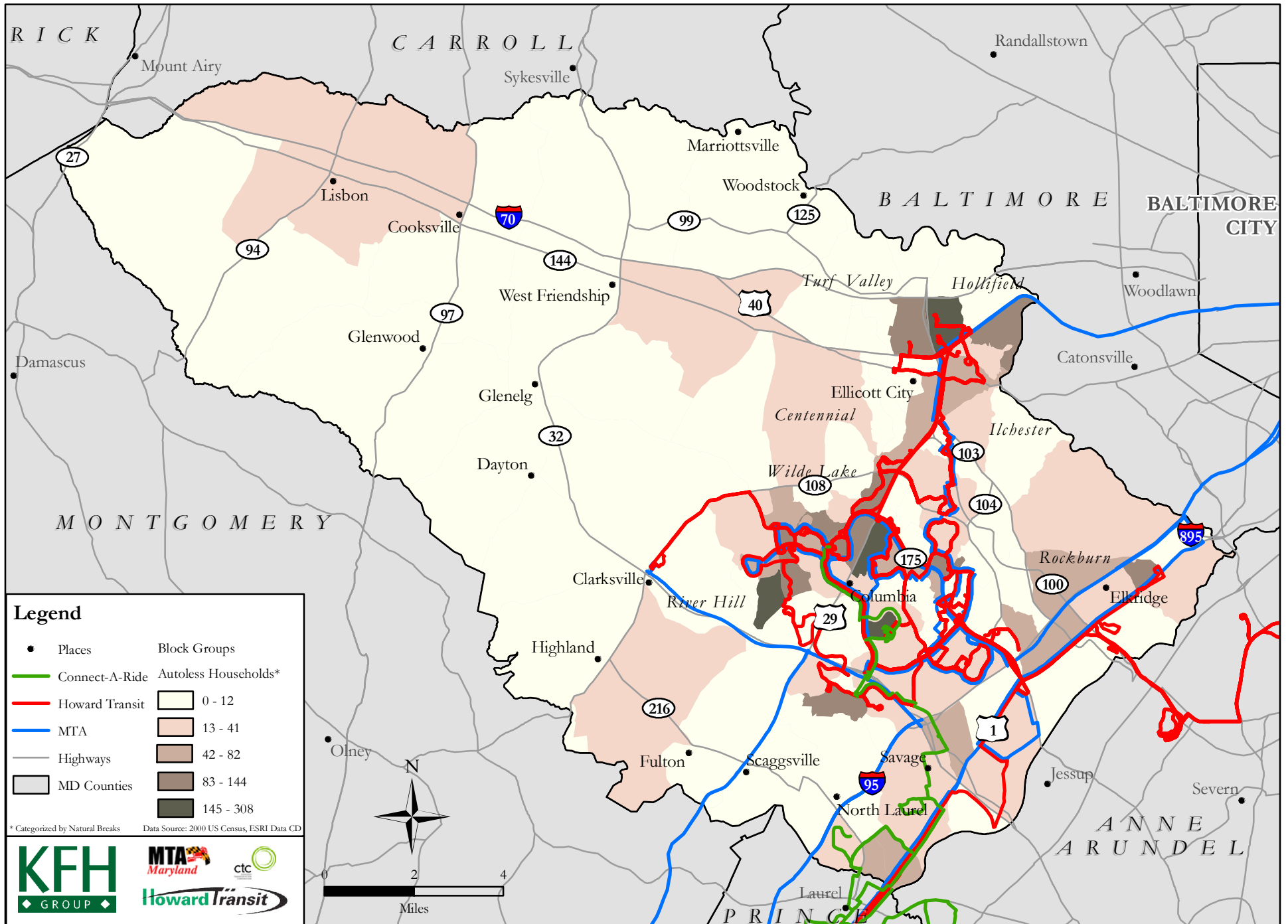


Figure 1-5: AUTOLESS HOUSEHOLDS & EXISTING COVERAGE IN HOWARD COUNTY

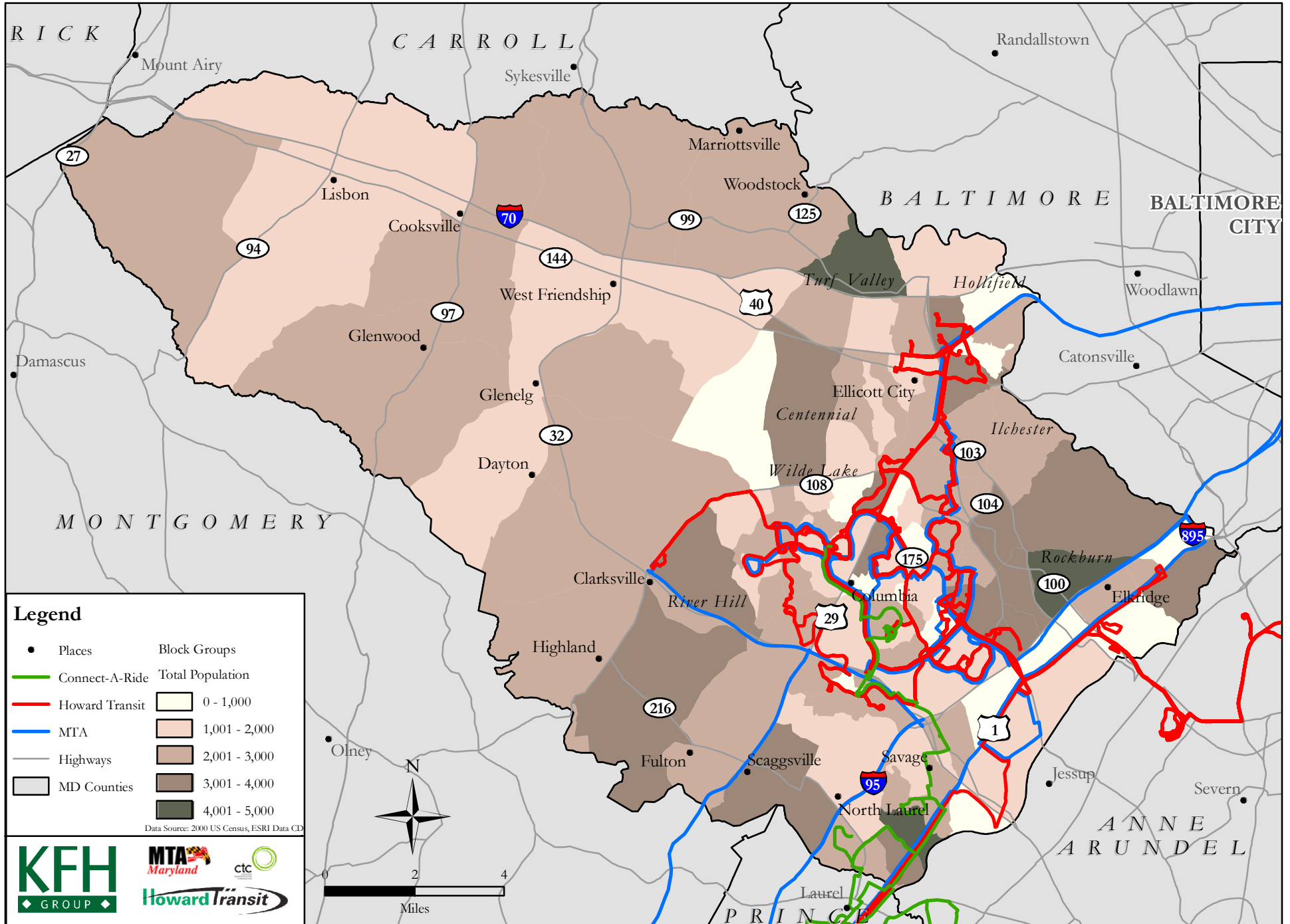


Figure 1-6: TOTAL POPULATION & EXISTING COVERAGE FOR HOWARD COUNTY



looked at in conjunction with the overall population and population density to identify potential demand. Although we may not be able to identify specific concentrations of population by looking at the countywide population characteristics within each Block Group, we can distinguish that the majority of the population in the County is located in an area surrounding Columbia, Ellicott City, and North Laurel, and along major roadways (Routes 32, 108, 175, 100, and 144; US-1, US-29, US-40, and, I-95 and I-70). When compared with the rankings representations, these maps lend support in identifying areas of moderate to high need when viewing the population counts.

Population density increases the likelihood that transit alternatives may be feasible, but density alone may not provide enough people to provide a sufficient market. The overall size of the potential market area population is also important in identifying areas that may support transit services.

### *Summary of Population Data Profile*

As a result of the numeric, percentage, and density rankings and overall population characteristics, we acquire a general understanding of locating transit needs in Howard County. In Howard County there are relatively urban, suburban, and rural Block Groups scattered throughout with high relative needs. However, most of the high need areas are located in the eastern section of the County, along the more urbanized US-29 and US-1/I-95 corridors. Specifically, when reviewing density, percent, and numeric rankings, concentrations are located in and around Ellicott City, Columbia, Elkridge, Savage, and North Laurel. There appears to be an area west of Ellicott City, near Centennial, that displays potential near-term population increases. Smaller, less dense, communities that have moderate percentages of potentially transit dependent persons may be good candidates for demand-responsive service.

## **LAND USE PROFILE**

A consideration in terms of potential market and of policy is whether or not the current transit services serve the places that are likely attractors of transit ridership, or that could potentially have a need for such service. Understanding places that attract people requires an evaluation of the kinds of uses/services that occur at these places. This section discusses the relationship of the population of Howard County and land use development patterns, as these characteristics impact the feasibility and effectiveness of public transportation service. Land use determines the success of transit in several ways. Specifically, the type of use constructed on a parcel of land will impact the level of attraction to that parcel, and subsequently, the number of potential riders that want to access the use on this land. Generally, the design of transit services is sustainable in areas of high population density.

Examples of facilities that generate ridership include colleges and universities, hospitals, and major intermodal connections at airports and rail stations. Also, it is important to remember that these types of generators may also attract people that do not live in Howard County. For each type of generator, two representations were developed -- a countywide map and a Columbia area map. Given the number of facilities and population density in Columbia and the surrounding vicinity, and the existing transit services, the analysis benefits from including a representation of this area.

### Major Trip Destinations

Origins and destinations have been identified and mapped to illustrate where transit services should operate based on these attractions. The categories of land uses identified as potential major destinations that will be represented in table and map format include:

- Major Employers
- Educational Institutions (K-12, colleges/universities)
- Medical Facilities
- Human Service Agencies
- Shopping Centers
- High Density Housing

Although the next chapter presents a more detailed overview, at this point it should be noted that Howard County is serviced by three main transit systems: Howard Transit, Connect-A-Ride (Laurel area services), and MTA regional and commuter bus services (connecting points in the County to Baltimore and Washington-area destinations). All of these services have been geocoded and will be represented in the following set of maps to display the service area with respect to major destinations. This process aids in understanding the relationship between high need origin areas and key destinations that may not be served by the current transit network.

In order to determine accessibility, we used two measures that are general industry practice. First, a ¼ mile buffer is considered, as it is the generally accepted distance at which an individual is willing to walk to access local transit bus service. Second, the Americans with Disabilities Act (ADA) requires transit agencies to provide complementary comparable paratransit services to people with disabilities who cannot use the fixed-route bus or rail service and who have trip origins and destinations within 3/4 of a mile of a bus route or rail station. In light of these measures, destinations were evaluated for measure of accessibility.



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## Major Employers

Major employers for Howard County have been identified. Table 1-1 lists each employer, the number of employees, and their location. There are 20 major employers in the County. Figure 1-8 represents these locations and existing transit service for Howard County and Figure 1-9 represents these locations and existing transit service in the Columbia-Ellicott City area. The largest employer in Howard County is the Johns Hopkins University Applied Physics Laboratory with 3,600 employees. The laboratory is a not-for-profit center for engineering, research, and development. Howard County Community College is the second largest employer with approximately 1,800 employees, followed by Howard County General Hospital with approximately 1,650 employees.

Generally, most employers are located in the Columbia and Ellicott City areas. The table identifies the facilities in proximity to the existing transit service based on two distances. When delineating a  $\frac{1}{4}$  mile radius around the existing transit service, most of the employers fall within this market area. When a  $\frac{3}{4}$  mile radius is considered, one additional facility falls within the market area. Based on the list, one employer has been identified as outside of the  $\frac{3}{4}$  mile buffer from the nearest transit service.

## Educational Institutions

A sizeable segment of the transit market is the youth population. As a result, we have identified and mapped the locations of all two-year colleges and technical schools; four-year colleges and universities; and high schools in Howard County and evaluated their proximity to the transit network. Table 1-2 lists all the educational institutions, their locations, and proximity to transit service. Figure 1-10 represents these locations and existing transit service for Howard County and Figure 1-11 represents these locations and existing transit service in the Columbia-Ellicott City area. The primary concentrations of institutions fall within the area bounded by Ellicott City, Columbia, Clarkesville, and Elkridge. There are some institutions further west near Glenelg. To some extent then, the ability of students to use transit services to make trips to and from home is a function of the location of their homes with respect to transit and the frequency of that service.

The table identifies the facilities in proximity to the existing transit service based on two distances. When considering a distance of  $\frac{1}{4}$  mile radius from the nearest existing service, approximately half the number of institutions falls within this market area. When a radius of within  $\frac{3}{4}$  mile is considered, most institutions are within the service area. There are nine institutions that have been identified as outside of the  $\frac{3}{4}$  mile buffer of the nearest transit service and it is difficult for anyone to access these facilities using fixed-route service.

Table 1-1: HOWARD COUNTY MAJOR EMPLOYERS AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Employees	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Johns Hopkins University Applied Physics Laboratory	11100 Johns Hopkins Road	Laurel	Howard	MD	20723	3,600		x	
Howard County Community College	10901 Little Patuxent Parkway	Columbia	Howard	MD	21044	1,878	x		
Howard County General Hospital	5755 Cedar Lane	Columbia	Howard	MD	21044	1,650	x		
Giant Food, Inc.	6840 Freetown Road	Columbia	Howard	MD	21044	1,450	x		
The Columbia Association	10221 Wincopin Circle	Columbia	Howard	MD	21044	1,300	x		
SAIC	7120 Columbia Gateway Drive	Columbia	Howard	MD	21046	1,100	x		
Arbitron, Inc.	9705 Patuxent Woods Drive	Columbia	Howard	MD	21044	800	x		
W.R. Grace & Co.	7500 Grace Drive	Columbia	Howard	MD	21044	800	x		
SYSCO Food Services of Baltimore	8000 Dorsey Run Road	Jessup	Howard	MD	20794	760	x		
Verizon Wireless	7600 Montpelier Road	Laurel	Howard	MD	20723	750	x		
Maryland Health Enterprises	3300 North Ridge Road	Ellicott City	Howard	MD	21043	700	x		
MICROS Systems, Inc.	7031 Columbia Gateway Drive	Columbia	Howard	MD	21046	625	x		
NeighborCare	9036 Junction Drive	Annapolis Junction	Howard	MD	20701	600	x		
Magellan Health Services, Inc.	6950 Columbia Gateway Drive	Columbia	Howard	MD	21046	585	x		
Humanim	6355 Woodside Court	Columbia	Howard	MD	21046	556	x		
American Information Network Corporation	6470 Freetown Road	Ellicott City	Howard	MD	21043	550	x		
Ascend One	8930 Stanford Boulevard	Columbia	Howard	MD	21045	550	x		
BGE Home Products & Services, Inc.	7161 Columbia Gateway Road	Columbia	Howard	MD	21046	500	x		
Turf Valley Resort & Conference	2700 Turf Valley Road	Ellicott City	Howard	MD	21042	500			x
United States Food Service, Inc.	9755 Patuxent Woods Drive	Columbia	Howard	MD	21046	500	x		

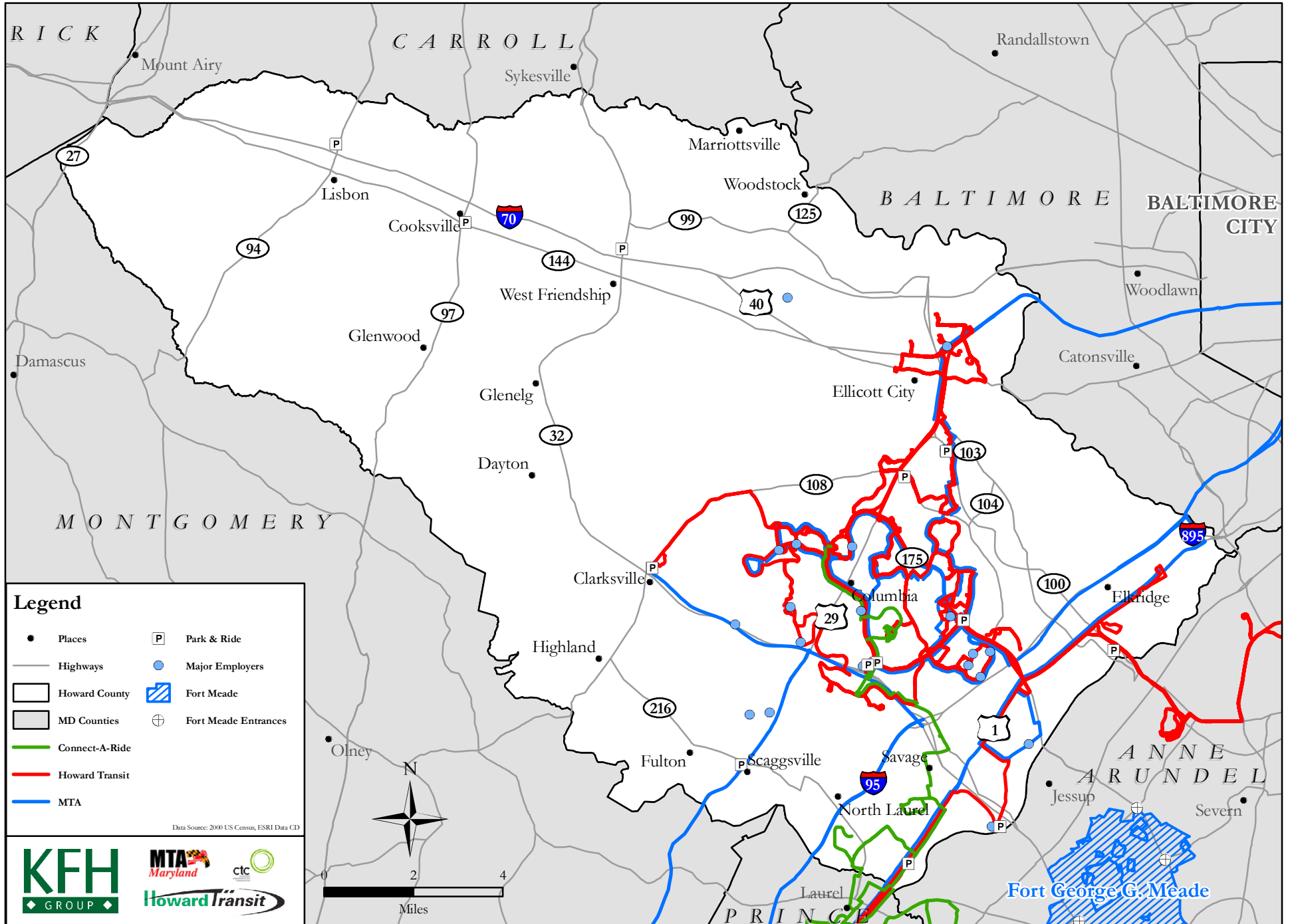


Figure 1-8: MAJOR EMPLOYERS IN HOWARD COUNTY

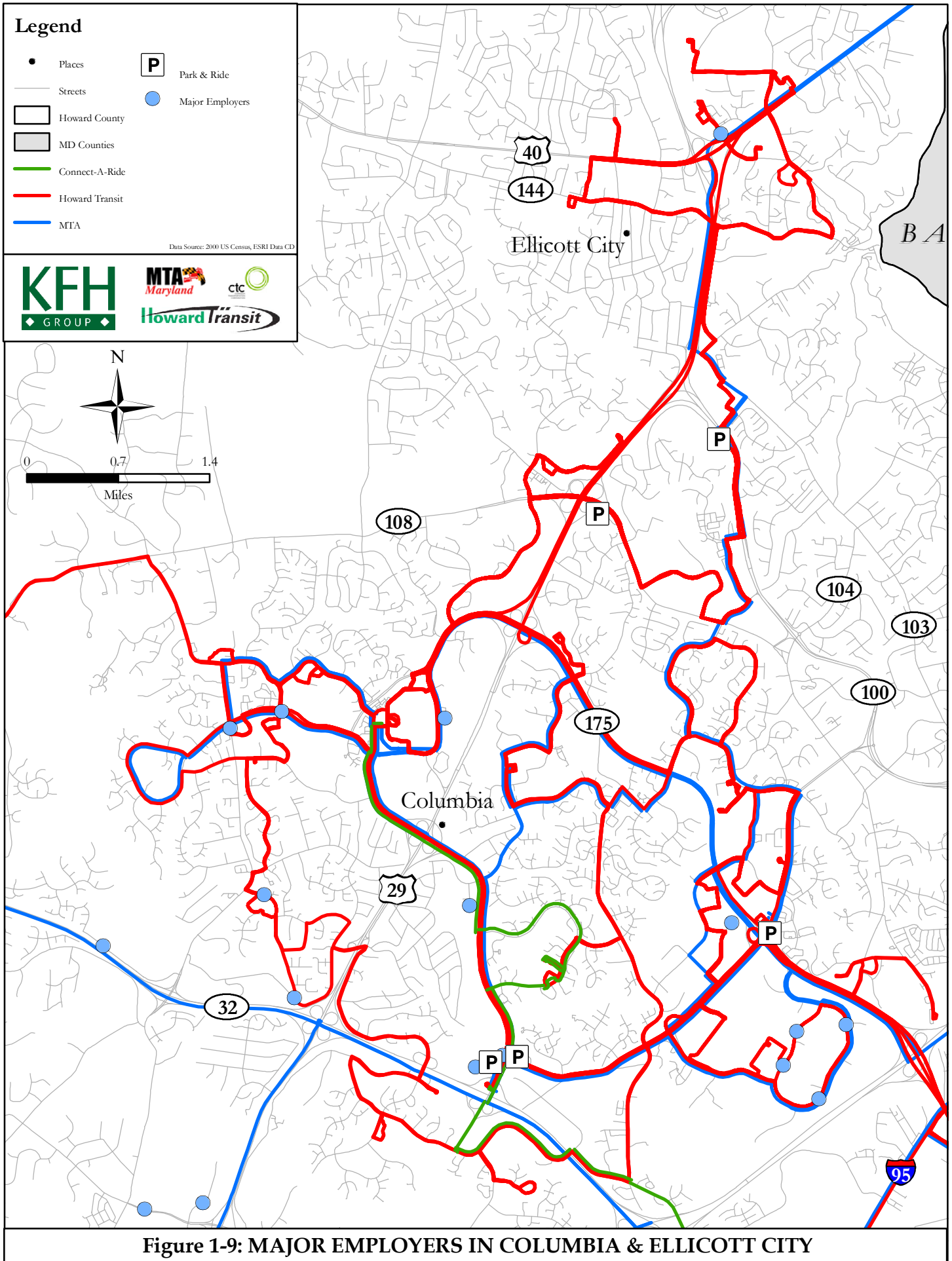
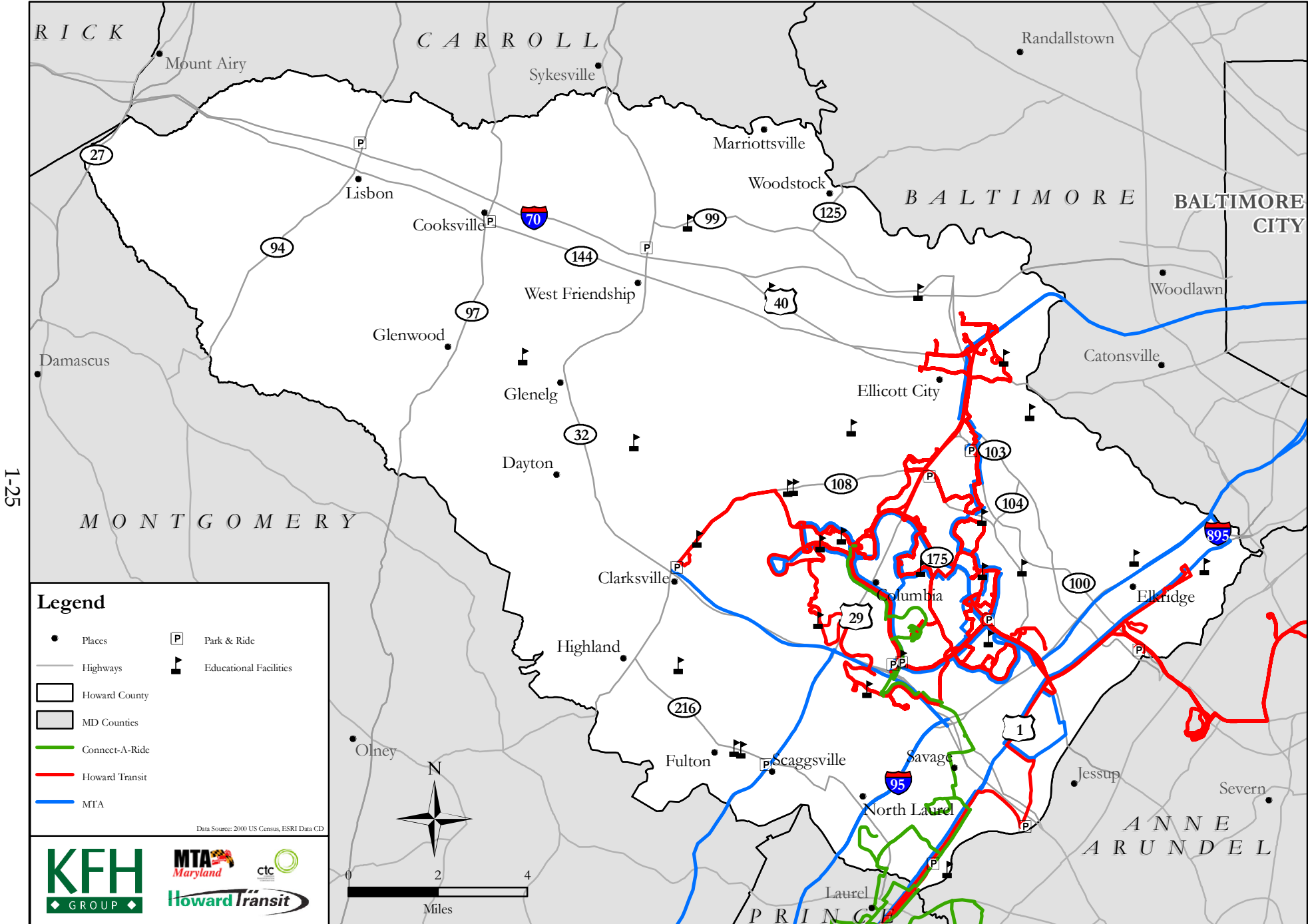


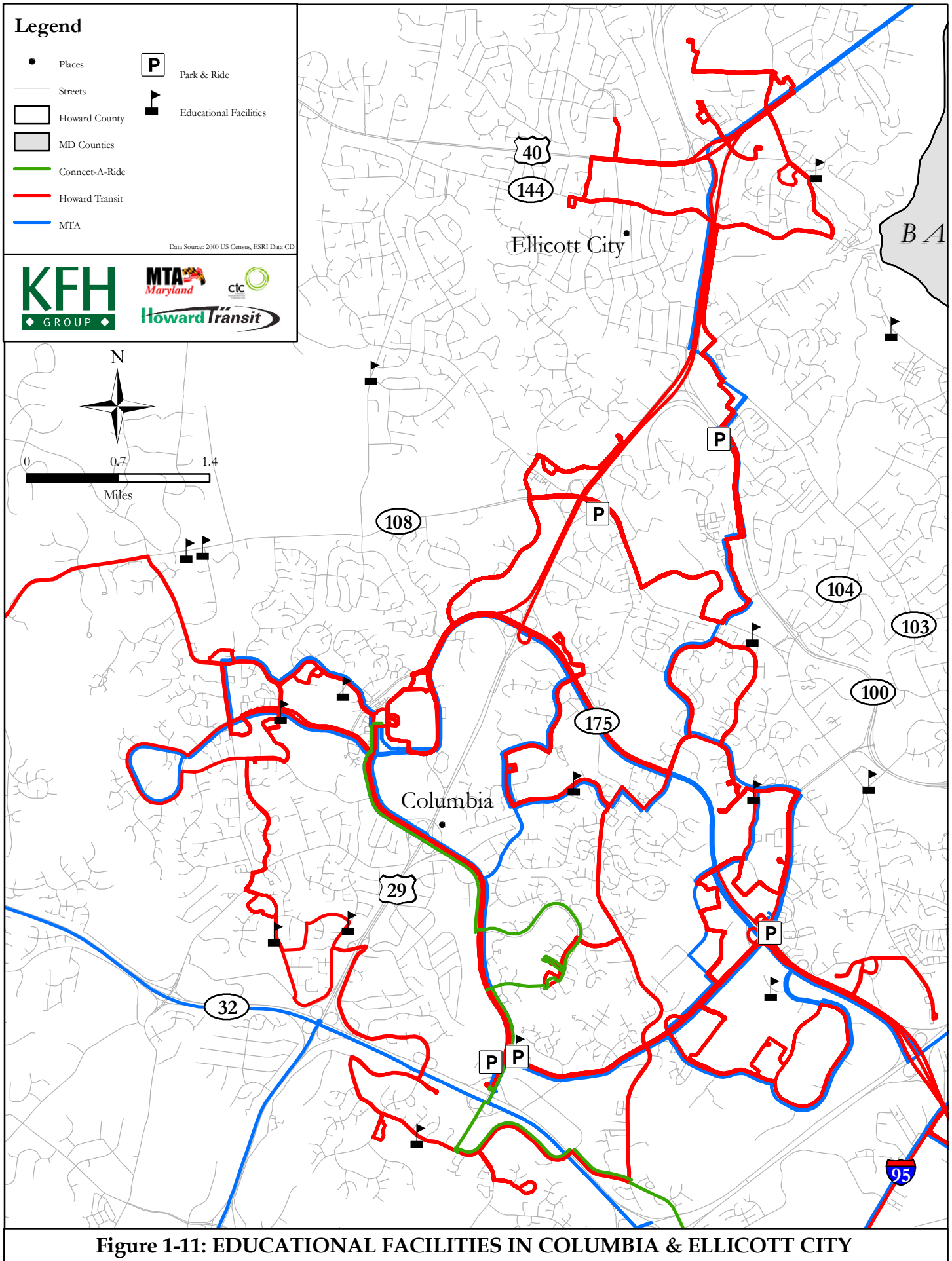
Table 1-2: HOWARD COUNTY EDUCATIONAL INSTITUTION AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Applications and Research Lab	10920 Route 108	Ellicott City	Howard	MD	21042	Public Special School		x	
Atholton Adventist School	6520 Martin Road	Columbia	Howard	MD	21044	Private School (K-10)	x		
Atholton High School	6520 Freetown Road	Columbia	Howard	MD	21044	Public High School	x		
Cedar Lane School	11630 Scaggsville Road	Fulton	Howard	MD	20759	Public Special School			x
Centennial High School	4300 Centennial Lane	Ellicott City	Howard	MD	21042	Public High School			x
Chapelgate Christian Academy	2600 Marriottsville Road	Marriottsville	Howard	MD	21104	Private School (6-12)			x
Faith Bible Church Academy	2810 Timberview Drive	Elkridge	Howard	MD	21075	Private School (K-12)		x	
Glenelg Country School	12793 Folly Quarter Road	Glenelg	Howard	MD	21737	Private School (PK-12)			x
Glenelg High School	14025 Burntwoods Road	Glenelg	Howard	MD	21737	Public High School			x
Hammond High School	8800 Guilford Road	Columbia	Howard	MD	21046	Public High School	x		
High Road Academy	12350 Hall Shop Road	Fulton	Howard	MD	20759	Private School (4-10)			x
Homewood Center	10914 Route 108	Ellicott City	Howard	MD	21042	Public Special School		x	
Howard Community College	10901 Little Patuxent Parkway	Columbia	Howard	MD	21044	Junior College	x		
Howard High School	8700 Old Annapolis Road	Ellicott City	Howard	MD	21043	Public High School	x		
Johns Hopkins University - Columbia Center	6740 Alexander Bell Drive	Columbia	Howard	MD	21046	University	x		
Linwood Center	3421 Martha Bush Drive	Ellicott City	Howard	MD	21043	Private School (3-12)	x		
Long Reach High School	6101 Old Dobbin Lane	Columbia	Howard	MD	21045	Public High School	x		
Loyola College - Columbia Center	7135 Minstrel Way	Columbia	Howard	MD	21045	College	x		
Marriotts Ridge High School	12100 Woodford Drive	Marriottsville	Howard	MD	21104	Public High School			x
Maryland School for the Deaf	RR 108	Columbia	Howard	MD	21044	Private School		x	
Mount Hebron High School	9440 Route 99	Ellicott City	Howard	MD	21042	Public High School			x
Norbel School	6135 Old Washington Road	Elkridge	Howard	MD	21075	Private School (K-9)	x		
Oakland Mills High School	9410 Kilimanjaro Road	Columbia	Howard	MD	21045	Public High School	x		
Phillips School - Laurel	8920 Whiskey Bottom Road	Laurel	Howard	MD	20723	Private School (2-12)		x	
Reservoir High School	11550 Scaggsville Road	Fulton	Howard	MD	20759	Public High School		x	
River Hill High School	12101 Route 108	Clarksville	Howard	MD	21029	Public High School	x		
Taylor Manor School	4100 College Avenue	Ellicott City	Howard	MD	21041	Private School (7-12)			x
Wilde Lake High School	5460 Trumpeter Road	Columbia	Howard	MD	21044	Public High School	x		



**Figure 1-10: EDUCATIONAL FACILITIES IN HOWARD COUNTY**

1-25



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## Medical Centers

Services provided at major medical facilities make them potentially significant trip generators, including trips to nearby medical offices and laboratories, and work trips for employees. Table 1-3 lists the major medical facilities, their locations, number of beds, and proximity to transit service. Figure 1-12 represents these locations and existing transit service for Howard County and Figure 1-13 represents these locations and existing transit service in the Columbia-Ellicott City area. The medical facilities are dispersed in the eastern portion of the County.

The medical facility with the most beds is the Clifton T. Perkins Hospital Center with 215, located at the intersection of Route 32 and US-1 in Jessup. It is a maximum security State Mental Hygiene Administration facility within the Department of Health and Mental Hygiene. It has limited general public access needs. The other facilities are located in Columbia and Ellicott City. The medical facility more than  $\frac{3}{4}$  mile from the nearest transit service is Sheppard Pratt Hospital in Ellicott City, which is an inpatient psychiatric facility for adults and adolescents. Transit service would potentially be useful for employees, visitors, and patients of day programs.

## Human Service Agencies

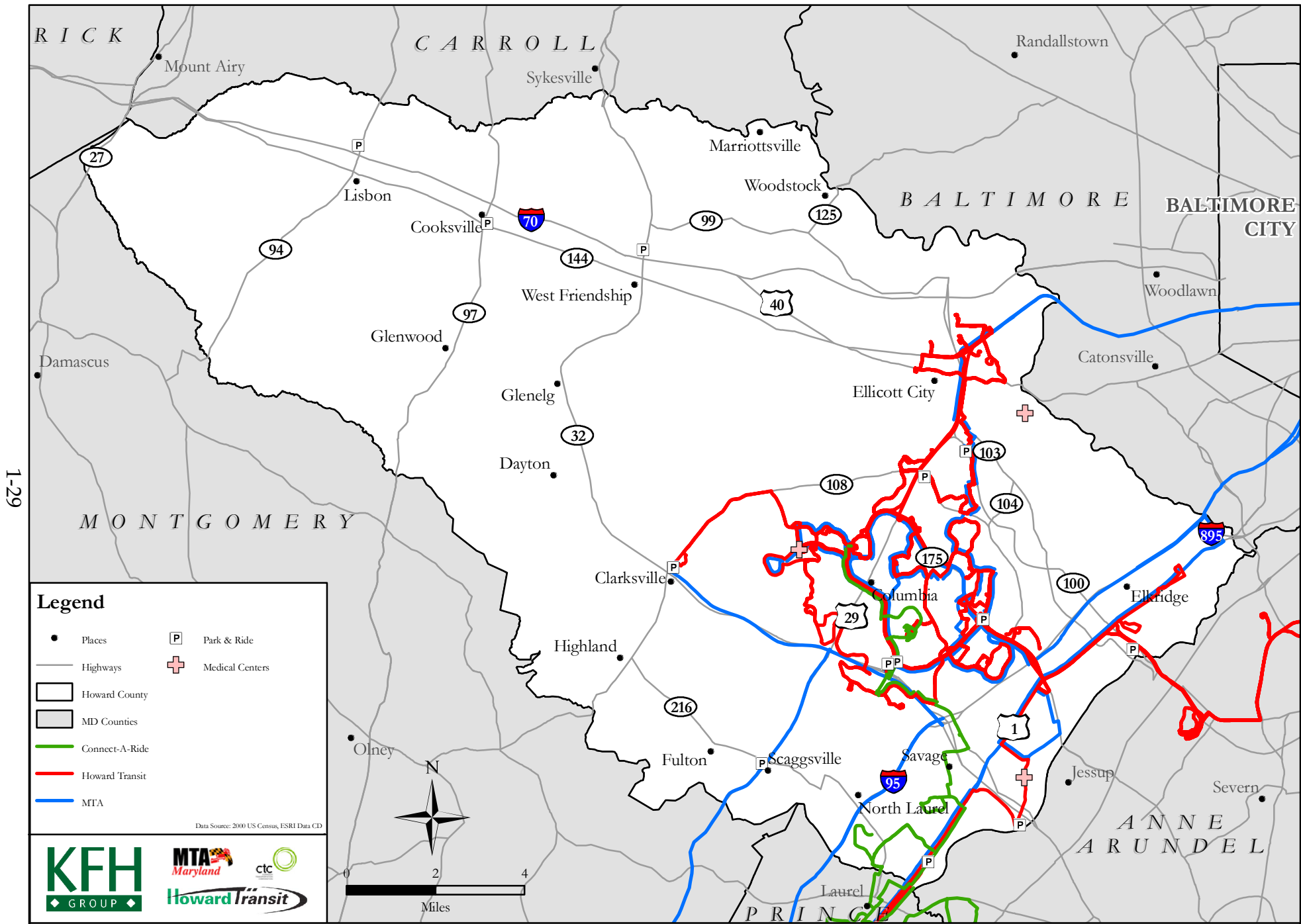
Given the range of services and assistance, these facilities provide transit, which becomes a vital component for individuals in need of access to such services. Table 1-4 lists all 125 identified human service agencies, their locations, and proximity to transit service. Figure 1-14 represents these locations and existing transit service for Howard County and Figure 1-15 represents these locations and existing transit service in the Columbia-Ellicott City area. Most facilities are located in and around the Columbia-Ellicott City areas and the MD-175 corridor. There are concentrations near Howard Community College; MD-108 near Jonestown; and near the intersection of Snowden River Parkway and MD-175 (Little Patuxent Parkway).

The table identifies the facilities within proximity to the existing transit service. When a radius of  $\frac{1}{4}$  mile from the service is evaluated, most of the facilities fall within this market area. When a radius of within  $\frac{3}{4}$  mile is considered, an additional two facilities are within the service area. Based on the list, five facilities have been identified as outside of the  $\frac{3}{4}$  mile buffer of the nearest transit service.

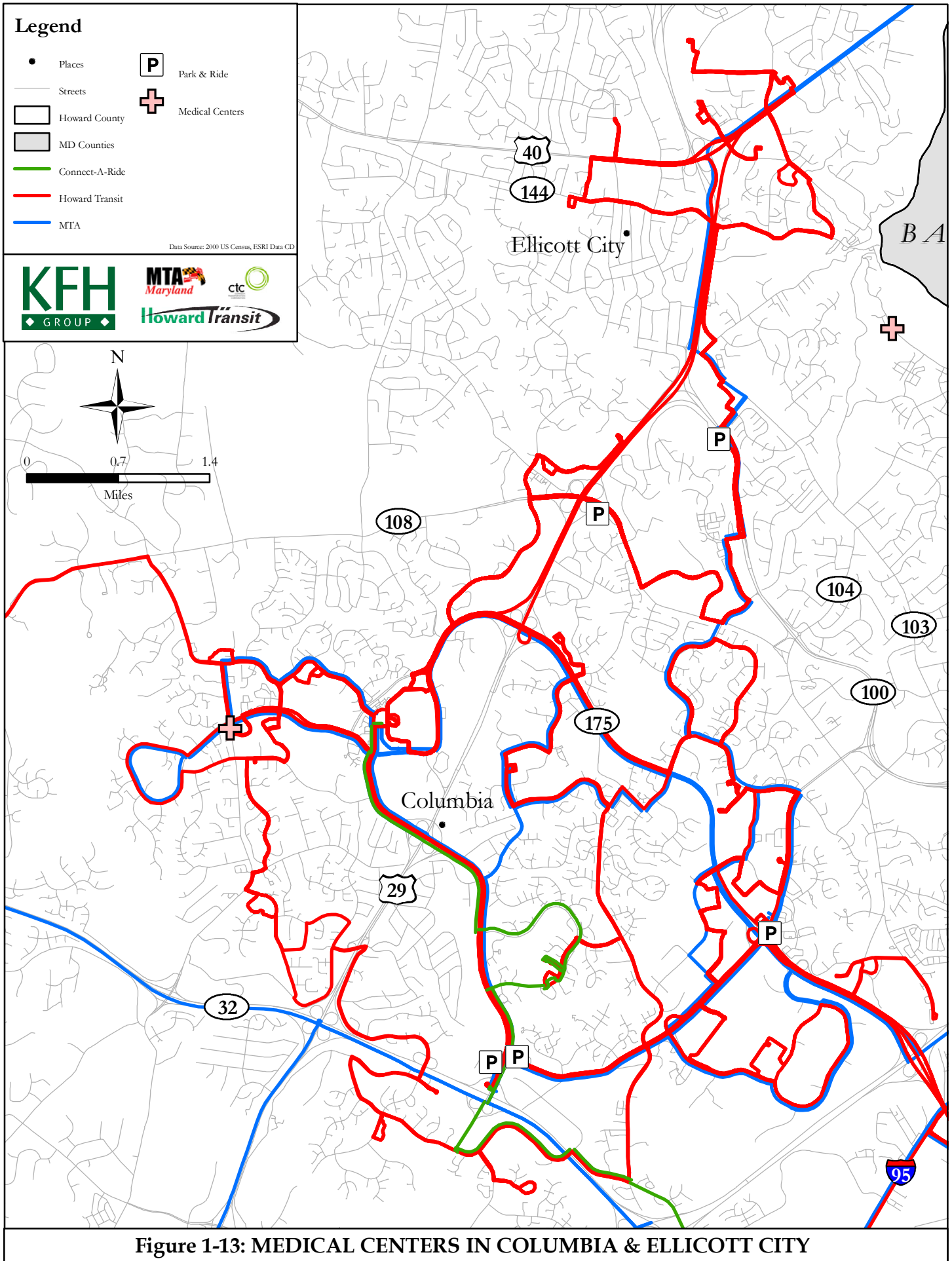


**Table 1-3: HOWARD COUNTY MEDICAL CENTERS AND PROXIMITY TO TRANSIT**

Name	Address	City	County	State	ZIP Code	Beds	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Clifton T Perkins Hospital Center	8450 Dorsey Run Road	Jessup	Howard	MD	20794	215	x		
Howard County General Hospital	5755 Cedar Lane	Columbia	Howard	MD	21044	204	x		
Sheppard Pratt at Ellicott City	4100 College Avenue	Ellicott City	Howard	MD	21043	66			x



**Figure 1-12: MEDICAL CENTERS IN HOWARD COUNTY**



**Figure 1-13: MEDICAL CENTERS IN COLUMBIA & ELLICOTT CITY**

Table 1-4: HOWARD COUNTY HUMAN SERVICE AGENCIES AND PROXIMITY TO TRANSIT

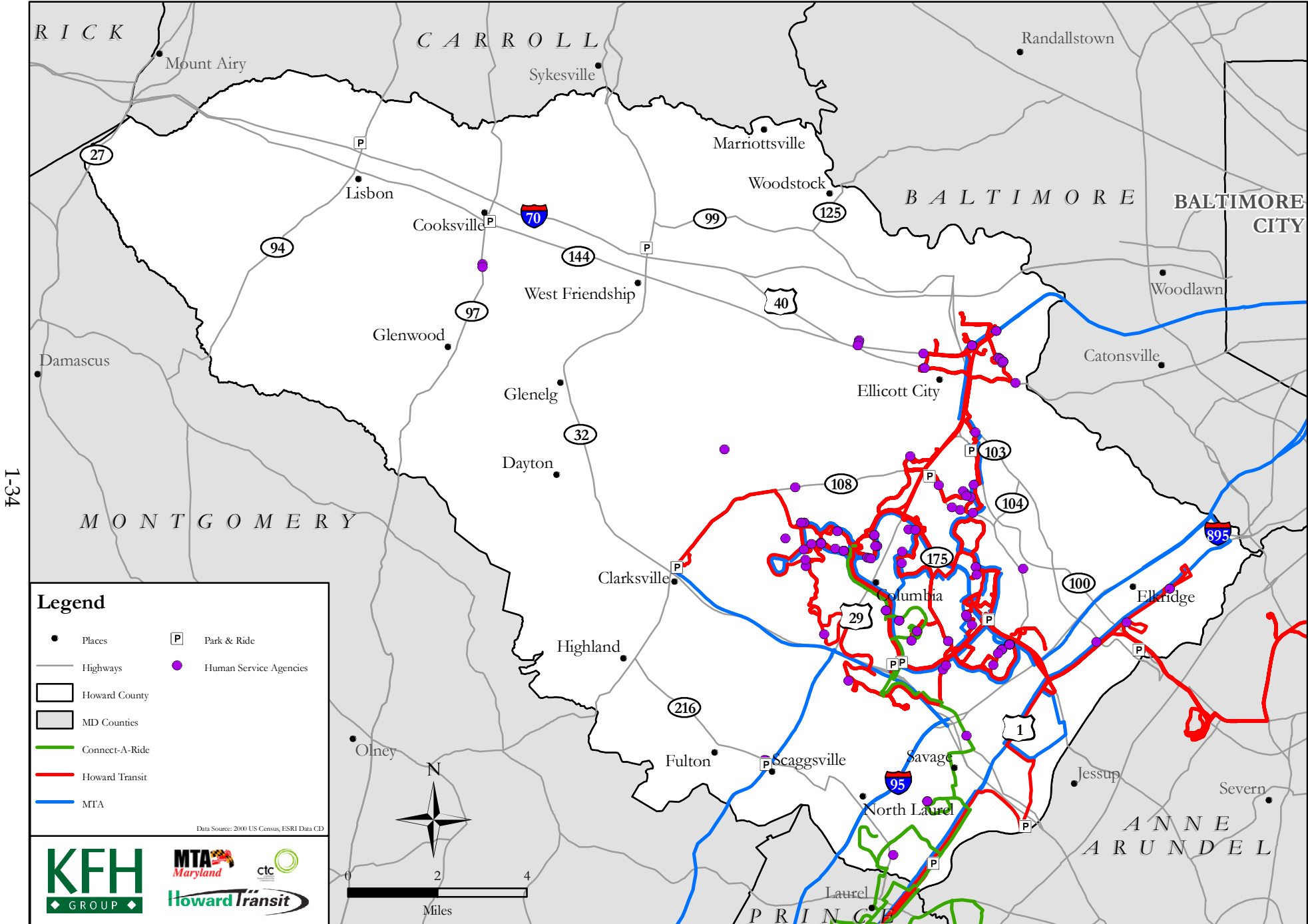
Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Adaptive Living, Inc.	11089 Swansfield Road	Columbia	Howard	MD	21044	Housing Programs		x	
Adult Community Evaluation Services	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
AIDS Alliance of Howard County	8492 Baltimore national Pike	Ellicott City	Howard	MD	21043	Health	x		
Alcohol/Drug Addiction Service Center	7178 Columbia Gateway Drive	Columbia	Howard	MD	21046	Health	x		
Arc of Howard County	11735 Homewood Road	Ellicott City	Howard	MD	21042	Employment			x
Assisted Housing	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Association of Community Services	10480 Little Patuxent Parkway	Columbia	Howard	MD	21044	Community Organizations	x		
Athelas	9104 Red Branch Road	Columbia	Howard	MD	21045	Employment	x		
Autism Society of America	7231 Cadence Court	Columbia	Howard	MD	21046	Resources for People with Disabilities	x		
Bain Center	5470 Ruth Keeton Way	Columbia	Howard	MD	21044	Senior Center	x		
Baptist Family and Children's Services	7175 Columbia Gateway Drive	Columbia	Howard	MD	21046	Counseling	x		
Career Links	10901 Little Patuxent Parkway	Columbia	Howard	MD	21044	Education	x		
Caregivers Support Group	5460 Ruth Keeton Way	Columbia	Howard	MD	21044	Caregiver Support	x		
Center for Social Change	6600 Amberton Drive	Elkridge	Howard	MD	21075	Resources for People with Disabilities	x		
Child Care Administration	3300 North Ridge Road	Ellicott City	Howard	MD	21043	Children's Services	x		
Child Care Resource Center	3300 North Ridge Road	Ellicott City	Howard	MD	21043	Children's Services	x		
Christ Church Link	6800 Oakland Mills Road	Columbia	Howard	MD	21045	Information and Referral	x		
Christian Services of Howard County, Inc.	3267 Pine Orchard Lane	Ellicott City	Howard	MD	21043	Crisis Intervention			x
Claudia Mayer Cancer Resource and Image Center	5900 Cedar Lane	Columbia	Howard	MD	21044	Health	x		
Client Services Division	6752 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Columbia Association	10221 Wincopin Circle	Columbia	Howard	MD	21044	Children's Services	x		
Columbia Health Center	7180 Columbia Gateway Drive	Columbia	Howard	MD	21046	Health	x		
Columbia Housing Corporation	9150 Rumsey Road	Columbia	Howard	MD	21045	Housing Programs	x		
Columbia Teen Center	5853 Robert Oliver Place	Columbia	Howard	MD	21045	Teen Programs	x		
Commission on Disabilities Issues	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Resources for People with Disabilities	x		
Commission on Aging	6759 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Community Action Council	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Crisis Intervention	x		
Commuter Solutions for Howard County	3450 Courthouse Drive	Ellicott City	Howard	MD	21043	Transportation	x		
Congregations Concerned for the Homeless	10716 Little Patuxent Parkway	Columbia	Howard	MD	21044	Homeless Services	x		
Consumer Affairs Advisory Board	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Consumer Resources	x		
Crohn's & Colitis Foundation of America, Inc.	1044 Little Patuxent Parkway	Columbia	Howard	MD	21044	Health	x		
Department of Citizen Services	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Citizen Services	x		
Department of Social Services	7121 Columbia Gateway Drive	Columbia	Howard	MD	21046	Crisis Intervention	x		
Disabilities Services	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Resources for People with Disabilities	x		
Division of Rehabilitation Services	3451 Courthouse Drive	Ellicott City	Howard	MD	21043	Employment	x		
Domestic Violence Center of Howard County	5457 Twin Knolls Road	Columbia	Howard	MD	21045	Domestic Violence	x		
East Columbia Senior Center	6600 Cradlerock Way	Columbia	Howard	MD	21045	Senior Center	x		
Elkridge Senior Center	6540 Washington Boulevard	Elkridge	Howard	MD	21075	Senior Center	x		
Ellicott City Health Center	8492 Baltimore national Pike	Ellicott City	Howard	MD	21043	Health	x		
Ellicott City Senior Center	9401 Frederick Road	Ellicott City	Howard	MD	21042	Senior Center	x		
Emerge, Inc.	9180 Rumsey Road	Columbia	Howard	MD	21045	Housing Programs	x		
Fall Prevention Information/Assessment	6753 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Family & Children's Services of Central Maryland	10451 Twin Rivers Road	Columbia	Howard	MD	21044	Counseling	x		
FIRN	5999 Harper's Farm Road	Columbia	Howard	MD	21044	Foreign-Born Services	x		
Glenwood Senior Center	2400 Route 97	Cooksville	Howard	MD	21723	Senior Center			x
Grassroots Crisis Intervention Center, Inc.	6700 Freetown Road	Columbia	Howard	MD	21044	Crisis Intervention	x		

Table 1-4: HOWARD COUNTY HUMAN SERVICE AGENCIES AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Guilford Senior Center	9950 Guilford Road	Jessup	Howard	MD	20794	Senior Center	x		
HANDS	6800 Oakland Mills Road	Columbia	Howard	MD	21045	Transportation	x		
Healthy Families Howard County	10451 Twin Rivers Road	Columbia	Howard	MD	21044	Parenting Program	x		
Home Repair/Retrofitting	6754 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Homes for Life Coalition	6755 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Horizon Foundation	10805 Hickory Ridge Road	Columbia	Howard	MD	21044	Community Organizations	x		
Hospice of Howard County	6755 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Hospice of Howard County	5537 Twin Knolls Road	Columbia	Howard	MD	21045	Crisis Intervention	x		
Howard Community College	10901 Little Patuxent Parkway	Columbia	Howard	MD	21044	Education	x		
Howard County Board of Elections	8900 Columbia 100 Parkway	Columbia	Howard	MD	21045	Voter Information	x		
Howard County Circuit Court	8360 Court Avenue	Ellicott City	Howard	MD	21043	Legal	x		
Howard County Department of Education	10910 Route 108	Ellicott City	Howard	MD	21043	Blind & Low Vision Services		x	
Howard County District Court Commissioner	3451 Courthouse Drive	Ellicott City	Howard	MD	21043	Legal	x		
Howard County Express MVA	6490 Dobbins Road	Columbia	Howard	MD	21045	Transportation	x		
Howard County General Hospital	5755 Cedar Lane	Columbia	Howard	MD	21044	Health	x		
Howard County Government Information and Referral	3430 Courthouse Drive	Ellicott City	Howard	MD	21043	Information and Referral	x		
Howard County Health Department	7178 Columbia Gateway Drive	Columbia	Howard	MD	21046	Health	x		
Howard County Housing Commission	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Housing Programs	x		
Howard County Library - Central Library	10375 Little Patuxent Parkway	Columbia	Howard	MD	21044	Library System	x		
Howard County Library - East Columbia Branch	6600 Cradlerock Way	Columbia	Howard	MD	21045	Library System	x		
Howard County Library - Elkridge Branch	6540 Washington Boulevard	Elkridge	Howard	MD	21075	Library System	x		
Howard County Library - Glenwood Branch	2351 Route 97	Cooksville	Howard	MD	21723	Library System			x
Howard County Library - Miller Branch	9421 Frederick Road	Ellicott City	Howard	MD	21042	Library System	x		
Howard County Library - Savage Branch	9525 Durness Lane	Laurel	Howard	MD	20723	Library System	x		
Howard County Mental Health Authority's Indigent Pharmacy Program	8775 Cloudleap Court	Columbia	Howard	MD	21045	Health-Prescription Drug Resources	x		
Howard County Office of Human Resources	3430 Courthouse Drive	Ellicott City	Howard	MD	21043	Employment	x		
Howard County Police Youth Services	3525 Ellicott Mills Drive	Ellicott City	Howard	MD	21043	At Risk Youth	x		
Howard County Recreation and Parks	7120 Oakland Mills Road	Columbia	Howard	MD	21046	Resources for People with Disabilities	x		
Howard County Southern District Commissioner	11226 Scaggsville Road	Laurel	Howard	MD	20723	Legal	x		
Howard County State's Attorney Office	3450 Courthouse Drive	Ellicott City	Howard	MD	21043	Legal	x		
Howard Plaza Pregnancy Center	10632 Little Patuxent Parkway	Columbia	Howard	MD	21044	Crisis Intervention	x		
Humanim	6355 Woodside Court	Columbia	Howard	MD	21046	Employment	x		
Jewish Family Services	8950 Route 108	Columbia	Howard	MD	21045	Counseling	x		
Johns Hopkins University	6740 Alexander Bell Drive	Columbia	Howard	MD	21046	Education	x		
Korean/American Community Association	9455 Baltimore National Pike	Ellicott City	Howard	MD	21042	Foreign-Born Services	x		
Lawyer Referral Service	3451 Courthouse Drive	Ellicott City	Howard	MD	21043	Legal	x		
Leadership Howard County	5560 Sterrett Place	Columbia	Howard	MD	21044	Leadership	x		
Leadership U	5560 Sterrett Place	Columbia	Howard	MD	21044	Leadership	x		
League of Women Voters of Howard County	10632 Little Patuxent Parkway	Columbia	Howard	MD	21044	Voter Information	x		
Legal Aid Services, Inc.	3451 Courthouse Drive	Ellicott City	Howard	MD	21043	Legal	x		

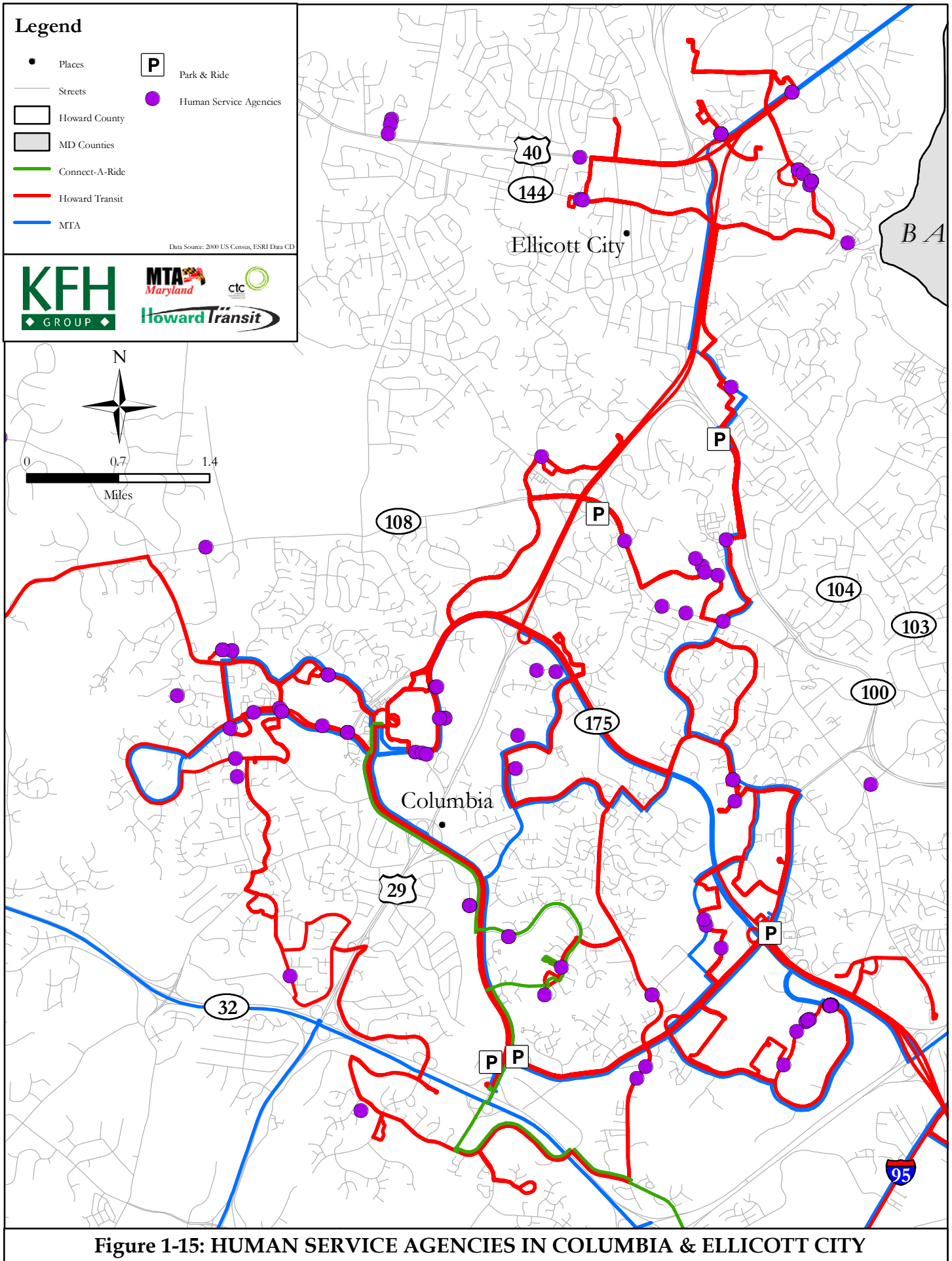
Table 1-4: HOWARD COUNTY HUMAN SERVICE AGENCIES AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Local Children's Board	3301 North Ridge Road	Ellicott City	Howard	MD	21043	Children's Services	x		
Longwood Senior Center	6150 Foreland Garth	Columbia	Howard	MD	21045	Senior Center	x		
Maryland Access Point of Howard County	6756 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Maryland School for the Deaf	8169 Old Montgomery Road	Columbia	Howard	MD	21044	Deaf/Hard of Hearing Services		x	
Maryland State Employment Office									
Columbia Workforce Center	7060 Oakland Mills Road	Columbia	Howard	MD	21046	Employment	x		
Meals on Wheels of Central Maryland	9200 Old Annapolis Road	Columbia	Howard	MD	21045	Home Delivered Meals	x		
Mental Health Authority	9151 Rumsey Road	Columbia	Howard	MD	21045	Mental Health	x		
Mothers Against Drunk Driving of Howard County	3277 Pine Orchard Lane	Ellicott City	Howard	MD	21042	Substance Abuse Programs			x
NAMI of Howard County	8775 Cloudleap Court	Columbia	Howard	MD	21045	Mental Health	x		
National Family Resiliency Center	2000 Century Plaza	Columbia	Howard	MD	21044	Separation and Divorce	x		
Neighbor Ride	8808 Centre Park Drive	Columbia	Howard	MD	21045	Transportation	x		
Office of Aging	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Office of Consumer Affairs	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Consumer Resources	x		
Office of Human Rights	6751 Columbia Gateway Drive	Columbia	Howard	MD	21046	Human Rights	x		
Office of Workforce Deployment	7161 Columbia Gateway Drive	Columbia	Howard	MD	21046	Employment	x		
Ombudsman/Guardianship Programs	6757 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Owen Brown Senior Center Plus	7080 Cradlerock Way	Columbia	Howard	MD	21045	Senior Center	x		
Own Our Own Drop In Center	6470 Dobbin Road	Columbia	Howard	MD	21045	Mental Health	x		
PFLAG	7303 Swan Point Way	Columbia	Howard	MD	21045	Support Services	x		
Public Education for Aging Services	6758 Columbia Gateway Drive	Columbia	Howard	MD	21046	Aging Services	x		
Relatives as Parents	3300 North Ridge Road	Ellicott City	Howard	MD	21043	Parenting Program	x		
Saint Stephens Adult Day Care	7320 Roosevelt Boulevard	Elkridge	Howard	MD	21075	Day Care for Older Adults	x		
Savage Senior Center	9525 Durness Lane	Laurel	Howard	MD	20723	Senior Center	x		
School to Employment Program	6355 Woodside Court	Columbia	Howard	MD	21046	Employment	x		
Serenity Center	9650 Basket Ring Road	Columbia	Howard	MD	21045	Substance Abuse Programs	x		
Sheppard Pratt at Howard County	9030 Route 108	Columbia	Howard	MD	21045	Mental Health	x		
Sixty Plus Wills and Legal Screening	5470 Ruth Keeton Way	Columbia	Howard	MD	21044	Legal	x		
Social Security Administration Howard County	8865 Stanford Boulevard	Columbia	Howard	MD	21045	Finance	x		
SITAR Center	9810 Patuxent Parkway	Columbia	Howard	MD	21046	Sexual Abuse/Assault/Incest	x		
Success in Style	3290 Pine Orchard Lane	Ellicott City	Howard	MD	21042	Crisis Intervention			x
The Volunteer Center Serving Howard County	10221 Wincopin Circle	Columbia	Howard	MD	21044	Information and Referral	x		
Ulman Cancer Fund for Young Adults	4725 Dorsey Hall Drive	Ellicott City	Howard	MD	21042	Health	x		
Victim Assistance Unit	1126 Scaggsville Road	Laurel	Howard	MD	21723	Victim Assistance	x		
Voices for Children	5550 Sterrett Place	Columbia	Howard	MD	21044	Children's Services	x		
Wellness Center	11055 Little Patuxent Parkway	Columbia	Howard	MD	21044	Health	x		
Winter Growth, Inc.	5460 Ruth Keeton Way	Columbia	Howard	MD	21044	Day Care for Older Adults	x		
Women's Giving Circle	10227 Wincopin Circle	Columbia	Howard	MD	21044	Women's Organizations	x		
Woodside Center	6355 Woodside Court	Columbia	Howard	MD	21046	Mental Health	x		
YMCA of Central Maryland	4331 Montgomery Road	Ellicott City	Howard	MD	21043	Recreation	x		



1-34

Figure 1-14: HUMAN SERVICE AGENCIES IN HOWARD COUNTY



**Figure 1-15: HUMAN SERVICE AGENCIES IN COLUMBIA & ELLICOTT CITY**



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## Shopping Centers

Major shopping destinations throughout Howard County were identified and located. The Mall in Columbia, given its status as the center of Columbia, is a major shopping destination in the County. Table 1-5 lists each shopping center and its location. There are 17 major shopping facilities in the County. Figure 1-16 represents these locations and existing transit service for Howard County and Figure 1-17 represents these locations and existing transit service in the Columbia-Ellicott City area. Generally, as with most other trip generators, most of these facilities are located in and around the Columbia area.

The table identifies the facilities within proximity to the existing transit service. When a radius of  $\frac{1}{4}$  mile from the service is evaluated, all except one facility falls within this market area. The exception is located further than  $\frac{3}{4}$  mile from the nearest transit service, the Waverly Woods Village Center near the Waverly Woods Golf Club, in between I-70 and MD-99.

## High-Density Housing

Although higher-density housing is perhaps more properly considered as a potential trip origin rather than destination, they are considered separately as potentially being places of concentrated transit trip demand. High-density housing concentrates more residents with the  $\frac{1}{4}$  mile walk distance, and often includes higher percentages of persons with other transit needs characteristics. Table 1-6 lists all the identified high-density housing facilities, their locations, and proximity to transit service. Figure 1-18 represents these locations and existing transit service for Howard County and Figure 1-19 represents these locations and existing transit service in the Columbia area. Generally, most of the facilities are located in and surrounding the Columbia-Ellicott City area. There are also concentrations in and surrounding Elkridge and northern Laurel along US-1.

The table identifies the facilities within proximity to the existing transit service. When a radius of  $\frac{1}{4}$  mile from the nearest transit service is evaluated, a majority of the facilities fall within this area. When a radius of within  $\frac{3}{4}$  mile is considered, most institutions are within the service area. There are two facilities that are more than  $\frac{3}{4}$  mile from the nearest transit service.

Table 1-5: HOWARD COUNTY SHOPPING CENTERS AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Chatham Station Shopping Center	9210 Baltimore National Pike	Ellicott City	Howard	MD	21044	x		
Columbia Crossing	6200 Columbia Crossing Drive	Columbia	Howard	MD	21045	x		
Dobbin Center	6385 Dobbin Road	Columbia	Howard	MD	21045	x		
Dorsey's Search Village Center	4715 Dorsey Hall Drive	Ellicott City	Howard	MD	21042	x		
Harper's Choice Village Center	5440 Old Tucker Row	Columbia	Howard	MD	21044	x		
Hickory Ridge (Hawthorn) Village Center	6175 Sunny Spring	Columbia	Howard	MD	21044	x		
Kings Contrivance Village Center	7251 Eden Brook Drive	Columbia	Howard	MD	21046	x		
Long Gate Shopping Center	4300 Montgomery Road	Ellicott City	Howard	MD	21043	x		
Long Reach Village Center	8775 Cloudleap Court	Columbia	Howard	MD	21045	x		
Oakland Mills Village Center	5880 Robert Oliver Place	Columbia	Howard	MD	21045	x		
Owen Brown Village Center	6800 Cradlerock Way	Columbia	Howard	MD	21045	x		
River Hill Village Center	6030 Daybreak Circle	Clarksville	Howard	MD	21029	x		
Savage Mill	8600 Foundry Street	Savage	Howard	MD	20763	x		
Snowden Square	9051 Snowden Square Drive	Columbia	Howard	MD	21046	x		
The Mall in Columbia	10300 Little Patuxent Parkway	Columbia	Howard	MD	21044	x		
Waverly Woods Village Center	10800 Birmingham Way	Woodstock	Howard	MD	21163			x
Wilde Lake Village Center	5430 Lynx Lane	Columbia	Howard	MD	21044	x		

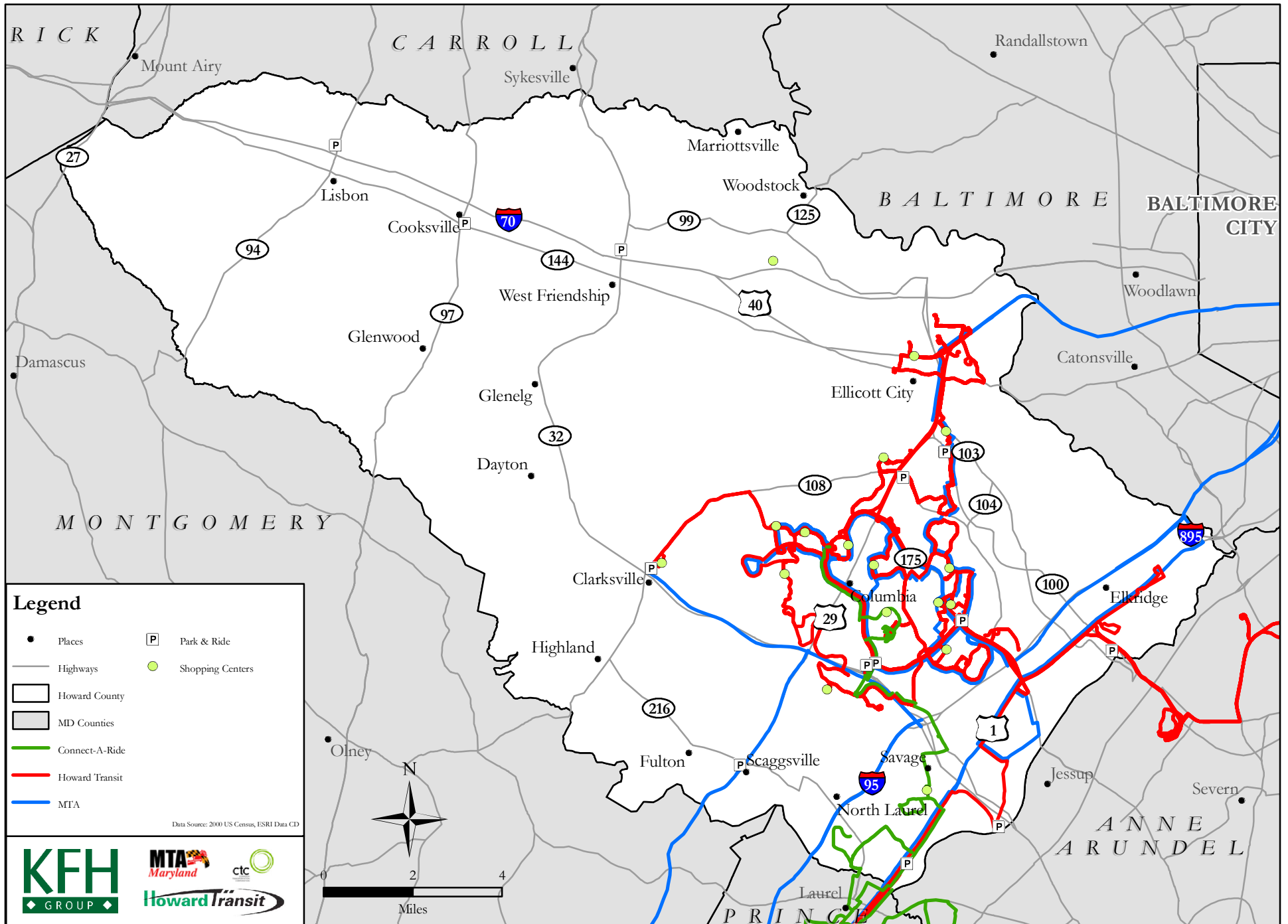
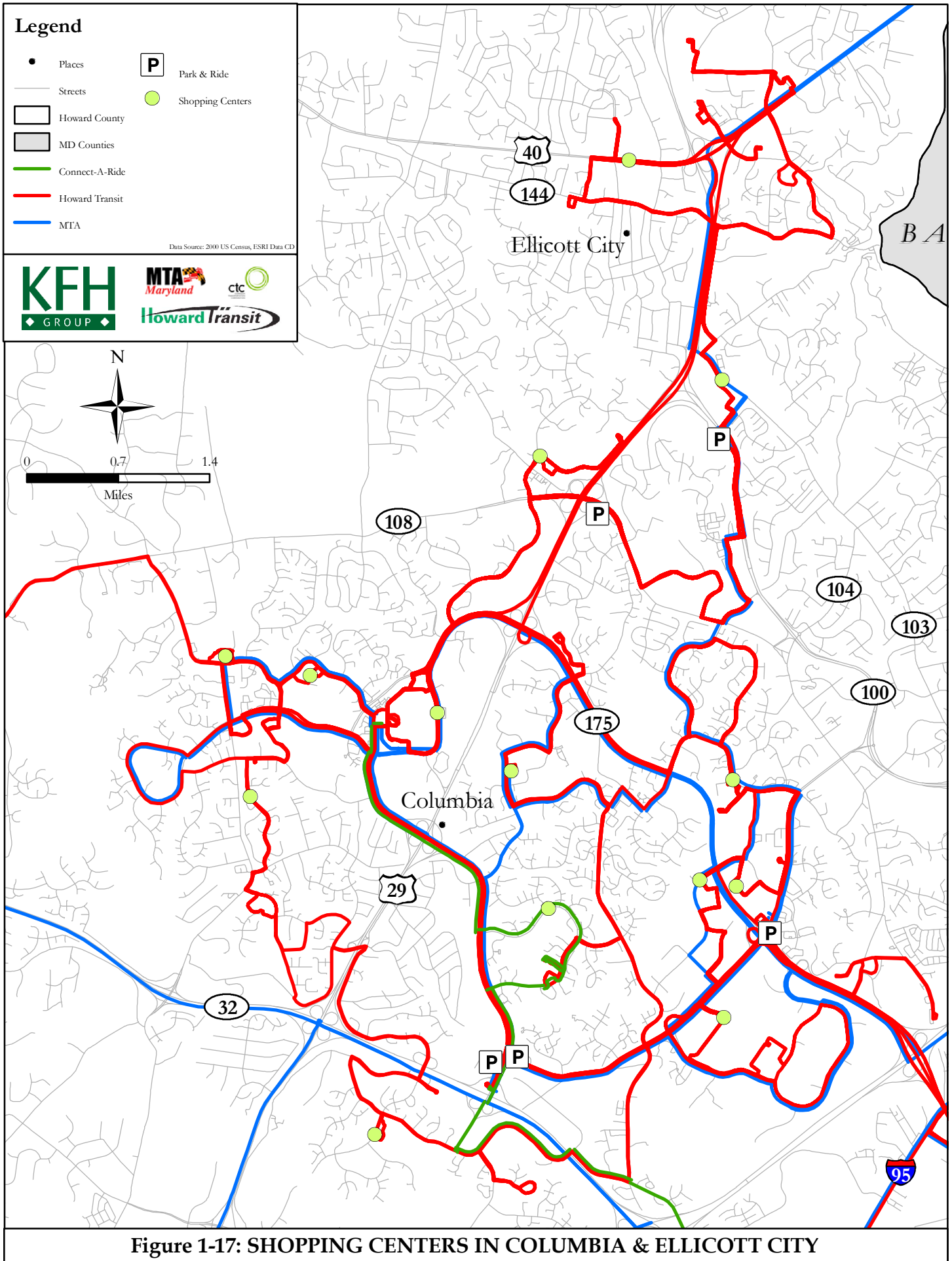


Figure 1-16: SHOPPING CENTERS IN HOWARD COUNTY



**Figure 1-17: SHOPPING CENTERS IN COLUMBIA & ELLICOTT CITY**

Table 1-6: HOWARD COUNTY HIGH DENSITY HOUSING AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Ashton Woods	8401 Oakton Lane	Ellicott City	Howard	MD	21043	Apartment		x	
Autumn Crest	5664 Stevens Forest Road	Columbia	Howard	MD	21045	Apartment	x		
Avalon at Fairway Hills	5441 Columbia Road	Columbia	Howard	MD	21044	Apartment	x		
Avalon at Symphony Glen	10300 Hickory Ridge Road	Columbia	Howard	MD	21044	Apartment	x		
Avalon Columbia	5320 Cedar Lane	Columbia	Howard	MD	21044	Apartment		x	
Beech's Farm	7260 Central Edenbrook Drive	Columbia	Howard	MD	21046	Apartment	x		
Belmont Station	6900 Tasker Falls	Elkridge	Howard	MD	21075	Apartment	x		
Berkshires of Columbia	5361 Brook Way	Columbia	Howard	MD	21044	Apartment	x		
Bowling Brook	9000 Stebbing Way	Laurel	Howard	MD	20723	Apartment	x		
Brighton Gardens	7110 Minstrel Way	Columbia	Howard	MD	21045	Assisted Living	x		
Cedar Valley	5458 Harpers Farm Road	Columbia	Howard	MD	21044	Apartment	x		
Charleston Manor	3182 Normandy Woods Drive	Ellicott City	Howard	MD	21043	Apartment	x		
Chatham Gardens	3332 North Chatham Road	Ellicott City	Howard	MD	21043	Apartment	x		
Chimneys of Cradlerock	6531 Quiet Hours	Columbia	Howard	MD	21045	Apartment	x		
Clays Crossing	11311 Little Patuxent Parkway	Columbia	Howard	MD	21044	Apartment	x		
Club Merion	12290 Green Meadow Drive	Columbia	Howard	MD	21044	Apartment	x		
Columbia Commons	7601 Woodpark Lane	Columbia	Howard	MD	21046	Apartment	x		
Columbia Landing	8905 Tamar Drive	Columbia	Howard	MD	21045	Apartment	x		
Columbia Town Center	10360 Swift Stream Place	Columbia	Howard	MD	21044	Apartment	x		
Country Meadows	9713 Queen Annes Lace	Laurel	Howard	MD	20723	Apartment		x	
Dominion at Eden Brook	7310 Eden Brook Drive	Columbia	Howard	MD	21046	Apartment	x		
Dominion Great Oaks	3035 Oaks Green Circle	Ellicott City	Howard	MD	21043	Apartment	x		
Dominion Kings Place	7525 Murray Hill Road	Columbia	Howard	MD	21046	Apartment	x		
Ellicott City Health & Rehabilitation Center	3000 North Ridge Road	Ellicott City	Howard	MD	21043	Nursing Home	x		
Elternhaus	4201 Linthicum Road	Dayton	Howard	MD	21036	Assisted Living			x
Fenland Field	5351 Harpers Farm Road	Columbia	Howard	MD	21044	Apartment	x		
Gateway Village	9978 Guilford Road	Jessup	Howard	MD	20794	Apartment	x		
Gramercy of Town Center	10601 Gramercy Place	Columbia	Howard	MD	21044	Apartment	x		
Grand Pointe	5764 Stevens Forest Road	Columbia	Howard	MD	21045	Apartment	x		
Harmony Hall	6336 Cedar Lane	Columbia	Howard	MD	21044	Assisted Living	x		
Harpers Forest	5980 Turnabout Lane	Columbia	Howard	MD	21044	Apartment	x		
Heartlands	3004 North Ridge Road	Ellicott City	Howard	MD	21043	Assisted Living	x		
Howard Crossing	9732 Town & County Boulevard	Ellicott City	Howard	MD	21043	Apartment	x		
Huntington Downs Apartments	9705 Clocktower Lane	Columbia	Howard	MD	21046	Apartment	x		

Table 1-6: HOWARD COUNTY HIGH DENSITY HOUSING AND PROXIMITY TO TRANSIT

Name	Address	City	County	State	ZIP Code	Type	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Island Club Apartments	5331 Columbia Road	Columbia	Howard	MD	21044	Apartment	x		
Kendall Ridge	8399 Tamar Drive	Columbia	Howard	MD	21045	Apartment	x		
King's Crossing	8909 Early April Way	Columbia	Howard	MD	21046	Apartment	x		
Lazy Hollow	8782 Cloudleap Court	Columbia	Howard	MD	21045	Apartment	x		
Lorien Nursing & Rehabilitation	6334 Cedar Lane	Columbia	Howard	MD	21044	Nursing Home	x		
Morningside House	5330 Dorsey Hall Drive	Ellicott City	Howard	MD	21042	Assisted Living	x		
Plumtree	3463 Plumtree Drive	Ellicott City	Howard	MD	21043	Apartment	x		
Poplar Glen	11670 Little Patuxent Parkway	Columbia	Howard	MD	21044	Apartment	x		
Reflections	12020 Little Patuxent Parkway	Columbia	Howard	MD	21044	Apartment	x		
Shangri-La	4475 Montgomery Boulevard	Ellicott City	Howard	MD	21043	Assisted Living		x	
Sherwood Crossing	6731 Old Waterloo Road	Elkridge	Howard	MD	21075	Apartment	x		
Somerford Place	8220 Snowden River Parkway	Columbia	Howard	MD	21044	Assisted Living		x	
Stonehaven	7030 Gentle Shade	Columbia	Howard	MD	21046	Apartment	x		
Sunrise of Columbia	6500 Freetown Road	Columbia	Howard	MD	21044	Assisted Living	x		
Tamar Meadow	8600 Cobblefield Drive	Columbia	Howard	MD	21045	Apartment	x		
The Bluffs Rental Center	12100 Little Patuxent Parkway	Columbia	Howard	MD	21044	Apartment	x		
The Elms at Montjoy	4900 Walking Stick Road	Ellicott City	Howard	MD	21043	Apartment	x		
The Evergreens at Columbia Town	10101 Governor Warfield Parkway	Columbia	Howard	MD	21044	Apartment	x		
The Greens at Columbia	12215 Little Patuxent Parkway	Columbia	Howard	MD	21044	Apartment	x		
The Seasons	9220 Old Lantern Way	Laurel	Howard	MD	20723	Apartment	x		
The Verona at Oakland Mills	9650 White Acre Road	Columbia	Howard	MD	21045	Apartment	x		
Windsor at Pine Ridge	7100 Duckets Lane	Elkridge	Howard	MD	21075	Apartment	x		

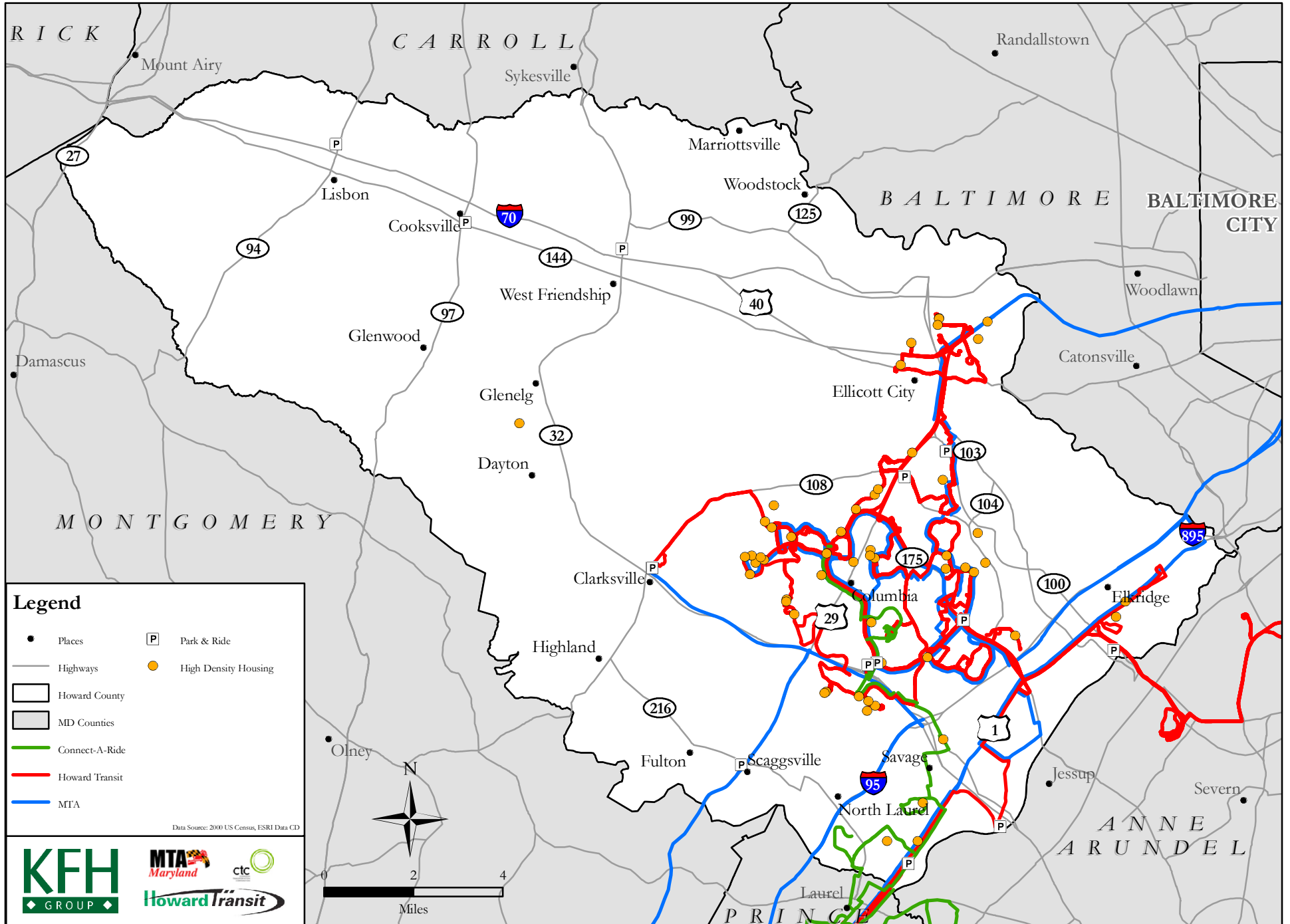
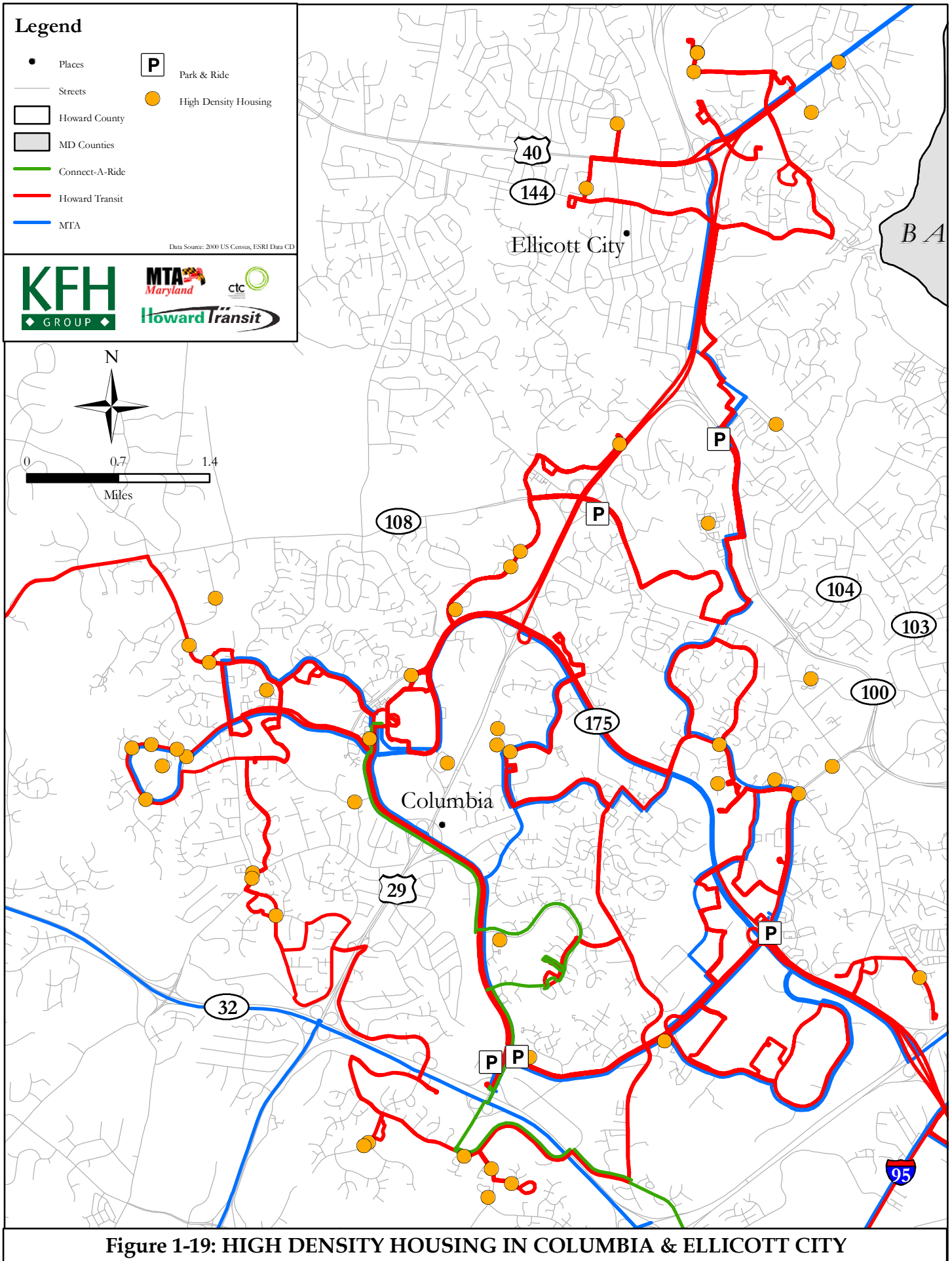


Figure 1-18: HIGH DENSITY HOUSING IN HOWARD COUNTY



**Figure 1-19: HIGH DENSITY HOUSING IN COLUMBIA & ELLICOTT CITY**



## **Sites Under Development - Single Family Attached and Multi-Family**

There are also project sites that are currently under construction or have received the adequate permits to begin construction. They are represented in Figure 1-20. The largest unserved sites are west of Ellicott City at Ellicott Square, Turf Valley, and Waverly Woods; Heathstone and Cider Mill between Ellicott City and Elkridge; and Maple Lawn.

## **SUMMARY**

For the most part, the population most likely to need and use transit services, and the identified trip generators are mostly located in proximity to existing transit services. The Columbia and Ellicott City areas each have the highest concentration of trip generators. Specific areas of unserved high need and destinations were identified in each category, and are considered in the development of alternatives for new or revised transit routes.

This chapter has identified some unserved destinations that should be added to the transit network, and areas of current and projected growth that should be considered for new route coverage in the near-term future. Alternatives addressing these needs are included in Chapter 4, along with potential projects to address facility needs, technology improvements, and the projected growth in demand for paratransit service.

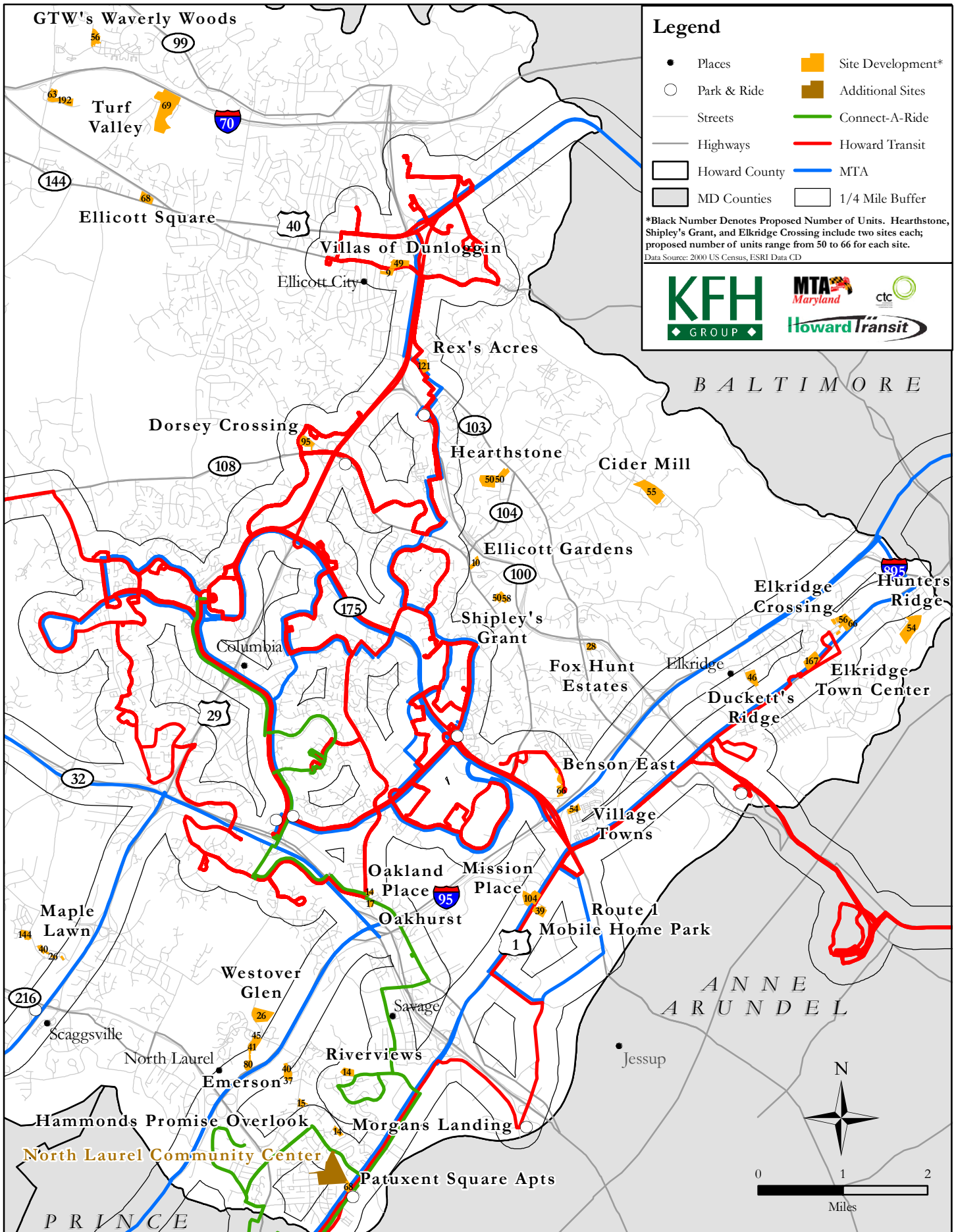


Figure 1-20: IN-PROCESS SINGLE FAMILY ATTACHED & APARTMENT DEVELOPMENTS FOR HOWARD COUNTY

## Chapter 2

# Review of Existing Transportation Services

### INTRODUCTION

This chapter identifies and assesses existing transportation services in Howard County in terms of their ability to meet the public transportation needs of its residents and their performance. The chapter begins with a description and assessment of transportation services within Howard County, which includes Howard Transit (HT) and Connect-a-Ride (CAR) services. HT is a county service, managed under contract to the County by the Corridor Transportation Corporation (CTC), a private non-profit. CTC also manages the CAR services in the Laurel area, including routes that provide service in Howard County. This assessment is followed by an examination review of other transit providers in the area, including the commuter bus services operated by the Maryland Transit Administration (MTA), which connect county residents with the Baltimore and Washington areas. Finally, this chapter includes a review of existing transit services in relation to the areas of high transit need and the key destinations identified in Chapter 1.

### PUBLIC TRANSPORTATION SERVICES

This section provides a description and assessment of public transportation services available in Howard County, specifically HT, the primary operator of transit services in the county. Howard County is the beneficiary of multiple public transportation services, with HT as the primary public transportation service. In planning for the improvement of public transit in Howard County, it is important that the assessment of current services consider previous planning studies, and service improvements, and of destinations in high demand.

The fixed-route public transportation service in Howard County is provided by:

- HT and HT Ride (service contract managed by CTC),

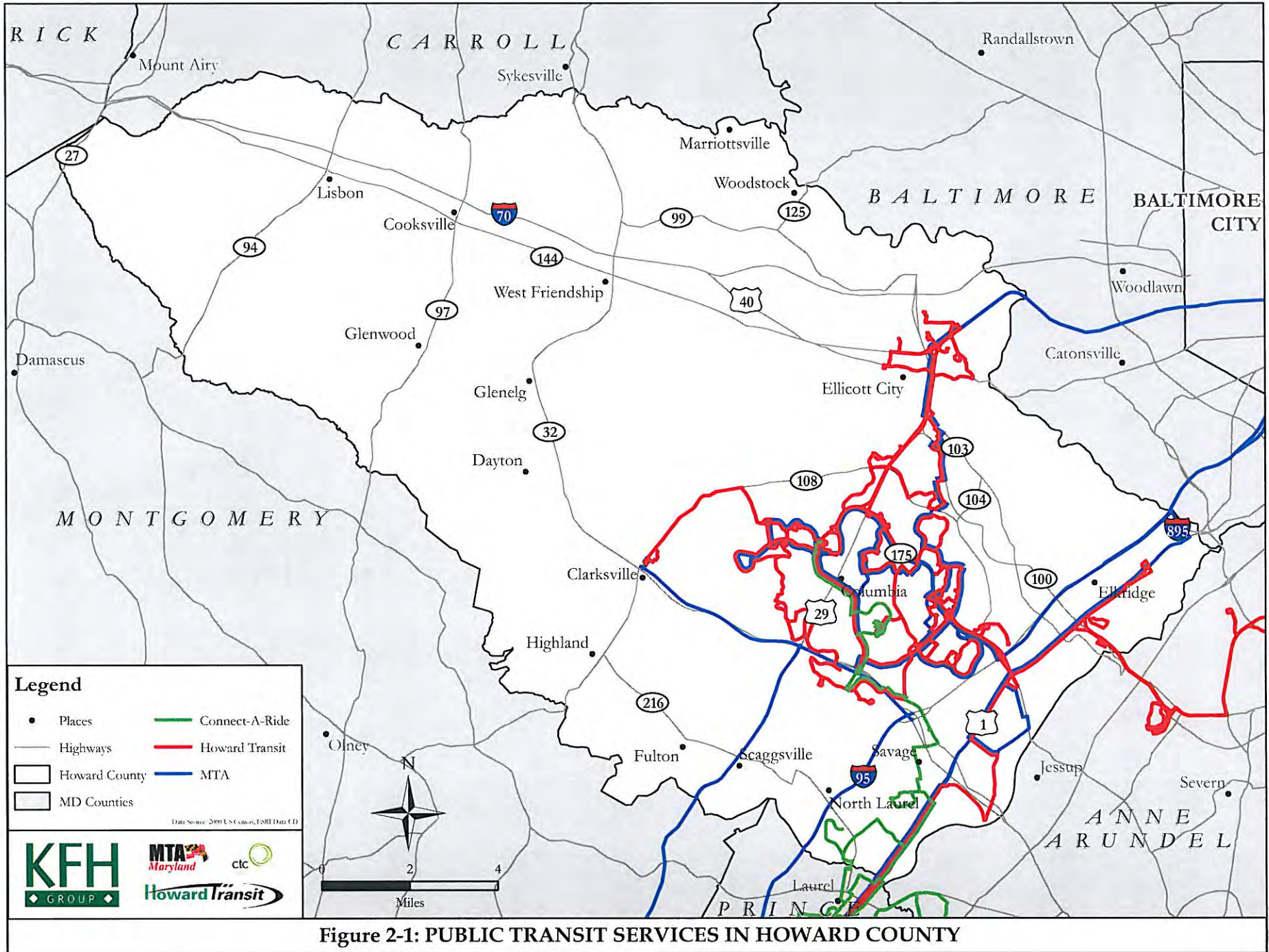
- CAR (service provided by CTC), and the
- Maryland Transit Administration (MTA).

Transit service in Howard County is provided under a contract by CTC, who in turn contracts for the vehicle operation with a private for-profit firm, First Transit. The HT services, including both the fixed-route and HT Ride paratransit services, are operated using County-owned vehicles. CTC is also responsible for the management and operation of CAR services, which are provided primarily in the City of Laurel and western Anne Arundel County. While most of these services are concentrated in Laurel, there are three routes providing service into Howard County. They are also operated by First Transit under contract to CTC, as part of the same service procurement as the HT services. Howard County does not fund the CAR routes—CTC receives state grants itself for the CAR service (though Howard County makes a “contribution” to CTC to assist with the local share for CAR routes serving the County). The state funding for the CAR services in the Laurel area is provided through the Washington Suburban Transit Commission (WSTC). The complexity of the services and the funding for them reflects the fact that Howard County is technically part of the Baltimore region with regards to federal and state transit funding, but it has substantial commuting across the Patuxent River on the southern border into Laurel and the Washington region.

Figure 2-1 is a map showing the routes of the primary transit service providers in Howard County. These agencies provide transit service mostly along the eastern extents of the County, with higher levels of service in the more urbanized areas of Ellicott City, Columbia, and North Laurel. HT services are discussed in the next section.

## Howard Transit

HT is the local public transit service for Howard County and is a service sponsored by Howard County Government. HT is overseen by the Planning & Zoning Department of the Howard County Government. HT provides fixed-route, and specialized transit services – HT Ride and Job Access Reverse Commute (JARC). Fixed-route service is primarily provided in the more densely populated areas of Columbia and Ellicott City, along the Route 1 corridor on the eastern edge of the County, and in the North Laurel area. CAR also provides services in the North Laurel area, and routes linking Laurel, Savage and Columbia. HT also provides service outside the County on a route linking Baltimore/Washington International (BWI) -Thurgood Marshall Airport with Columbia (the Silver Route). This route also serves the MARC/ Amtrak Station at BWI (on the Penn Line) and the MARC Dorsey station (on the Camden Line). There are multiple connection points between HT services and MTA Commuter Bus services, including shared stops between the MTA 320 and HT along Route 1, the Broken Land



Park and Ride (West), Clarksville, Long Gate Park and Ride, Snowden River Park and Ride, and shared stops in the downtown Columbia area. The train and commuter bus services provide access to Baltimore and Washington D.C. There is no existing fixed-route service available in western Howard County as most population is concentrated along and between the US-29, US-1, and I-95 corridors, located in eastern Howard County. Figure 2-2 is a map showing just the Howard Transit fixed-route services in Howard County.

### **Management and Institutional Structure**

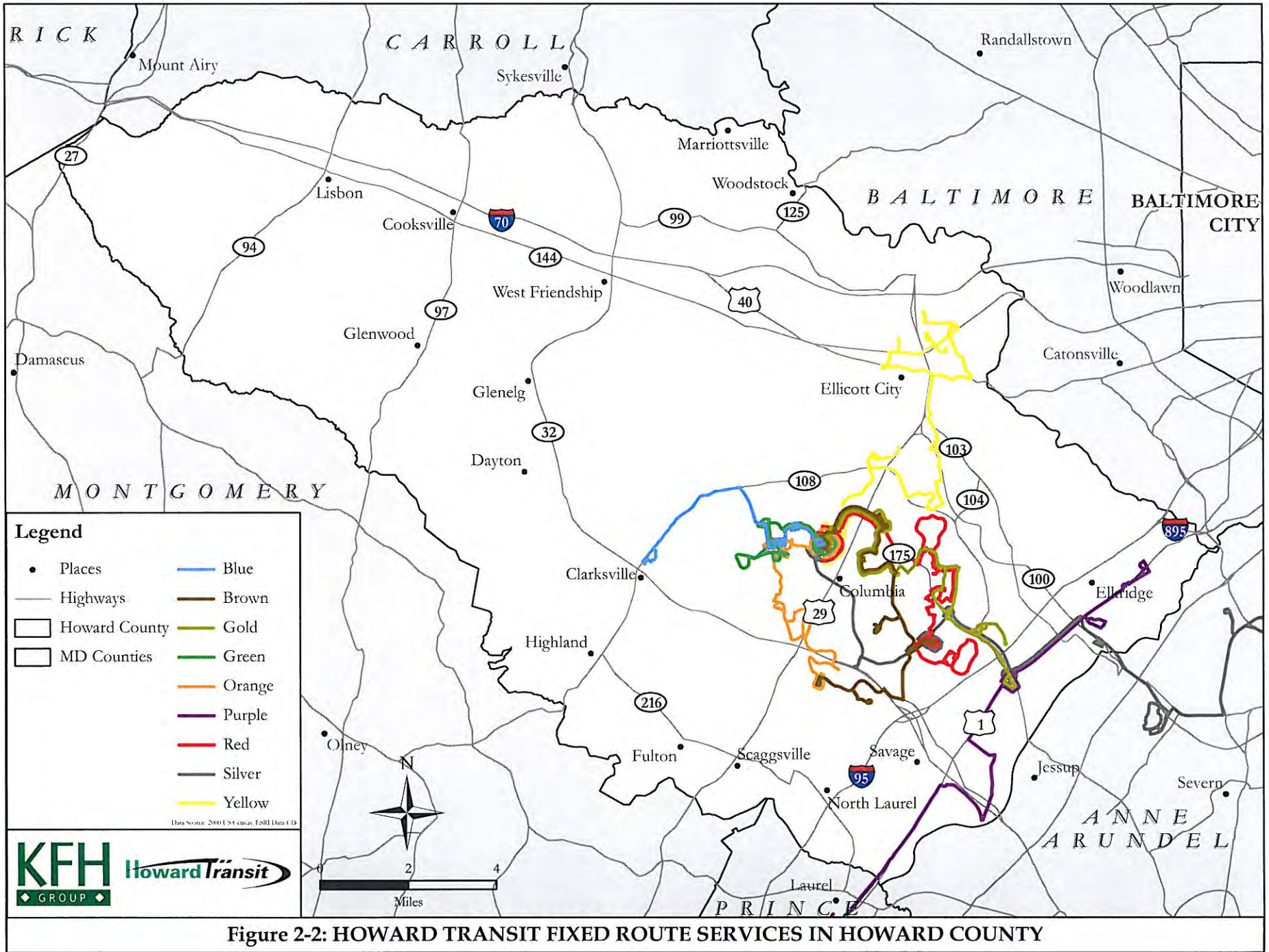
The Howard County Government, through the Department of Planning and Zoning, Transportation Planning Division, contracts for fixed-route service with CTC following a competitive procurement for management and operations. CTC, as previously mentioned, has contracted with First Transit, Inc. (also in a competitive procurement process) to operate this fixed-route service in Howard County as well for its own Connect-a-Ride routes. The contractual relationship between CTC and First Transit, Inc. began in July 2007. Routine and preventive maintenance is conducted by First Transit, Inc. at their facilities and when vehicles are not in service they are stored at facilities leased by First Transit in Laurel.

Exhibit 2-1 is an organization chart presenting the entities involved in the provision of the HT and HT Ride services in Howard County. The HT and HT Ride contract is managed within the Department of Planning and Zoning, Division of Transportation Planning of the Howard County government. The Transit Manager is the Section Manager of the Transportation Planning Division, and is responsible for oversight of the management contractor, CTC, who in turn oversees the operations of its contractor, First Transit, Inc.

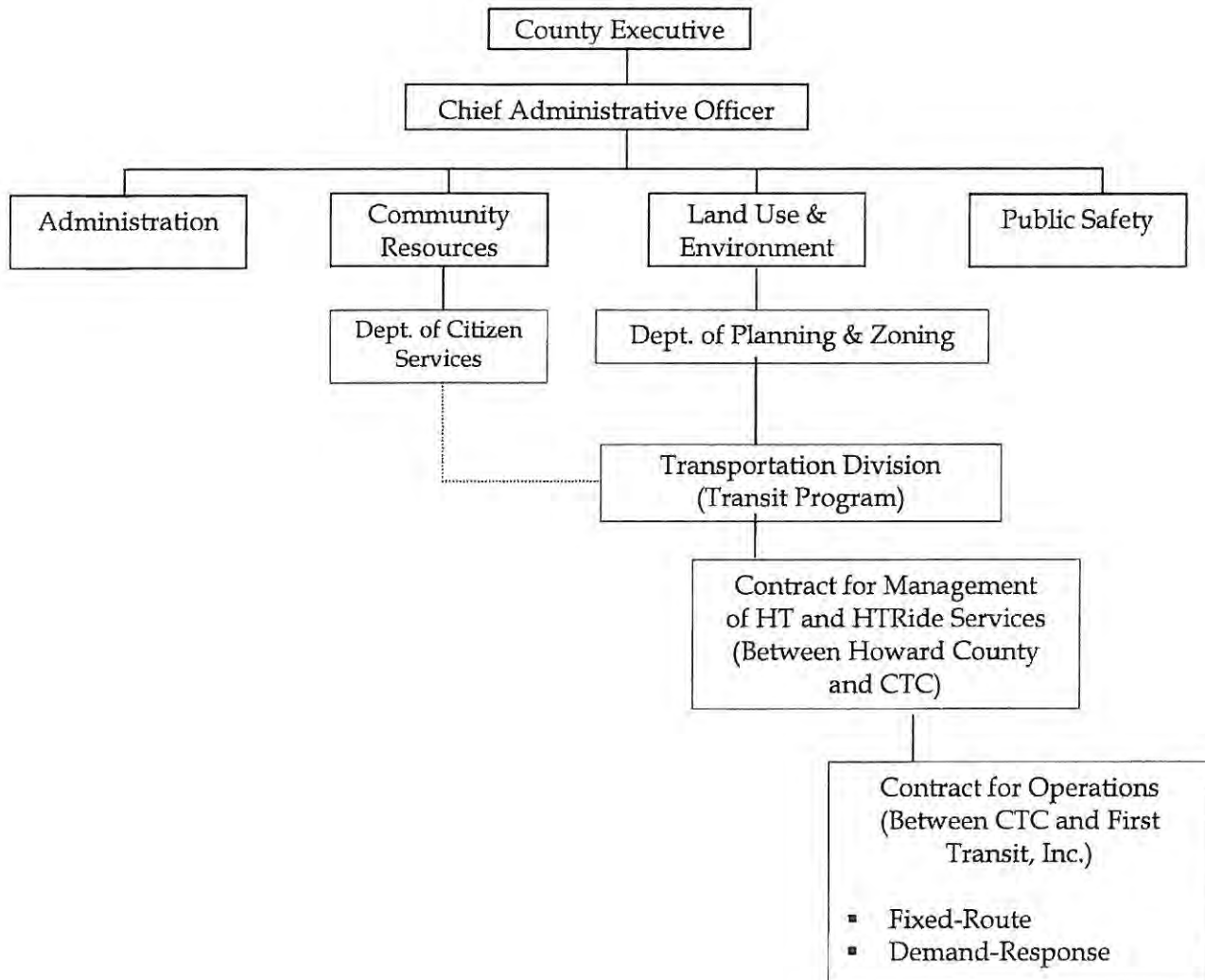
In the Transportation Planning Division there are four staff members and each has some responsibility in overseeing the contract with CTC. CTC has 18.5 full-time equivalent staff available to support the administration and management of HT. CTC contracts for services to operate Howard County's fleet of 52 vehicles to execute fixed-route and demand-response transit services.

### **Budgets and Funding Sources**

The Howard County Government applies to the MTA for FTA Section 5307, Section 5311, American with Disabilities Act (ADA), and Statewide Special Transportation Assistance Program (SSTAP) program funds in order to support the provision of fixed-route and specialized transit services in the County. SSTAP is state funding provided to support specialized transportation services for seniors and persons with disabilities.



## Exhibit 2-1: Howard County - HT and HTRide Organizational Structure



Sources: 1. Maryland County Government  
 Website - [http://www.co.ho.md.us/DPZ/Directory/DPZ\\_DeptDir.htm](http://www.co.ho.md.us/DPZ/Directory/DPZ_DeptDir.htm) and  
 2. Maryland Manual On-Line, Maryland State Archives, 4 January 2008



All of these funding sources are included in the County's Annual Transportation Plan (ATP) application to the MTA Statewide Planning program. MTA's Statewide Planning Program administers all federal and state funding for the Locally Operated Transit Systems (LOTS) in Maryland.

In terms of the overall operating budget for transit services, the primary source of funding for the operation of HT services is the County's General Fund. In the FY 2009 ATP, the County has budgeted approximately \$7.4 million dollars to continue support for Howard Transit operations, approximately 73% of the total operating budget. In terms of Federal/State assistance under the Section 5307, Section 5311, ADA, SSTAP, and Rural and Community Based Services (RCB) program funds, Howard County has been awarded \$2.3 million by MTA. State and federal funding provides a higher percentage of the capital costs, with local dollars for the FY 2009 program providing ten percent of the total ATP capital budget. It should be noted that in the past Howard County has purchased vehicles with 100 percent local funds to address urgent vehicle replacement needs.

## Fleet

The HT fleet is composed of 28 fixed-route vehicles (commonly known as "truck buses" because they are built on a truck chassis) that can seat 20 or 24 passengers and all are lift-equipped; and 23 paratransit vehicles (cutaways, vans, and sedans) that can seat between 3 and 20 passengers and 21 are lift-equipped. Table 2-1 presents the vehicle inventory as of December 2008. Peak service requires 22 vehicles, resulting in a minimal spare fleet of 6 vehicles, which satisfies the 20% criteria recommended by the FTA.

The vehicles shown in Table 2-1 that have an agency fleet number in bold have been requested for replacement in the Annual Transportation Plan FY09 (ATP FY09) to the MTA, 12 vehicles in all. Of the remaining vehicles, six truck buses have accumulated more than 200,000 miles and eight cut-away vehicles, used for paratransit, have garnered more than 150,000 miles.

## Facilities

First Transit Inc. leases an operations facility in Laurel. Vehicles not in use are stored at the facility. First Transit, Inc also completes the maintenance of vehicles.

For the FY 2009 ATP, Howard County requested funds for the construction of a Central Maryland Maintenance Facility allowing local transit systems in central Maryland to share maintenance resources. The facility would allow an opportunity to potentially reduce maintenance costs, as the current facility is leased, and foster

Table 2-1: HOWARD TRANSIT VEHICLE INVENTORY

Agency Fleet Number	Model Year	Make	Vehicle Type or Model	Equipped with Lift or Ramp? (Y or N)	Seating Capacity		Communications Equipment	Capital Funding Source (1)	Current Mileage	Current Status (2)	Average Annual Mileage	Fiscal Year Budgeted for Replacement
					Ambulatory	Wheel-chair						
<b>CURRENT VEHICLES:</b>												
<b>FIXED-ROUTE</b>												
57	1999	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	367,555	ACTIVE	40,839	2009
58	1999	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	357,227	ACTIVE	39,692	2009
77	2001	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	382,971	ACTIVE	54,710	2009
79	2001	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	415,781	ACTIVE	59,397	2009
80	2002	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	434,665	ACTIVE	72,444	2010
81	2002	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	337,961	ACTIVE	56,327	2010
82	2002	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	411,209	ACTIVE	68,535	2010
84	2003	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	285,004	ACTIVE	47,501	2010
85	2003	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	262,813	ACTIVE	52,563	2011
86	2003	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	503,250	ACTIVE	100,650	2011
9509	2003	THOMAS	LF BUS	YES	26	2	RADIO	PTP	46,987	ACTIVE	9,397	2013
9510	2003	THOMAS	LF BUS	YES	27	2	RADIO	PTP	124,181	ACTIVE	24,836	2013
9511	2003	THOMAS	LF BUS	YES	27	2	RADIO	PTP	128,132	ACTIVE	25,626	2013
9512	2005	ELDORADO	LF TRUCK BUS	YES	20	2	RADIO	PTP	86,353	ACTIVE	28,784	2015
9513	2005	ELDORADO	LF TRUCK BUS	YES	20	2	RADIO	PTP	69,197	ACTIVE	23,066	2015
9514	2005	ELDORADO	LF TRUCK BUS	YES	20	2	RADIO	PTP	30,965	ACTIVE	10,322	2015
9515	2005	ELDORADO	LF TRUCK BUS	YES	20	2	RADIO	PTP	60,730	ACTIVE	20,243	2015
9520	2008	GILLIG	Transit Bus	YES	30	2	RADIO	Howard Co.	3,000	ACTIVE	1000	2020
9521	2008	GILLIG	Transit Bus	YES	30	2	RADIO	Howard Co.	3,000	ACTIVE	1000	2020
9522	2008	CHAMPION	MEDIUM DUTY BUS	YES	24	2	RADIO	Howard Co.	23,090	ACTIVE	7697	2018
9523	2008	CHAMPION	MEDIUM DUTY BUS	YES	24	2	RADIO	Howard Co.	29,446	ACTIVE	9815	2018
9524	2008	CHAMPION	MEDIUM DUTY BUS	YES	24	2	RADIO	Howard Co.	28,022	ACTIVE	9341	2018
<b>PARATRANSIT</b>												
1	2007	TOYOTA	PRIUS	NO	3	0	NEXTEL	Howard Co.	26,855	ACTIVE	150	2012
2	2007	TOYOTA	PRIUS	NO	3	0	NEXTEL	Howard Co.	35,175	ACTIVE	150	2012
3	2007	TOYOTA	PRIUS	NO	3	0	NEXTEL	Howard Co.	28,786	ACTIVE	150	2012
4	2007	TOYOTA	PRIUS	NO	3	0	NEXTEL	Howard Co.	25,279	ACTIVE	150	2012
5	2007	CHAMPION	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	54,730	ACTIVE	14,967	2012
6	2007	CHAMPION	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	50,583	ACTIVE	14,123	2012
7	2007	CHAMPION	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	55,997	ACTIVE	13,688	2012
28	2006	FORD	CUT-A-WAY	YES	20	2	RADIO	PTP	76,038	ACTIVE	38,019	2011
29	2006	FORD	CUT-A-WAY	YES	20	2	RADIO	PTP	73,574	ACTIVE	36,787	2011
30	2006	FORD	CUT-A-WAY	YES	20	2	RADIO	PTP	81,259	ACTIVE	40,630	2011
31	2003	FORD	CUT-A-WAY	YES	16	2	RADIO	PTP	203,100	ACTIVE	50,775	2010
32	2003	FORD	CUT-A-WAY	YES	16	2	RADIO	PTP	210,688	ACTIVE	52,672	2010
33	2003	FORD	CUT-A-WAY	YES	12	2	RADIO	PTP	222,439	ACTIVE	55,610	2009
34	2003	FORD	CUT-A-WAY	YES	16	2	RADIO	PTP	200,737	ACTIVE	50,184	2010
35	2002	CHEVY	CUT-A-WAY	YES	10	2	RADIO	MCTP	237,445	ACTIVE	47,489	2009
36	2002	CHEVY	CUT-A-WAY	YES	10	2	RADIO	MCTP	286,700	ACTIVE	57,340	2009
38	2002	CHEVY	CUT-A-WAY	YES	10	2	RADIO	MCTP	222,197	ACTIVE	44,439	2009
39	2002	CHEVY	CUT-A-WAY	YES	10	2	RADIO	MCTP	233,874	ACTIVE	46,775	2009
40	2002	CHEVY	CUT-A-WAY	YES	10	2	RADIO	MCTP	248,568	ACTIVE	49,714	2009
70	2000	FORD	CUT-A-WAY	YES	16	2	RADIO	Howard Co.	250,611	ACTIVE	35,802	2008
71	2000	FORD	CUT-A-WAY	YES	16	2	RADIO	Howard Co.	280,578	ACTIVE	40,083	2008
72	2000	FORD	CUT-A-WAY	YES	16	2	RADIO	Howard Co.	289,300	ACTIVE	41,329	2008
9517	2007	FORD	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	57,428	ACTIVE	3,678	2012
<b>SPARE VEHICLES</b>												
63	2000	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	456,988	ACTIVE	65,284	2008
66	2000	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	461,268	ACTIVE	65,895	2009
67	2000	CHAMPION	TRUCK BUS	YES	24	2	RADIO	Howard Co.	469,787	ACTIVE	67,112	2008
9516	2007	FORD	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	60,656	ACTIVE	2,690	2012
9518	2007	FORD	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	49,820	ACTIVE	2,879	2012
9519	2007	FORD	CUT-A-WAY	YES	14	3	RADIO	Howard Co.	45,635	ACTIVE	3,763	2012

Agency Fleet Number	Model Year	Make	Vehicle Type or Model	Equipped with Lift or Ramp? (Y or N)	Seating Capacity		Communi-cations Equipment	Capital Funding Source (1)	Current Mileage	Current Status (2)	Average Annual Mileage	Fiscal Year Budgeted for Replacement
					Ambu-latory	Wheel-chair						
<b>SERVICE VEHICLES</b>												
55	1997	FORD	CUT-A-WAY	YES	8	2	RADIO	Howard Co.		ACTIVE		2009
76	2000	FORD	CUT-A-WAY	YES	8	2	RADIO	Howard Co.	301,936	ACTIVE	43,134	2008
501	2001	CHEVY	BLAZER	NO	5	0	RADIO	Howard Co.		ACTIVE		2008
502	2002	FORD	VAN	NO	2	0	RADIO	Howard Co.		ACTIVE		2009
503	2004	FORD	EXPLOYER	NO	4	0	RADIO	Howard Co.		ACTIVE		2011
504		CHEVY	MALIBU	NO	4	0	RADIO	Howard Co.		ACTIVE		2008
505		CHEVY	MALIBU	NO	4	0	RADIO	Howard Co.		ACTIVE		2009
506		CHEVY	IMPALA	NO	4	0	Cell Phone	Howard Co.		ACTIVE		2009
<b>VEHICLES AWARDED BUT NOT RECEIVED:</b>												
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.
	2008	TBD	TBD	n.a	n.a	n.a	n.a	PTP	n.a.	To Be Ordered	n.a.	n.a.

Vehicle Data as of December 2008

- (1) Funding program such as 5311, 5307, 5310, SSTAP, MCTP, Medicaid, Title III, etc.  
(2) Current status of the vehicle (active, back-up, inactive, on order).

cooperative relationships among agencies in central Maryland supporting the theme of regionalism. Howard County has taken steps to complete a preliminary design and is currently awaiting a site assessment to determine a viable construction site. A study is currently underway that will provide a thorough assessment of the benefits and feasibility of the construction of this facility.

As its main passenger transfer point, HT uses an area adjacent to Columbia Mall, on Mall property. This facility includes three large green shelters, but few other amenities. It is located outside the Mall, but is connected by sidewalk, though passengers coming from the Mall must cross the entrances to the Sears automotive garage to reach the buses. The curb area available for the buses is not long enough to accommodate all the buses that meet at the same time, and so buses double park, requiring passengers to leave the curb and wander among the buses to locate their vehicle. The lack of a dedicated, consistent stop for each route was identified as an issue during the outreach effort for this study. Other passenger facilities include passenger shelters located in various places throughout the community—at key stops and transfer points. These are installed and maintained by the County rather than CTC or First Transit.

## **Technology**

The HT vehicles are equipped with Automated Vehicle Location (AVL) equipment and have a contract with NextBus to monitor vehicle on-time and location information. NextBus uses satellite technology and advanced computer modeling to monitor and calculate the arrival time of each vehicle. Each vehicle is equipped with a satellite tracking system. This allows for continual analysis and automatic updates for vehicle arrival times. The public can access this information by going to [www.nextbus.com](http://www.nextbus.com) and connecting to the HT link. Real-time predictions are provided as well as maps showing the location of the vehicle.

For the FY 2009 ATP, Howard County has requested funds for an AVL System to continue existing operations. This will help monitor on-time performance, provide real-time information to riders, and also address customer complaints.

CTC also made a request in the FY 2009 ATP to acquire and mount vehicle security cameras. The cameras would assist management with safety and security issues as they would serve as a deterrent to vandalism and contribute to a greater sense of safety. The cameras would also assist in determining causes of unforeseen events, as potential litigation could be avoided with an ability to review footage of the event.

Also, a complementary technology item requested by Howard County in FY09, is route development software that will allow for improved scheduling, reporting, and

management of data and consolidate all of these functions. The benefits of this software include streamlined operations data reporting, and reduction in employee hours required to generate routes and schedules.

As for future capital requests, HT anticipates the need for requesting funds to implement an IT Integration package that will consolidate all technology services: smartcards, surveillance, fareboxes, etc. Currently, the HT vehicles do not have automated fareboxes or security cameras. It should also be noted that many paratransit systems that are equipped with AVL also have Mobile Digital Terminals (MDTs) on the vehicles, which allow for digital communications with the dispatch, and real-time data collection (boarding/alighting times, time at stops, etc.) which can greatly facilitate data collection, reporting, and service quality. HT Ride does not have such equipment.

### **Marketing**

The HT system is promoted and marketed through brochures, newspaper notices, and speaking engagements. County Planning and Zoning staff and CTC staff conduct outreach to businesses and community groups to make the HT service more visible to residents of Howard County. In addition, transit information is provided by the Department of Community Services through its staff and programs. HT has an internet presence on the County website, with links to schedule and route information.

### **Training**

First Transit Inc. provides 120 hours of driver training for new hires. The training includes Transportation Safety Institute, Smith System, Passenger Relations, ADA instruction, Federal Guidelines for ADA, Emergency Preparedness and Management, and Hazard Communications. Per Occupational Safety & Health Administration (OSHA) requirements, also included as part of the training, is blood borne pathogens assessment.

First Transit Inc. also offers maintenance training for maintenance personnel. Maintenance training includes: personal protective equipment, Lock-Out, Tag-Out, Equipment Handling, wheelchair operation, and towing. Other training includes Monthly Safety Meetings and an 8-hour session for post accident procedures.

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## SERVICES

### Fixed-Route Service

HT operates nine fixed routes in Howard County. All routes operate Monday-Friday, while some routes also provide express service on weekdays and limited weekend service. Buses operate under the direction of printed schedules and make timed stops. All routes except the Purple Route (serving the Route 1 corridor), connect at the Columbia Mall transfer center. The fixed routes primarily serve the Columbia, Ellicott City, and Laurel urbanized areas and surrounding communities. Service is also available to BWI-Thurgood Marshall Airport, MARC stations, and industrial parks along the US 1 corridor. Each route is described in the following paragraphs. Each description is accompanied by two figures: the first figure demonstrates the route and destinations in proximity to the route, and population density information; the second figure demonstrates specific places in proximity to the route using a  $\frac{1}{4}$  and  $\frac{3}{4}$  mile buffer around it and route performance information. These figures present a good overview of route accessibility relative to destinations in Howard County

#### *Blue Route*

The Blue Route, displayed in Figure 2-3, operates service connecting Columbia Mall, Howard Community College, and onto Clarksville. Service is provided Monday through Friday on an hourly headway between the hours of 6:00 a.m. to 9:30 a.m. and between the hours of 2:00 p.m. and 7:00 p.m. In Figure 2-4, the route profile demonstrates 48 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are human service agencies and high density housing facilities.

#### *Brown Route*

The Brown Route, displayed in Figure 2-5, operates service connecting Columbia Mall, Patuxent Medical Group, and Kings Contrivance. Service operates Monday through Friday starting at 5:30 a.m. up until 10:30 p.m., Saturday service 7:30 a.m. to 9:42 p.m., and Sunday/Holiday service 9:00 a.m. to 6:48 p.m. In Figure 2-6, the route profile demonstrates 78 facilities within  $\frac{3}{4}$  mile of the route. A majority of the facilities are high density housing facilities and high schools.

#### *Gold Route*

The Gold Route, displayed in Figure 2-7, operates service connecting Columbia Mall, Oakland Mills, Snowden River Park & Ride, and Maryland Food Center. Service operates Monday through Friday between the hours of 6:30 a.m. to 9:21 a.m. and the

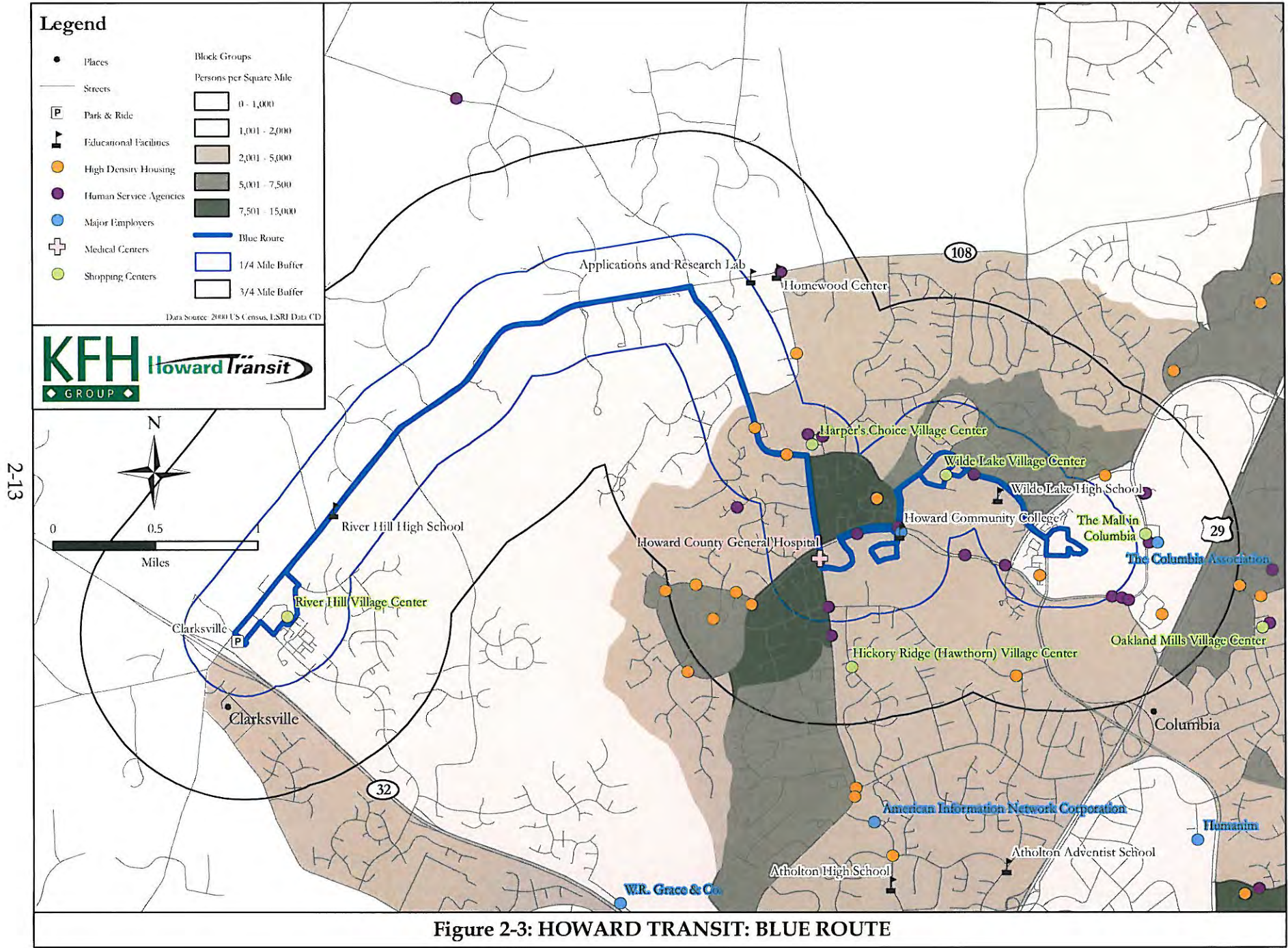


Figure 2-3: HOWARD TRANSIT: BLUE ROUTE

**Figure 2-4: HOWARD TRANSIT: BLUE ROUTE PROFILE**

**MAJOR TRIP GENERATORS**

**Educational Facilities**

- Applications and Research Lab
- Homewood Center
- Howard Co. Community College
- River Hill High School
- Wilde Lake High School

**High Density Housing**

- Avalon at Symphony Glen
- Cedar Valley
- Clays Crossing
- Club Merion
- Columbia Town Center
- Fenland Field
- Gramercy of Town Center
- Harpers Forest

- The Bluffs Rental Center
- The Evergreens at Columbia Town
- The Greens at Columbia

- Major Employers
- The Columbia Association

**Medical Centers**

- Howard Co. General Hospital
- Shopping Centers
- Harper's Choice Village Center
- Hickory Ridge Village Center
- River Hill Village Center
- The Mall in Columbia
- Wilde Lake Village Center

- Park & Ride Lot Locations
- Clarksville

- \*Within 1/4 Mile of Route
- \*Within 3/4 Mile of Route

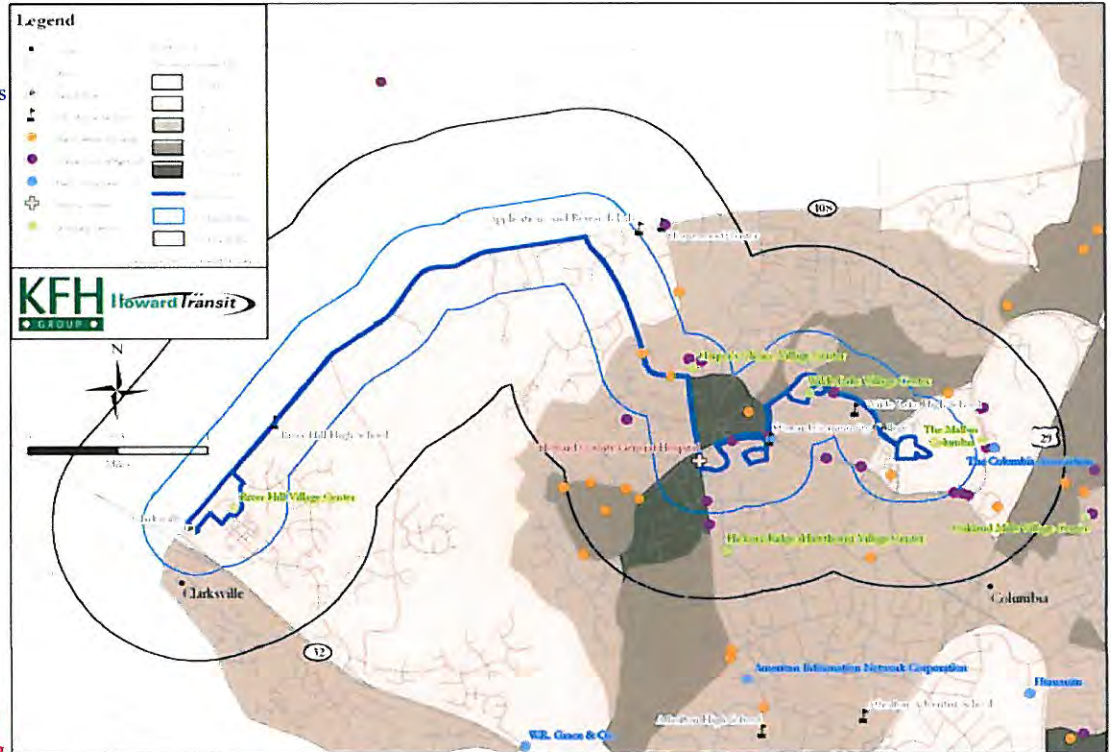
**Human Service Agencies**

- Adaptive Living, Inc.
- Association of Community Services
- Bain Center
- Caregivers Support Group
- Career Links
- Claudia Meyer Cancer
- Resource and Image Center
- Crohn's & Colitis
- Foundation of America, Inc.

**Family & Children's Services**

- of Central Maryland
- FIRN
- Healthy Families Howard County
- Horizon Foundation
- Howard Co. Dept. of Education
- Howard Co. Central Library
- Howard Plaza Pregnancy Center
- Leadership Howard County
- Leadership U

- League of Women Voters
- of Howard County
- National Family Resiliency Center
- Sixty Plus Wills & Legal Screening
- The Volunteer Center Serving
- Howard County
- Voices for Children
- Wellness Center
- Winter Growth, Inc.
- Women's Giving Circle



**SERVICE DESCRIPTIONS**

Service Type:	Fixed-Route
Service Description:	General Public
Area Description:	Clarksville to Columbia Mall
Hours of Service:	6:00am-9:30am & 2pm-7pm Mon-Fri
Days of Service:	Mon-Fri
Fares:	\$1.50 for General Public Reduced Fares May Be Available
Round Trip Miles:	15.06

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips:	20,382
Annual Total Hours:	2,719
Annual Total Miles:	47,047
Annual Operating Cost:	\$158,773
Passenger Trips per Hour:	7.50
Operating Cost per Hour:	\$58.39
Operating Cost per Mile:	\$3.37
Operating Cost per Passenger Trip:	\$7.79



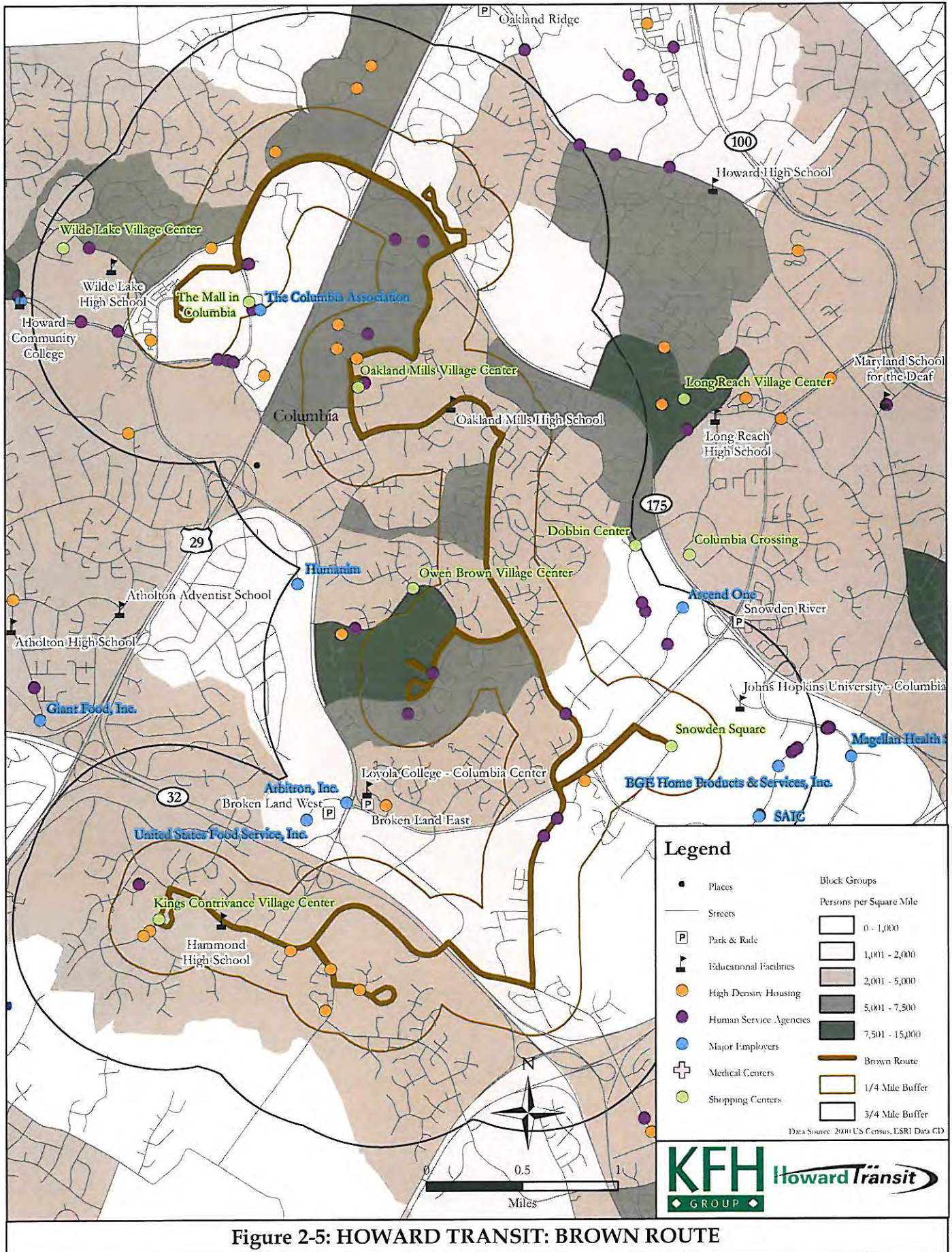


Figure 2-5: HOWARD TRANSIT: BROWN ROUTE

**Figure 2-6: HOWARD TRANSIT: BROWN ROUTE PROFILE**

**MAJOR TRIP GENERATORS**

**Educational Facilities**  
 Hammond High School  
 Oakland Mills High School  
 Wilde Lake High School

**High Density Housing**

**Autumn Crest**  
 Avalon at Fairway Hills  
 Avalon at Symphony Gler  
**Beech's Farm**  
**Berkshires of Columbia**  
 Brighton Gardens  
 Chimneys of Cradlerock  
**Columbia Commons**  
 Columbia Town Center  
**Dominion at Eden Brook**  
**Dominion Kings Place**  
**Gramercy of Town Center**  
**Grand Pointe**  
**Huntington Downs**  
 Island Club  
**King's Crossing**  
 Stonehaven  
**The Evergreens at Columbia Tower**  
**The Verona at Oakland Mills**

**Human Service Agencies**

Alcohol/Drug Addiction Service Center  
 Association of Community Services  
**Autism Society of America**  
 Baptist Family & Children's Service  
**Christ Church Link**  
 Chron's & Colitis Foundation of America, Inc  
 Columbia Health Center  
**Columbia Teen Center**  
 Congregations Concerned for the Homeless  
 Department of Social Services  
**Domestic Violence Center of Howard Co**  
 East Columbia Senior Center  
 Family & Children's Services of Central ME  
**HANDS**  
 Healthy Families Howard County  
**Hospice of Howard County**  
 Howard County Express MVA  
 Howard County Health Department  
 Howard Co. Library-Central Library  
 Howard Co. Library-East Columbia Branch  
**Howard County Recreation & Parks**  
 Howard Plaza Pregnancy Center  
 Humanim  
 Johns Hopkins University-Columbia Center

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Kings Contrivance to Columbia Mal  
 Hours of Service: 5:30am-10:30pm Mon-Fri,  
 7:30am-9:45pm Sat, 9am-6:50pm Sun  
 Days of Service: Mon-Sun  
 Fares: \$1.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 32.62

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 127,332  
 Annual Total Hours: 10,766  
 Annual Total Miles: 170,717  
 Annual Operating Cost: \$721,487  
 Passenger Trips per Hour: 11.83  
 Operating Cost per Hour: \$67.02  
 Operating Cost per Mile: \$4.23  
 Operating Cost per Passenger Trip: \$5.67

**Human Service Agencies (continued)**

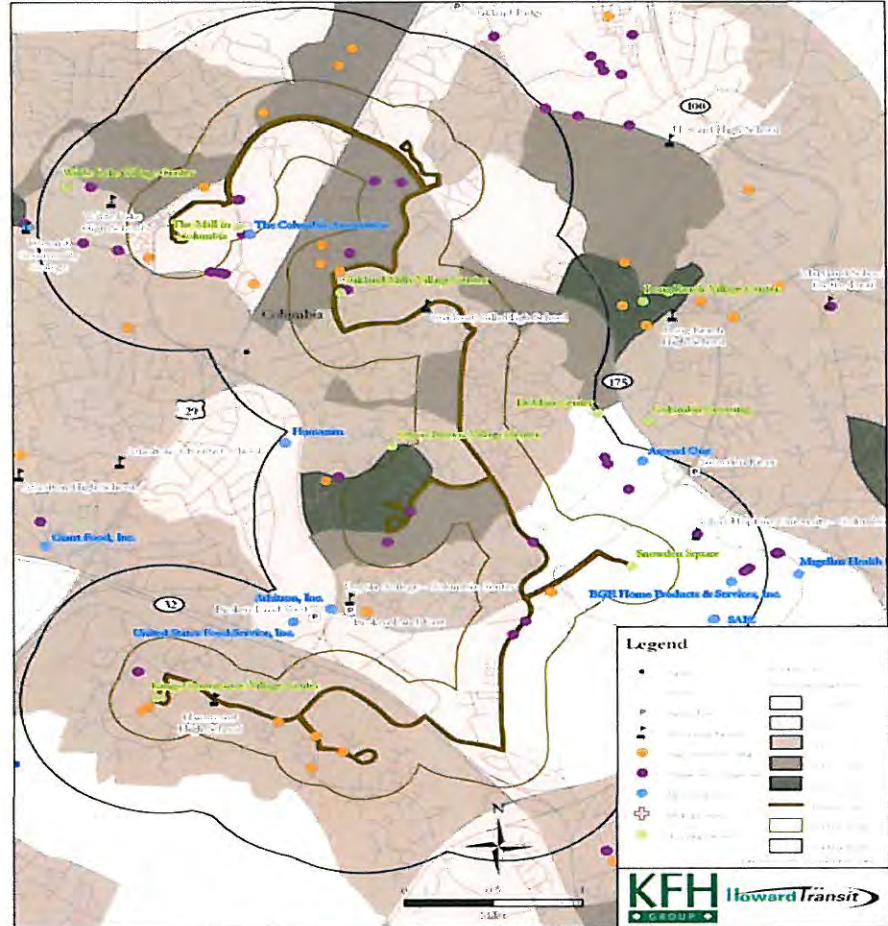
**Leadership Howard County**  
**Leadership U**  
 League of Women Voters Howard County  
 Loyola College-Columbia Center  
**Maryland State Employment Office**  
 National Family Resiliency Center  
 Office of Workforce Deployment  
**Owen Brown Senior Center Plus**  
 Own Our Own Drop In Center  
**PFLAG**  
 School to Employment Program  
**Serenity Center**  
 Social Security Administration Howard County  
**The Volunteer Center Serving Howard County**  
 Voices for Children  
**Women's Giving Circle**  
 Woodside Center

**Shopping Centers**

Dobbin Center  
**King Contravince Village Center**  
**Oakland Mills Village Center**  
**Snowden Square**  
**The Mall in Columbia**  
 Wilde Lake Village Center

**Medical Centers**

(None)



**Major Employers**

**The Columbia Association**  
 Arbitron, Inc.  
 Ascend One  
 BGE Home Products & Services, Inc.  
 SAIC  
 United Food Service, Inc.

**Park & Ride Lot Locations**

**Snowden River**  
**Broken Land East**  
**Broken Land West**

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*

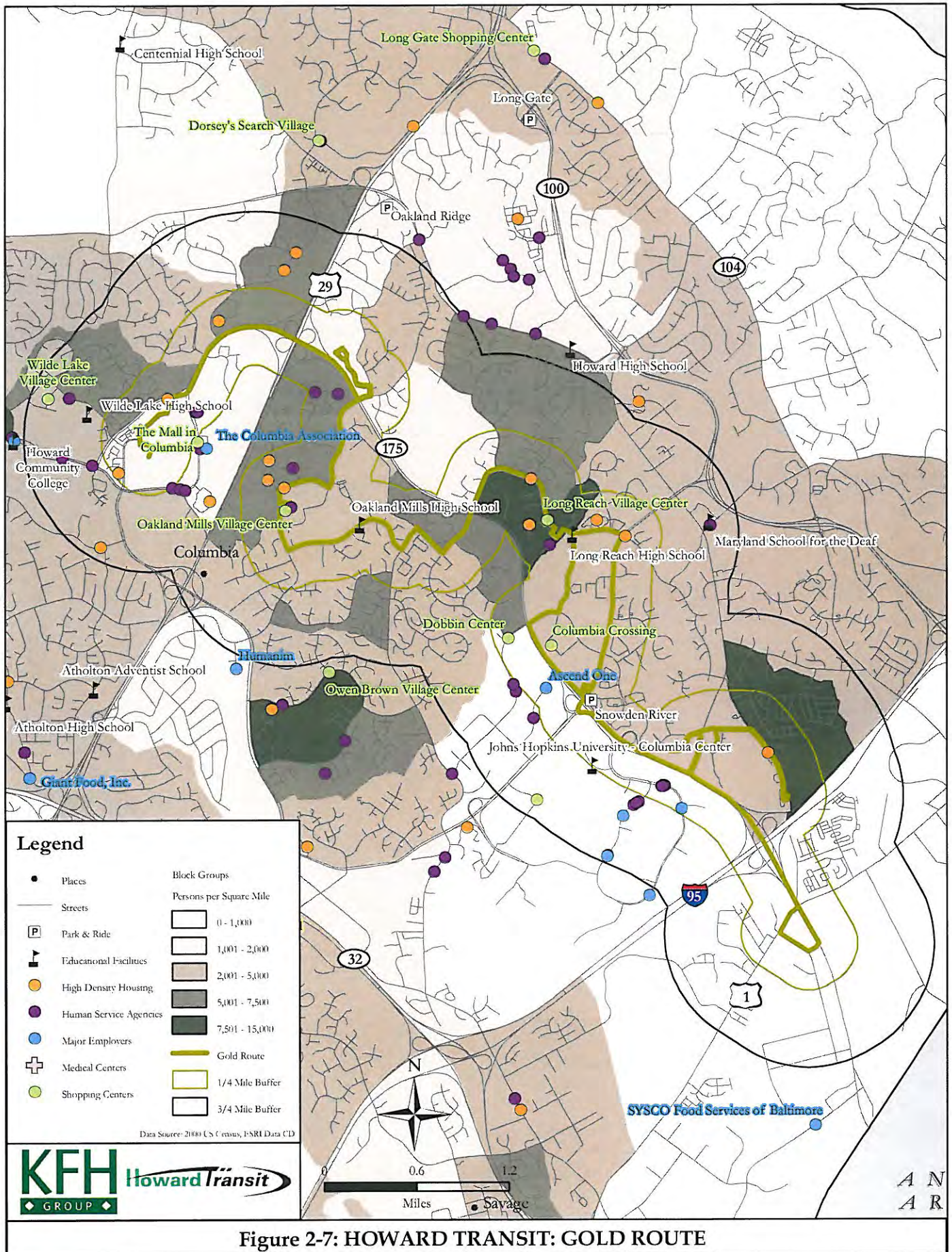


Figure 2-7: HOWARD TRANSIT: GOLD ROUTE

hours of 2:30 p.m. to 6:25 p.m. on hourly headways. No weekend service. In Figure 2-8, the route profile demonstrates 83 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are educational, high density housing facilities, and human service agencies.

### ***Green Route***

The Green Route, displayed in Figure 2-9, operates service connecting Columbia Mall, Harper's Choice, and Howard General. Service operates Monday through Friday between hours of 5:40 a.m. to 11:10 p.m. on 30-minute headways in the peak and hourly service the rest of the day. Weekend service operates 7:40 a.m. to 10:10 p.m. on Saturday, and 9:00 a.m. to 6:52 p.m. on Sunday; service operates on an hourly headway both days. In Figure 2-10, the route profile demonstrates 45 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are high density housing facilities and human service agencies.

### ***Orange Route***

The Orange Route, displayed in Figure 2-11, operates service connecting Columbia Mall, Hickory Ridge, Howard County Hospital, and Kings Contrivance. Service operates Monday through Friday between the hours of 6:00 a.m. to 9:41 p.m. on hourly headways until 6:00 p.m., 2-hour headways after 6:00 p.m. Weekend service operates 8:00 a.m. to 8:23 p.m. on Saturday, and 10:00 a.m. to 6:40 p.m. on Sunday/Holiday; service operates on an hourly headway up until 6:00 p.m. on Saturday, and two-hour headways all day Sunday. In Figure 2-12, the route profile demonstrates 62 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are high density housing and human service agencies.

### ***Purple Route***

The Purple Route, displayed in Figure 2-13, operates service connecting Laurel Mall, Corridor Road, Savage MARC Station, Baltimore-Washington Industrial Park, Dorsey MARC, and the Elkridge Corners Shopping Center. Service operates Monday through Friday between the hours of 6:00 a.m. to 9:55 p.m. on hourly headways until 7:00 p.m., 2-hour headways after 7:00 p.m. and during the midday, 11:00 a.m. to 3:00 p.m. In Figure 2-14, the route profile demonstrates 18 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are high density housing facilities and human service agencies.

### ***Red Route***

The Red Route, displayed in Figure 2-15, operates service connecting Columbia Gateway Commerce Center, Long Reach, Columbia Crossing, Social Security and the Department of Social Services. Service operates Monday through Friday between the

**Figure 2-8: HOWARD TRANSIT: GOLD ROUTE PROFILE**

**MAJOR TRIP GENERATORS**

- Educational Facilities**  
 Long Reach High School  
 Maryland School for the Deaf  
 Oakland Mills High School  
 Wilde Lake High School

**High Density Housing**

- Autumn Crest  
 Avalon at Fairway Hills  
 Avalon at Symphony Glen  
 Berkshires of Columbia  
 Columbia Landing  
 Columbia Town Center  
 Gramercy of Town Center  
 Grand Pointe  
 Island Club  
 Kendall Ridge  
 Lazy Hollow  
 Sherwood Crossing  
 Somerford Place  
 Tamar Meadow  
 The Evergreens at Columbia Town  
 The Verona at Oakland Mills

**Human Service Agencies**

- Association of Community Services  
 Columbia Teen Center  
 Commission on Aging  
 Congregations Concerned for the Homeless  
 Crohn's & Colitis Foundation of America, Inc.  
 Domestic Violence Center of Howard County  
 Family & Children's Services of Central MD  
 Healthy Families Howard County  
 Howard County Express MVA  
 Howard County Library-Central Library  
 Howard Plaza Pregnancy Center  
 Leadership Howard County  
 Leadership U  
 League of Women Voters of Howard County  
 Longwood Senior Center  
 Maryland School for the Deaf  
 Mental Health Authority's Indigent Pharmacy Program  
 NAMI of Howard County  
 National Family Resiliency Center  
 Office of Workforce Deployment

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Maryland Food Center to Columbia Mall  
 Hours of Service: 6:30am-10:17pm Mon-Fri  
 Days of Service: Mon-Fri  
 Fares: \$1.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 30.78

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 28,652  
 Annual Total Hours: 5,859  
 Annual Total Miles: 93,841  
 Annual Operating Cost: \$376,067  
 Passenger Trips per Hour: 4.89  
 Operating Cost per Hour: \$64.19  
 Operating Cost per Mile: \$4.01  
 Operating Cost per Passenger Trip: \$13.13

**Human Service Agencies (continued)**

- Ombudsman/Guardianship Programs  
 Own Our Own Drop In Center  
 Serenity Center

**Major Employers**

- Ascend One  
 The Columbia Association  
 Social Security Administration Howard County  
 The Volunteer Center Serving Howard County  
 Voices for Children  
 Women's Giving Circle

**Shopping Centers**

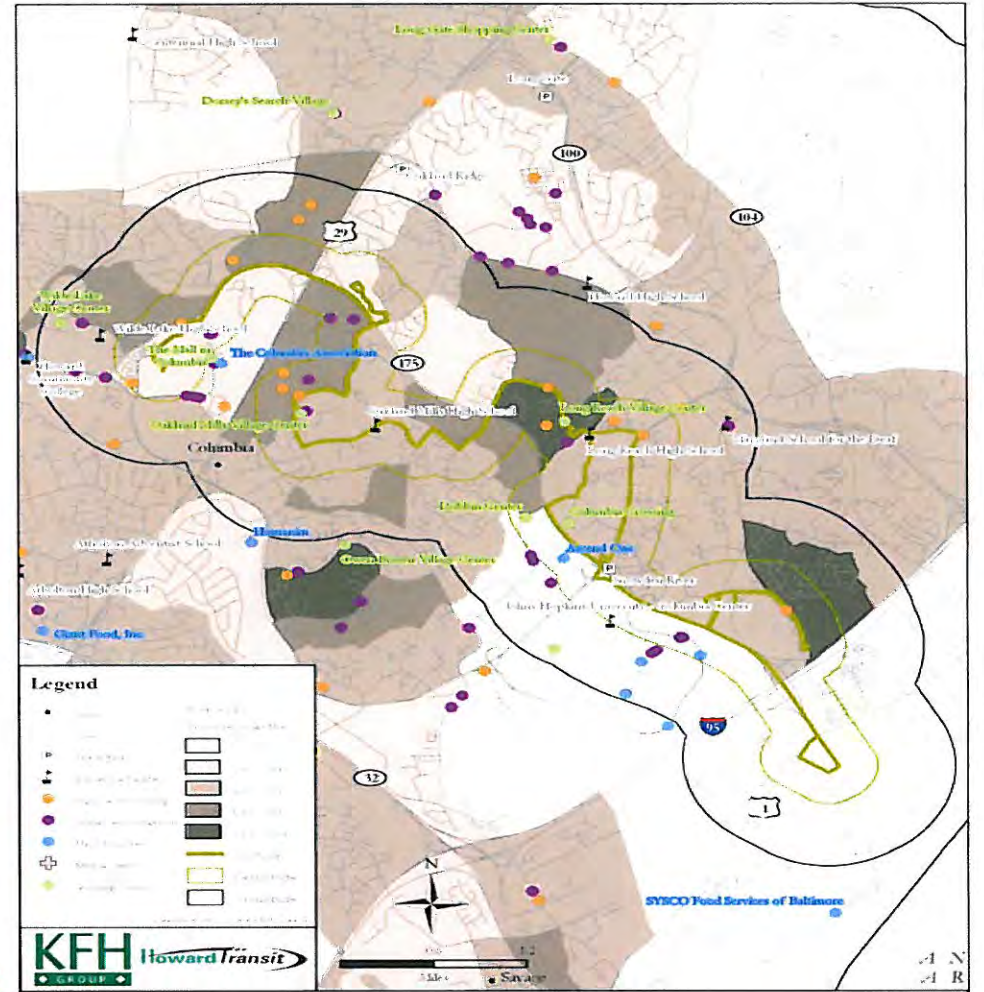
- Columbia Crossing  
 Dobbin Center  
 Long Reach Village Center  
 Oakland Mills Village Center  
 The Mall in Columbia  
 Wilde Lake Village Center

**Park & Ride Lot Locations**

- Snowden River

**Medical Centers**  
 (None)

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*



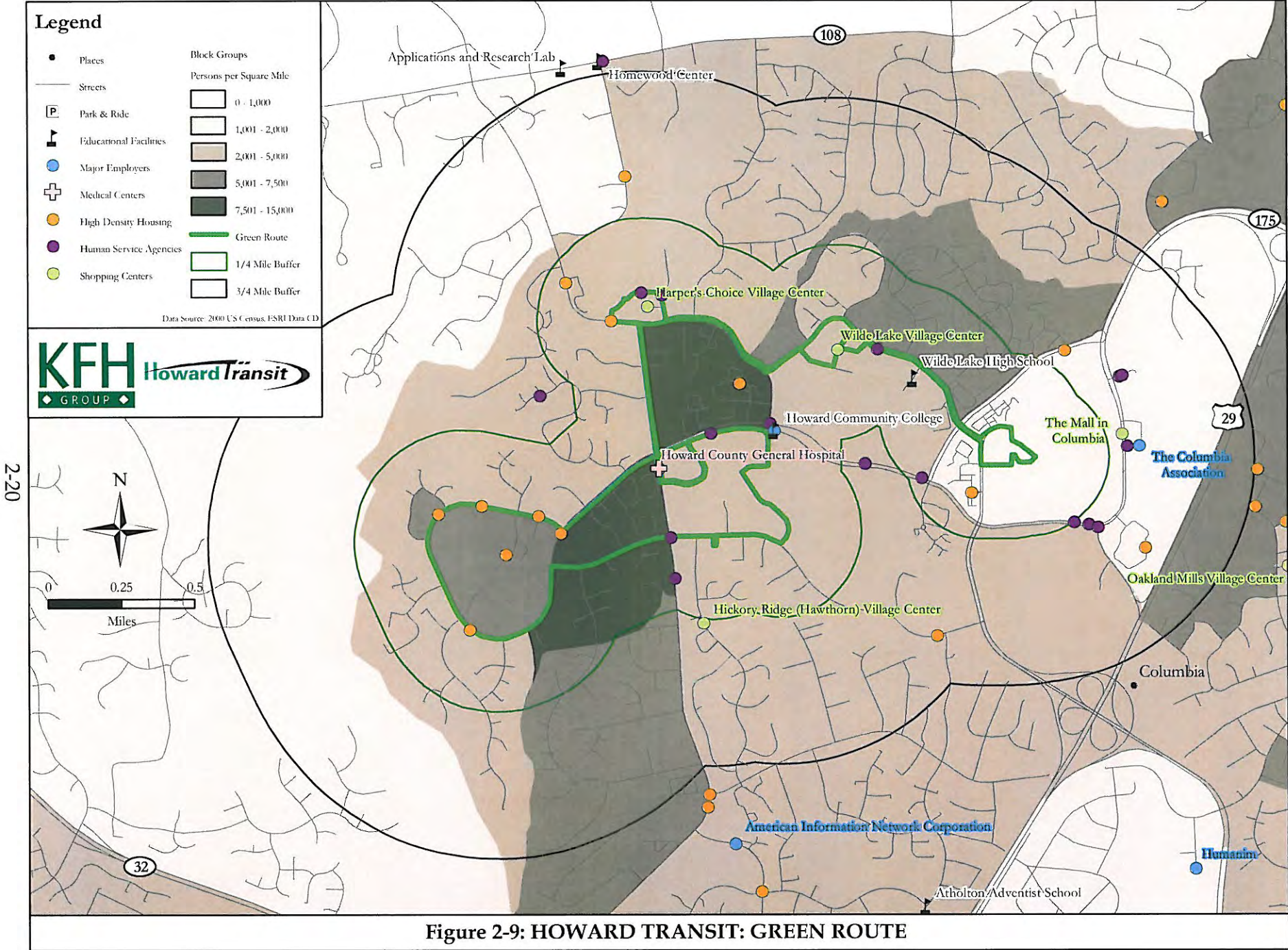


Figure 2-9: HOWARD TRANSIT: GREEN ROUTE

**Figure 2-10: HOWARD TRANSIT: GREEN ROUTE PROFILE**

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Columbia Mall to Harper's Choice  
 Hours of Service: 5:45am-11:15pm Mon-Fri,  
 7:45am-10:15pm Sat  
 9am-7pm Sun/Holiday  
 Days of Service: Mon-Sun  
 Fares: \$1.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 20.44

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 131,098  
 Annual Total Hours: 6,156  
 Annual Total Miles: 65,796  
 Annual Operating Cost: \$429,080  
 Passenger Trips per Hour: 21.30  
 Operating Cost per Hour: \$69.70  
 Operating Cost per Mile: \$6.52  
 Operating Cost per Passenger Trip: \$3.27

**MAJOR TRIP GENERATORS**

**Educational Facilities**  
 Howard County Community College  
 Wilde Lake High School

**High Density Housing**  
 Avalon at Symphony Glen  
 Avalon Columbia  
 Calys Crossing  
 Cedar Valley  
 Club Merion  
 Columbia Town Center  
 Fenland Field  
 Gramercy of Town Center  
 Harpers Forest  
 Poplars Glen  
 Reflections  
 The Bluffs Rental Center  
 The Evergreens at Columbia  
 The Greens at Columbia

**Major Employers**  
 The Columbia Association

**Human Service Agencies**  
 Adaptive Living, Inc.  
 Association of Community Services  
 Bain Center  
 Career Links  
 Caregivers Support Group  
 Claudia Mayer Cancer Resource & Image Center  
 Crohn's & Colitis Foundation of America, Inc.  
 Family & Children's Services of Central Maryland  
 FIRN  
 Healthy Families Howard County  
 Horizon Foundation  
 Howard County Library-Central Library  
 Howard Plaza Pregnancy Center

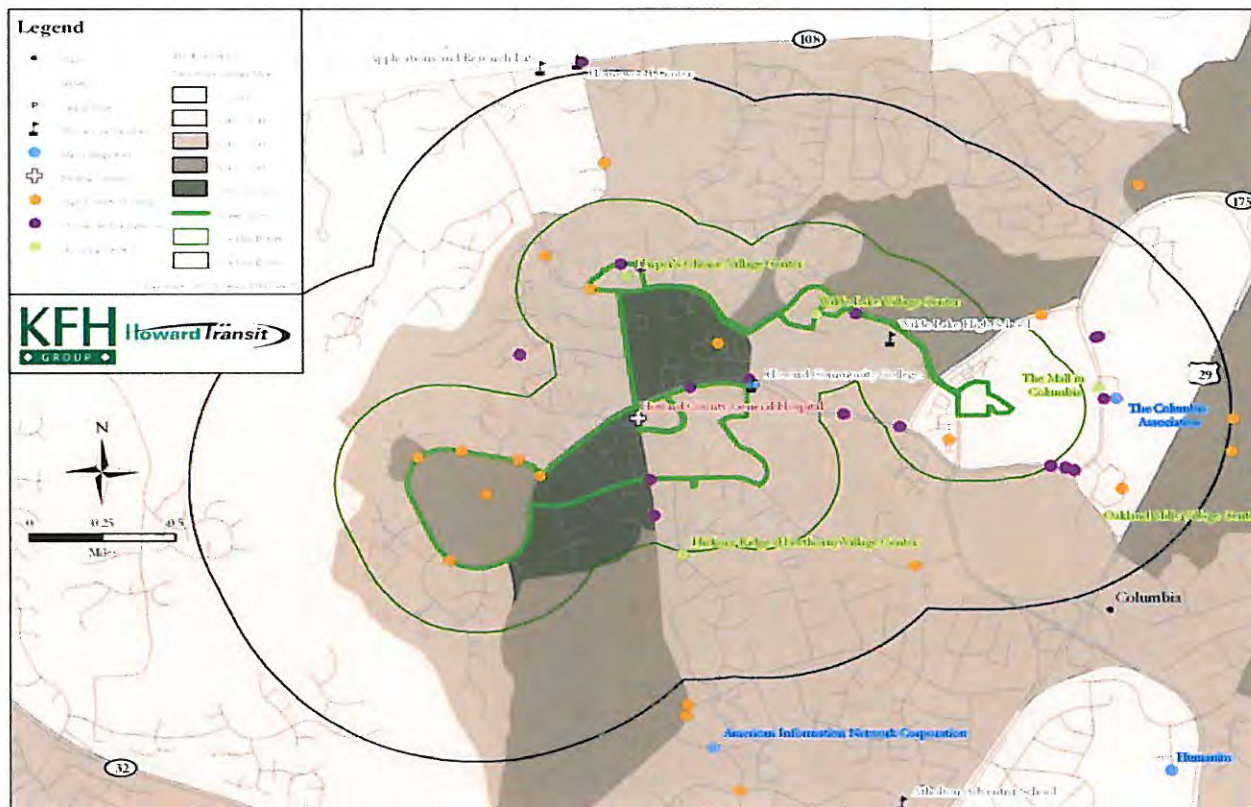
**Human Service Agencies (Cont.)**  
 Leadership Howard County  
 Leadership U  
 League of Women Voters of Howard County  
 National Family Resiliency Center  
 Sixty Plus Wills & Legal Screening  
 The Volunteer Center Serving Howard County  
 Voices for Children  
 Wellness Center  
 Winter Growth, Inc.  
 Women's Giving Circle

**Medical Centers**  
 Howard County General Hospital

**Shopping Centers**  
 Harper's Choice Village Center  
 Wilde Lake Village Center  
 The Mall in Columbia  
 Hickory Ridge Village Center

**Park & Ride Lot Locations**  
 (None)

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*



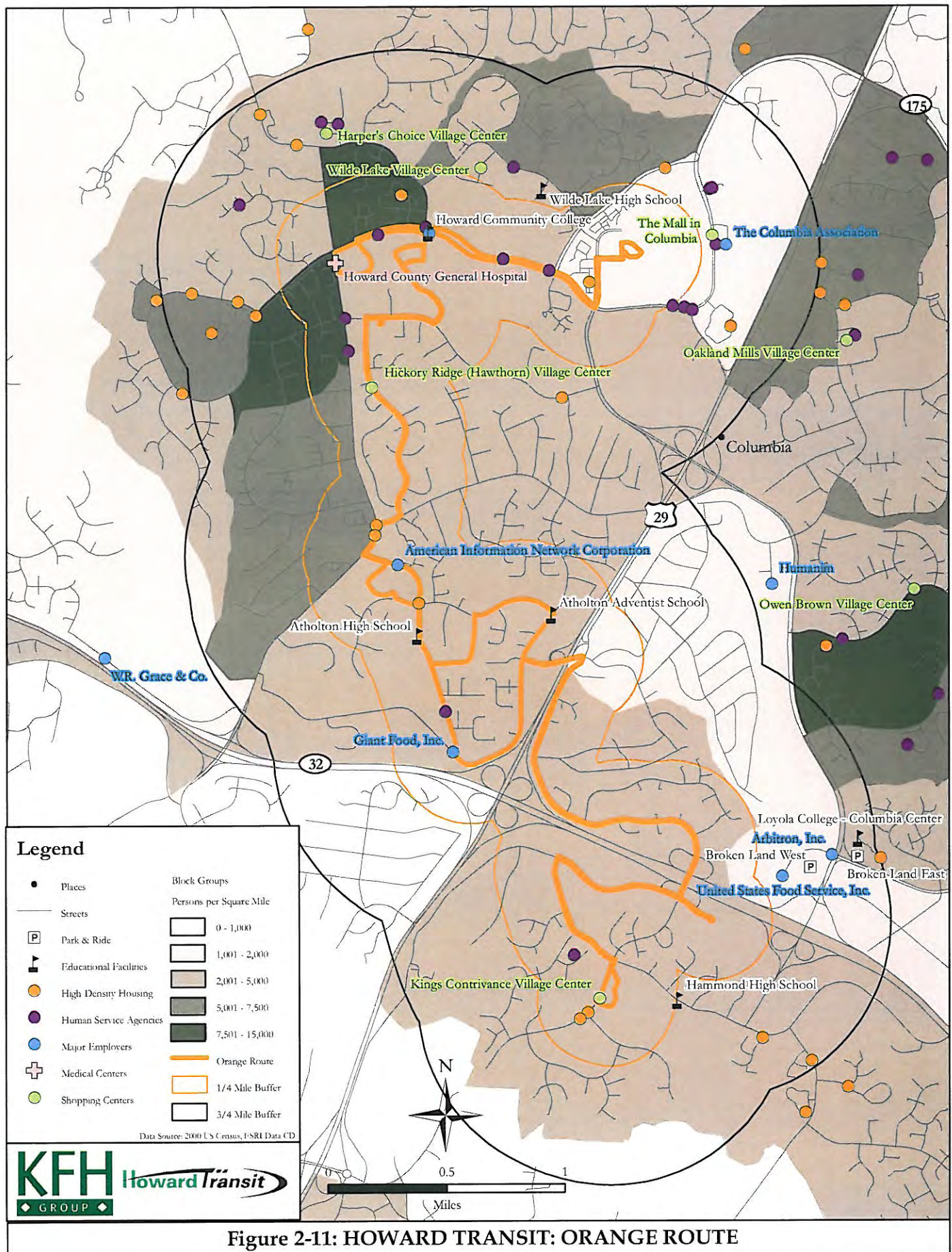


Figure 2-11: HOWARD TRANSIT: ORANGE ROUTE



**Figure 2-12: HOWARD TRANSIT: ORANGE ROUTE PROFILE**

**MAJOR TRIP GENERATORS**

**Educational Facilities**

- Altholton Adventist School
- Altholton High School
- Hammond High School
- Howard County Community College
- Loyola College-Columbia Center
- Wilde Lake High School

**High Density Housing**

- Avalon at Symphony Glen
- Beech's Farm
- Cedar Valley
- Clays Crossing
- Club Merion
- Columbia Town Center
- Dominion at Eden Brook
- Dominion Kings Place
- Fenland Field
- Gramercy of Town Center
- Harmony Hall
- Harpers Forest
- King's Crossing
- Lorien Nursing & Rehabilitation
- Sunrise of Columbia
- The Bluffs Rental Center
- The Evergreens at Columbia Town
- The Greens at Columbia

**Human Service Agencies**

- Adaptive Living, Inc.
- Association of Community Services
- Autism Society of America
- Bain Center
- Career Links
- Caregivers Support Group
- Claudia Mayer Cancer Res. & Image Center
- Congregations Concerned for the Homeless
- Crohn's & Colitis Foundation of America, Inc.
- Family & Children's Services of Central MD
- FIRN
- Grassroots Crisis Intervention Center, Inc.
- Healthy Families Howard County
- Horizon Foundation
- Howard County Library-Central Library
- Howard Plaza Pregnancy Center

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Columbia Mall to Kings Contrivance via Hickory Ridge  
 Hours of Service: 6am-9:45pm M-F, 8:00am-8:23pm Sat. 10:00am-6:45pm Sun/Holiday  
 Days of Service: Mon-Sun  
 Fares: \$2.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 20.8

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 79,546  
 Annual Total Hours: 9,316  
 Annual Total Miles: 109,211  
 Annual Operating Cost: \$598,207  
 Passenger Trips per Hour: 8.54  
 Operating Cost per Hour: \$64.22  
 Operating Cost per Mile: \$5.48  
 Operating Cost per Passenger Trip: \$7.52

**Human Service Agencies (continued)**

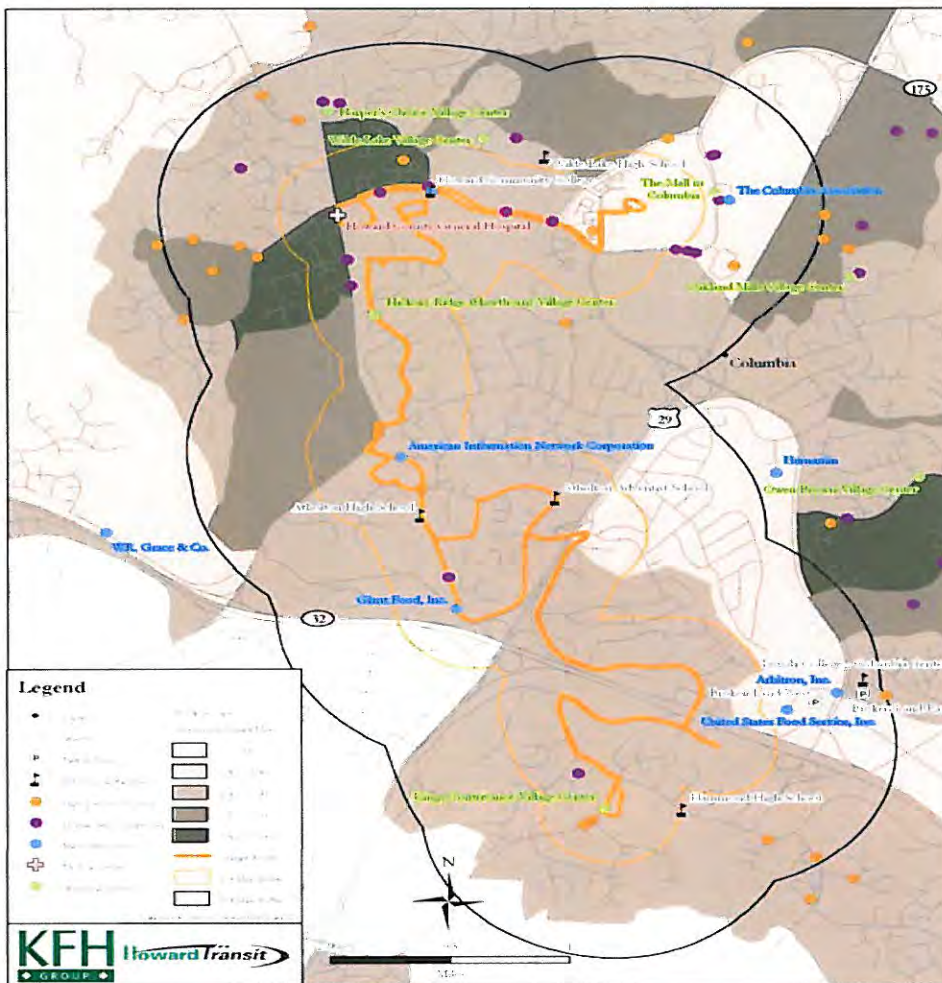
- Leadership Howard County
- Leadership U
- League of Women Voters of Howard County
- National Family Resiliency Center
- Sixty Plus Wills and Legal Screening
- The Volunteer Center Serving Howard County
- Voices for Children
- Wellness Center
- Winter Growth, Inc.

**Major Employers**

- American Information Network Corporation
- Arbitron, Inc.
- Giant Food, Inc.
- The Columbia Association
- United States Food Service, Inc.

**Shopping Centers**

- Harper's Choice Village Center
- Hickory Ridge Village Center
- Kings Contrivance Village Center
- The Mall in Columbia
- Wilde Lake Village Center



**Park & Ride Lot Locations**  
 Broken Land East  
 Broken Land West

**Medical Centers**  
 Howard County General Hospital

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*

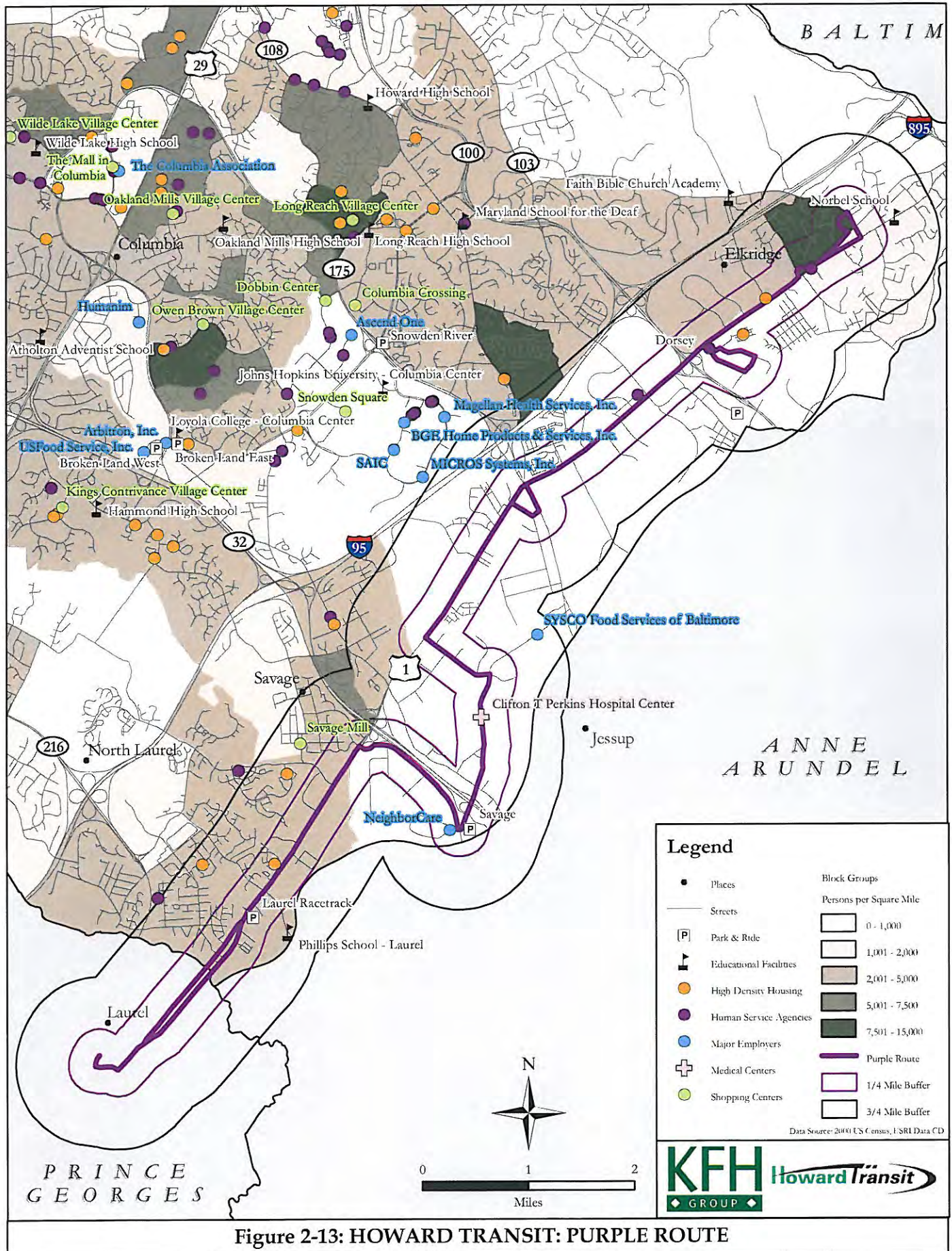


Figure 2-13: HOWARD TRANSIT: PURPLE ROUTE

**Figure 2-14: HOWARD TRANSIT: PURPLE ROUTE PROFILE**

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Laurel Mall to Elkridge  
 Hours of Service: 6am-10pm Mon-Fri; 9am - 9:50pm Sat  
 Days of Service: Mon-Sat  
 Fares: \$2.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 33.5

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 42,509  
 Annual Total Hours: 6,575  
 Annual Total Miles: 108,787  
 Annual Operating Cost: \$432,993  
 Passenger Trips per Hour: 6.46  
 Operating Cost per Hour: \$65.85  
 Operating Cost per Mile: \$3.98  
 Operating Cost per Passenger Trip: \$10.19

**MAJOR TRIP GENERATORS**

**Educational Facilities**

Norbel School  
 Phillips School-Laurel

**High Density Housing**

Belmont Station  
 Windson at Pine Ridge  
 Country Meadows  
 The Seasons  
 Bowling Brook

**Human Service Agencies**

Center for Social Change  
 Elkridge Senior Center  
 Howard County Library-Elkridge Branch  
 Saint Stephens Adult Day Care

**Major Employers**

Neighbor Care  
 SYSCO Food Services of Baltimore

**Medical Centers**

Clifton T Perkins Hospital Center

**Shopping Centers**

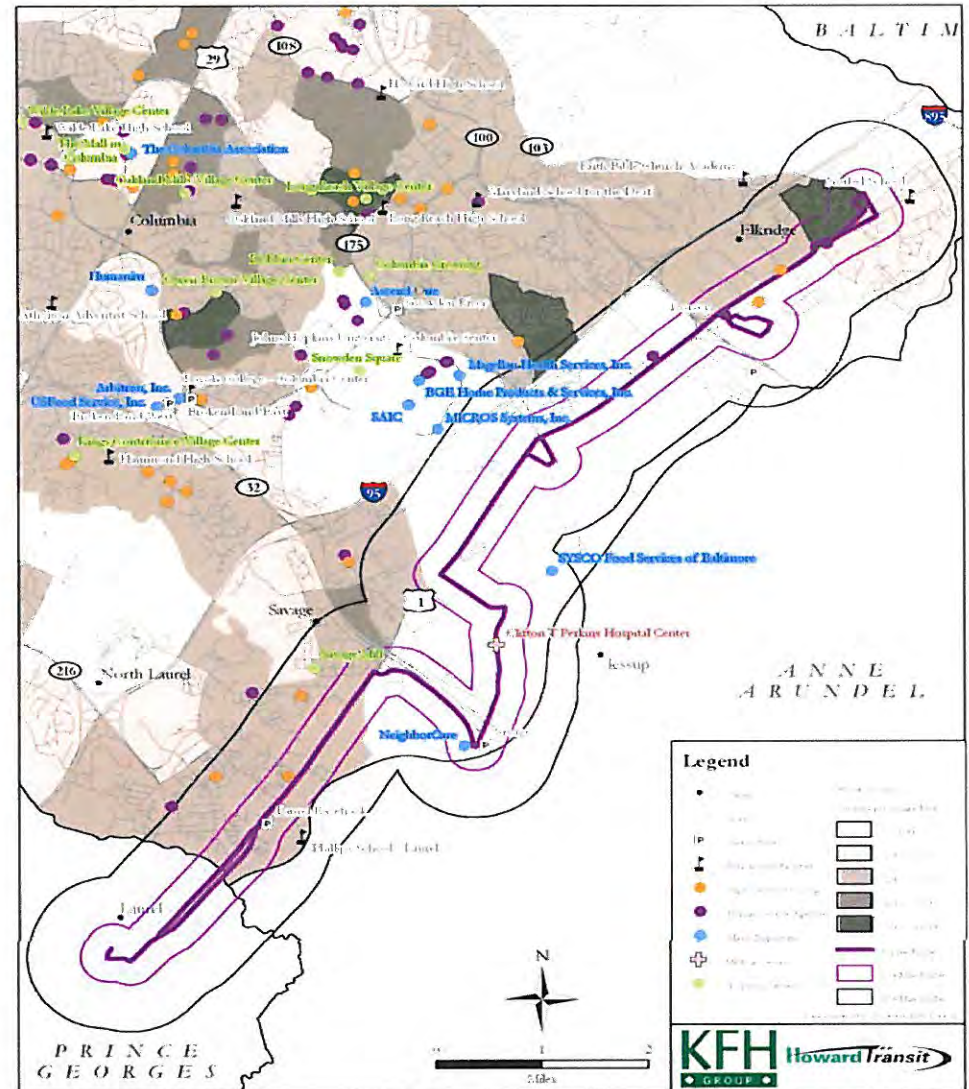
Savage Mill

**Park & Ride Lot Locations**

Dorsey  
 Savage  
 Laurel Racetrack

*\*Within 1/4 Mile of Route*

*\*Within 3/4 Mile of Route*





hours of 6:00 a.m. to 10:41 p.m. on hourly headways. Weekend service operates 8:00 a.m. to 10:24 p.m. on Saturday, and 9:10 a.m. to 6:31 p.m. on Sunday/Holiday; service operates on an hourly headway up until 6:00 p.m. on Saturday, and two-hour headways after 6:00 p.m. on Saturday and all day Sunday. In Figure 2-16, the route profile demonstrates 94 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are human service agencies.

### *Silver Route*

The Silver Route, displayed in Figure 2-17, operates service connecting Columbia Mall, Broken Land Park & Ride, Snowden River Park & Ride, Maryland Food Center, Dorsey MARC Station, Arundel Mills, BWI Amtrak/MARC, BWI-Thurgood Marshall Airport, and BWI Light Rail Station. Service operates Monday through Friday between the hours of 6:00 a.m. to 10:59 p.m. on hourly headways. Weekend service operates 8:00 a.m. to 10:59 p.m. on Saturday, and 9:03 a.m. to 6:59 p.m. on Sunday; service operates on an hourly headway on Saturday, and a two-hour headway all day Sunday. In Figure 2-18, the route profile demonstrates 89 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are human service agencies.

### *Yellow and Yellow Express Route*

The Yellow Local service is split into two different patterns: A and B loops. The A loop pattern leaves Columbia on the even hours, while the B Loop pattern leaves on the odd hours.

The Yellow Route, displayed in Figure 2-19, operates service connecting Columbia Mall, Oakland Ridge Industrial Park, Long Gate Park & Ride, Howard County Courthouse and Government Center, Ellicott City (Main Street), Wal-Mart, and North Chatham. Local service operates Monday through Friday between the hours of 6:00 a.m. to 9:53 p.m. on hourly headways. Weekend service operates 8:00 a.m. to 7:55 p.m. on Saturday on an hourly headway. The express service operates Monday through Friday between the hours of 5:51 a.m. to 9:18 a.m. and 2:30 p.m. to 6:24 p.m. on hourly headway. In Figure 2-20, the route profile demonstrates 77 facilities within  $\frac{3}{4}$  mile of the route. Most of the facilities within  $\frac{1}{4}$  mile are high density housing facilities and human service agencies.

### *Fares*

The base fare for a one-way trip on any fixed-route service is \$1.50 and allows for one free transfer, within two hours of drop-off. Ten ride tickets are available and are offered at a discounted price of \$1.35 per trip. Monthly passes are also available; for full fare the amount is \$47 and for the Student/Discounted Fare the amount is \$16.

**Figure 2-16: HOWARD TRANSIT RED ROUTE PROFILE**

**MAJOR TRIP GENERATORS**

- Human Service Agencies**  
 Adult Community Evaluation Services  
 Alcohol/Drug Addiction Service Center  
 Assisted Housing  
 Association of Community Services  
 Athelas  
 Baptist Family and Children's Services  
 Christ Church Link  
 Client Services Division  
 Columbia Health Center  
 Columbia Housing Corporation  
 Columbia Teen Center  
 Commission on Aging  
 Commission on Disabilities Issues  
 Community Action Council  
 Congregations Concerned for the Homeless  
 Consumer Affairs Advisory Board  
 Crohn's & Colitis Foundation of America, Inc.  
 Department of Citizen Services  
 Department of Social Services  
 Disabilities Services  
 Domestic Violence Center of Howard County  
 Emerge, Inc.  
 Fall Prevention Information/Assessment  
 Family & Children's Services of Central MD  
**HANDS**  
 Healthy Families Howard County  
 Home Repair/Retrofitting  
 Homes for Life Coalition  
 Hospice of Howard County  
 Howard County Express MVA  
 Howard County Health Department  
 Howard County Housing Commission  
 Howard County Library-Central Library  
 Howard County Recreation & Parks  
 Howard Plaza Pregnancy Center  
 Jewish Family Services  
 Leadership Howard County  
 Leadership U  
 League of Women Voters of Howard County  
 Longwood Senior Center  
 Maryland Access Point of Howard County  
 Maryland State Employment Office  
 Mental Health Authority's Indigent Pharmacy Program  
 NAMI of Howard County  
 National Family Resiliency Center

- Human Service Agencies (Cont.)**  
 Neighbor Ride  
 Office of Aging  
 Office of Consumer Affairs  
 Office of Human Rights  
 Office of Workforce Deployment  
 Ombudsman/Guardianship Programs  
 Own Our Own Drop In Center  
 Public Education for Aging Services  
 Serenity Center  
 Sheppard Pratt at Howard County  
 Social Security Administration Howard Co.  
 The Volunteer Center Serving Howard Co.  
 Voices for Children  
 Women's Giving Circle

- High Density Housing**  
 Ashton Woods  
 Autumn Crest  
 Avalon at Fairway Hills  
 Avalon at Symphony Glen  
 Berkshires of Columbia  
 Columbia Landing  
 Columbia Town Center  
 Gramercy of Town Center  
 Grand Pointe  
 Island Club  
 Kendall Ridge  
 Lazy Hollow  
 Sherwood Crossing  
 Somerford Place  
 Stonehaven  
 Tamar Meadow  
 The Evergreens at Columbia Town  
 The Verona at Oakland Mills

- Medical Centers**  
 (None)

- Shopping Centers**  
 Columbia Crossing  
 Dobbin Center  
 Long Reach Village Center  
 Oakland Mills Village Center  
 Snowden Square  
 The Mall in Columbia  
 Wilde Lake Village Center

- Educational Facilities**  
 Howard High School  
 Long Reach High School  
 Maryland School for the Deaf  
 Oakland Mills High School

- Educational Facilities (Cont.)**  
 Wilde Lake High School

- Park & Ride Lot Locations**  
 (None)

**SERVICE DESCRIPTIONS**

Service Type:	Fixed-Route
Service Description:	General Public
Area Description:	Columbia Mall to Commerce Center
Hours of Service:	6am-10:45pm Mon-Fri, 8am-10:30pm Sat, 9am-6:30pm Sun/Holiday
Days of Service:	Mon-Sun
Fares:	\$1.50 for General Public Reduced Fares May Be Available
Round Trip Miles:	33.9

**Major Employers**

- Ascend One  
 BGE Home Products & Services, Inc.  
 Magellan Health Services, Inc.  
 MICROS Systems, Inc.

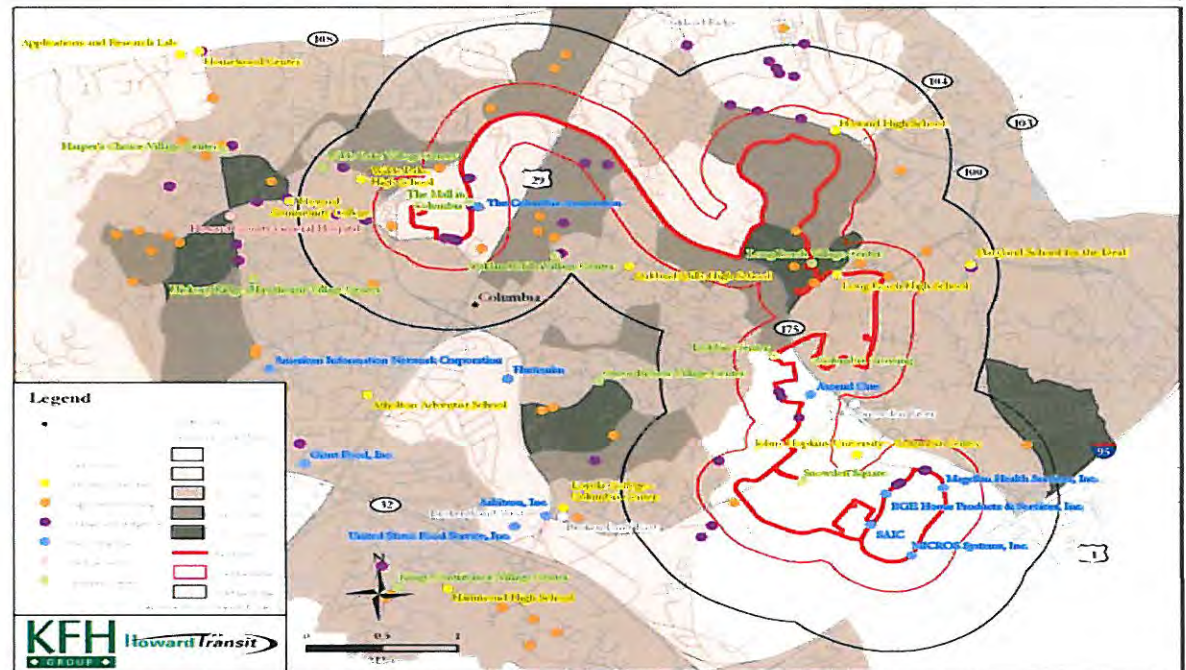
**Major Employers (Cont.)**

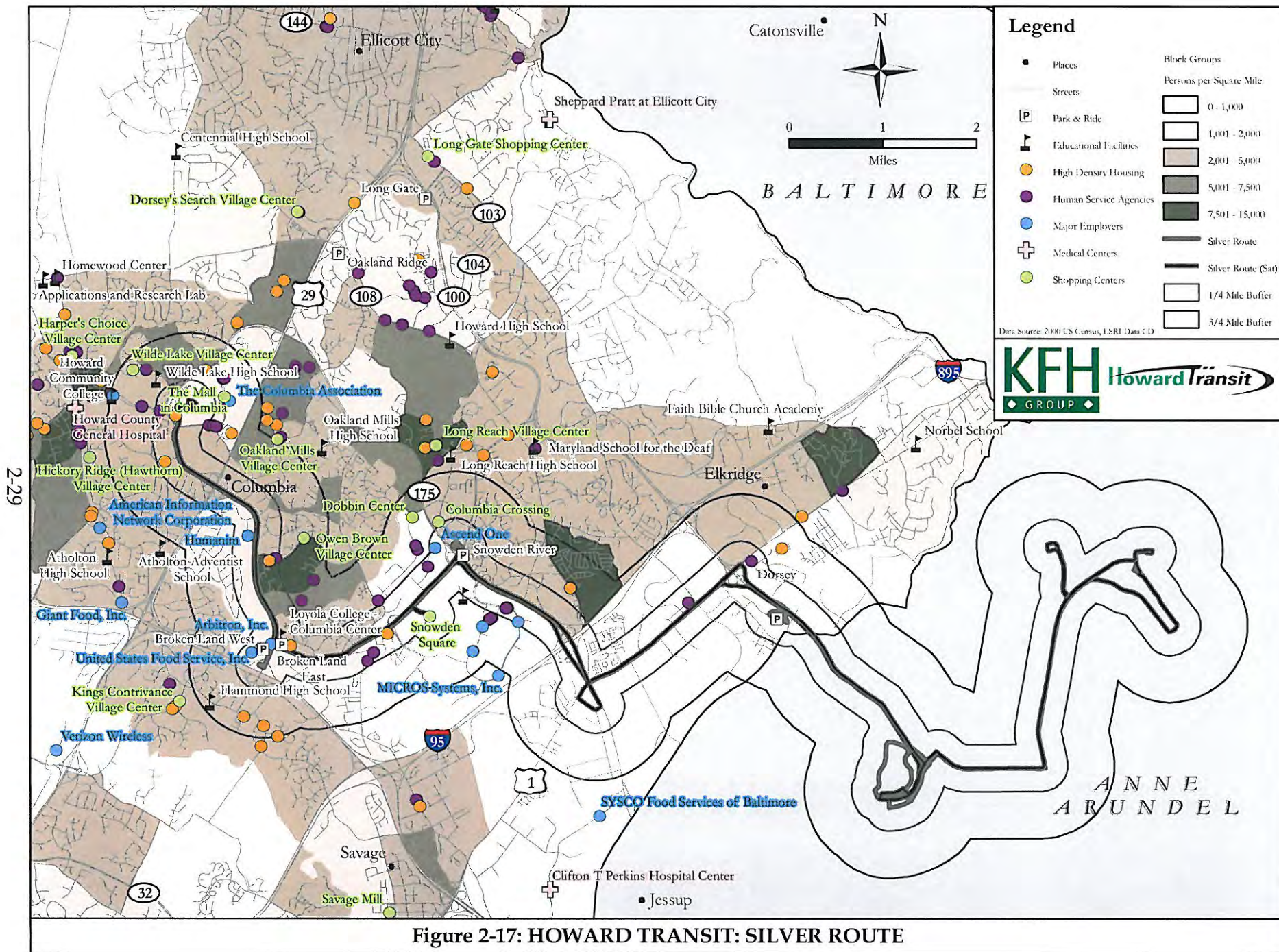
- SAIC  
 The Columbia Association  
*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips:	130,158
Annual Total Hours:	10,878
Annual Total Miles:	159,031
Annual Operating Cost:	\$716,387
Passenger Trips per Hour:	11.97
Operating Cost per Hour:	\$65.86
Operating Cost per Mile:	\$4.50
Operating Cost per Passenger Trip:	\$5.50

2-28





2-29

Figure 2-17: HOWARD TRANSIT: SILVER ROUTE

**Figure 2-18: HOWARD TRANSIT: SILVER ROUTE PROFILE**

**MAJOR TRIP GENERATORS**  
**Educational Facilities**  
 Hammond High School  
 Howard County Community College  
 Loyola College-Columbia Center  
 Wilde Lake High School

**High Density Housing**  
 Avalon at Symphony Glen  
 Belmont Station  
 Brighton Gardens  
 Chimneys of Cradlerock  
 Columbia Town Center  
 Dominion Kings Place  
 Gramercy of Town Center  
 King's Crossing  
 Sherwood Crossing  
 Stonehaven  
 The Evergreens at Columbia Town

**Human Service Agencies**  
 Association of Community Services  
 Career Links  
 Center for Social Change  
 Christ Church Link  
 Commission on Aging  
 Congregations Concerned for the Homeless  
 Crohn's & Colitis Foundation of America, Inc.  
 East Columbia Senior Center  
 Family & Children's Services of Central MD  
 HANDS  
 Healthy Families Howard County  
 Howard County Express MVA  
 Howard County Library - Central Library  
 Howard County Library - East Columbia Branch  
 Howard County Recreation & Parks  
 Howard Plaza Pregnancy Center  
 Humanim  
 Leadership Howard County  
 Leadership U  
 League of Women Voters of Howard County  
 Maryland State Employment Office  
 National Family Resiliency Center  
 Office of Workforce Deployment  
 Ombudsman/Guardianship Programs  
 Owen Brown Senior Center  
 Own Our Own Drop In Center  
 PFLAG

**Human Service Agencies (continued)**  
 Saint Stephens Adult Day Care  
 School to Employment Program  
 Social Security Administration Howard Co.  
 The Volunteer Center Serving Howard Co.  
 Voices for Children  
 Women's Giving Circle  
 Woodside Center  
**Shopping Centers**  
 Snowden Square  
 Columbia Crossing  
 Dobbin Center  
 Owen Brown Village Center  
 The Mall in Columbia  
 Wilde Lake Village Center

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Columbia Mall to BWI Airport  
 Hours of Service: 6am-11pm Mon-Fri,  
 8am-11pm Sat, 9am-7pm Sun  
 Days of Service: Mon-Sun  
 Fares: \$1.50 for Gen. Public, Reduced Fares May Be Available  
 Round Trip Miles: 51.76

**Major Employers**

Arbitron, Inc.  
 Ascend One  
 Humanim  
 United States Food Service, Inc.

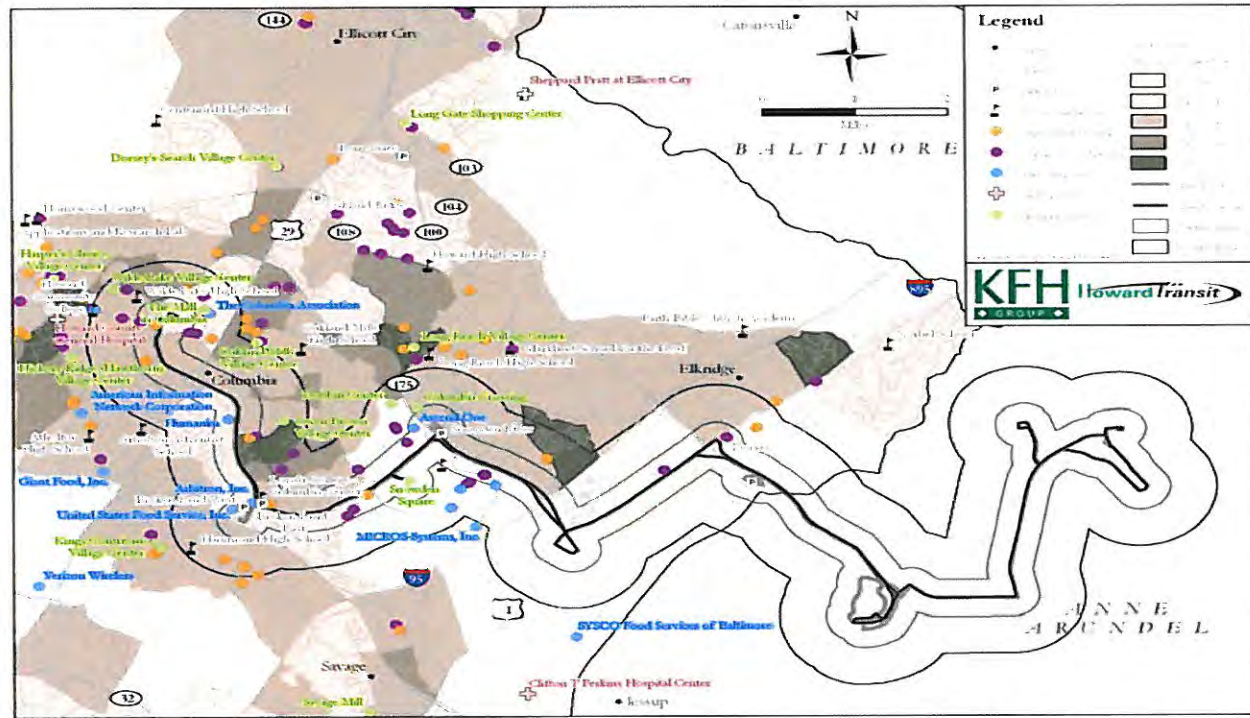
**Park & Ride Lot Locations**

Broken Land East  
 Broken Land West  
 Dorsey  
 Snowden River

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips:	162,478
Annual Total Hours:	15,022
Annual Total Miles:	269,681
Annual Operating Cost:	\$1,017,914
Passenger Trips per Hour:	10.82
Operating Cost per Hour:	\$67.76
Operating Cost per Mile:	\$3.77
Operating Cost per Passenger:	\$6.26

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*





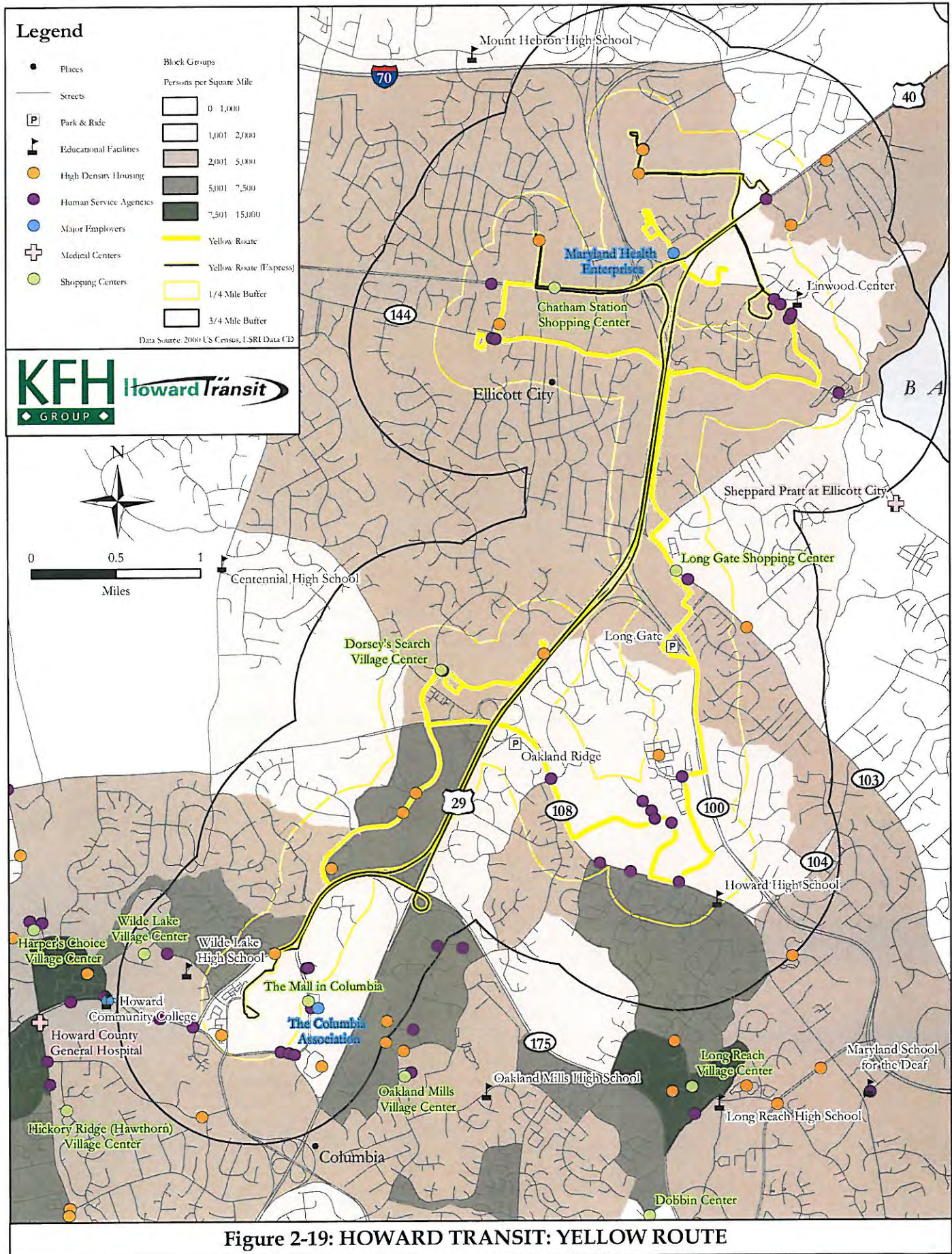


Figure 2-19: HOWARD TRANSIT: YELLOW ROUTE

Figure 2-20: HOWARD TRANSIT: YELLOW ROUTE PROFILE

**MAJOR TRIP GENERATORS**

**Educational Facilities**

- Howard High School
- Linwood Center
- Wilde Lake High School

**High Density Housing**

- Ashton Woods
- Autumn Crest
- Avalon at Fairway Hill
- Avalon at Symphony Gler
- Berkshires of Columbia
- Charleston Manor
- Chatham Gardens
- Columbia Town Center
- Dominion Great Oaks
- Ellicott City Health & Rehabilitation Center
- Gramercy of Town Center
- Heartlands
- Howard Crossing
- Island Club
- Morningside House
- Plumtree
- Shangri-La
- The Elms at Montjoy
- The Evergreens at Columbia Tower

**Human Service Agencies**

- AIDS Alliance of Howard County
- Association of Community Services
- Athelas
- Child Care Administration
- Child Care Resource Center
- Columbia Housing Corporation
- Commuter Solutions for Howard County
- Congregations Concerned for the Homeless
- Crohn's & Colitis Foundation of America, Inc
- Division of Rehabilitation Services
- Domestic Violence Center of Howard County
- Ellicott City Health Center
- Ellicott City Senior Center
- Emerge, Inc.
- Family & Children's Services of Central MD
- Healthy Families Howard County
- Howard County Board of Elections
- Howard County Circuit Court
- Howard Co. District Court Commissioner
- Howard Co. Gov. Information and Referral
- Howard Co. Library - Miller Branch
- Howard County Library-Central Library
- Howard County Office of Human Resources

**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Columbia Mall to Ellicott City  
 Hours of Service (Local): 6am-10pm Mon-Fri, 8am-8pm Sat  
 (Express): 6am-9:15am & 2:30pm-6:30pm Mon-Fr  
 Days of Service (Local): Mon-Sat  
 (Express): Mon-Fri  
 Fares: \$1.50 for General Public  
 Reduced Fares May Be Available  
 Round Trip Miles: 32.63

**PRODUCTIVITY DATA (FY 2008)**

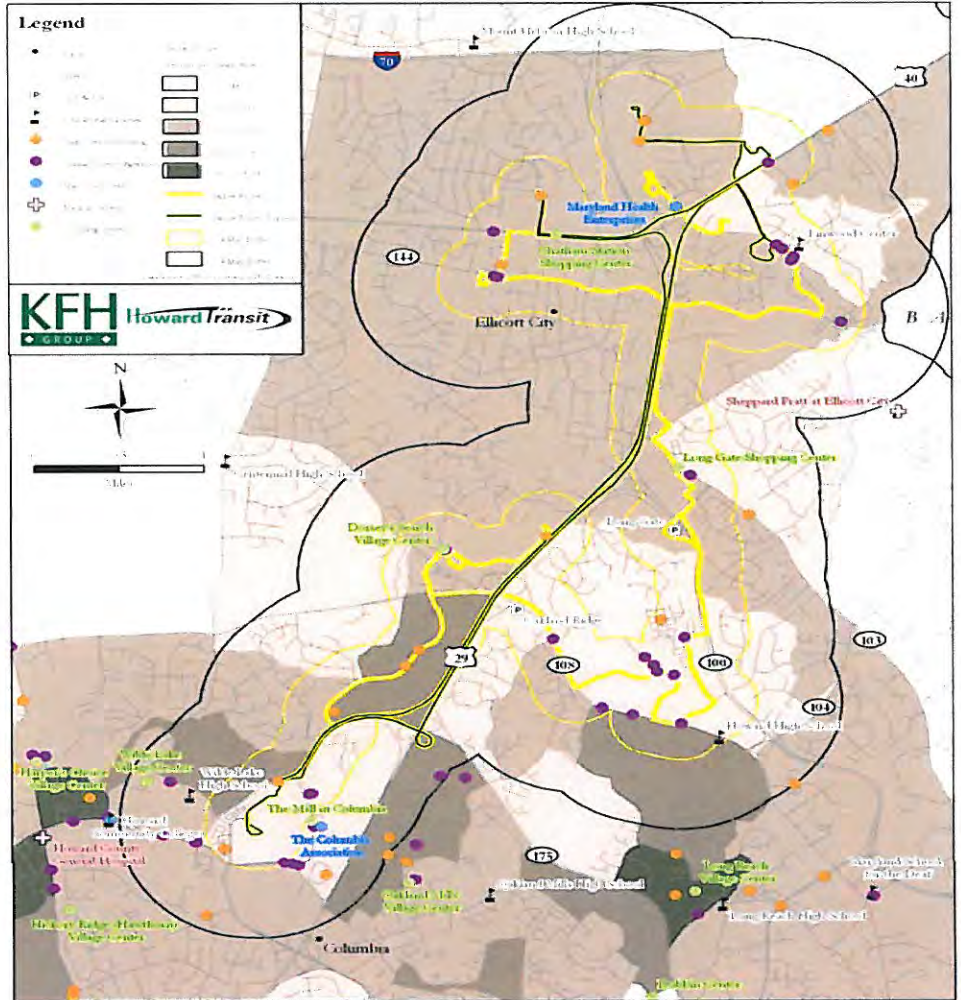
Annual Passenger Trips: 85,513  
 Annual Total Hours: 10,035  
 Annual Total Miles: 155,650  
 Annual Operating Cost: \$596,870  
 Passenger Trips per Hour: 8.52  
 Operating Cost per Hour: \$59.48  
 Operating Cost per Mile: \$3.83  
 Operating Cost per Passenger Trip: \$6.98

**Human Service Agencies (continued)**

- Howard County Police Youth Services
- Howard County State's Attorney Office
- Howard Plaza Pregnancy Center
- Jewish Family Service
- Korean/American Community Association
- Lawyer Referral Service
- Leadership Howard County
- Leadership U
- League of Women Voters of Howard County
- Legal Aid Services, Inc.
- Local Children's Board
- Meals on Wheels of Central Maryland
- Mental Health Authority
- National Family Resiliency Center
- Neighbor Ride
- Relatives as Parents
- Sheppard Pratt at Howard County
- The Volunteer Center Serving Howard County
- Ulman Cancer Fund for Young Adults
- Voices for Children
- Women's Giving Circle
- YMCA of Central Maryland

**Shopping Centers**

- Chatham Station Shopping Center
- Dorsey's Search Village Center
- Long Gate Shopping Center
- The Mall in Columbia
- Wilde Lake Village Center



**Major Employers**  
 Maryland Health Enterprises  
 The Columbia Association

**Park & Ride Lot Locations**  
 Long Gate  
 Oakland Ridge

**Medical Centers**  
 (None)

**\*Within 1/4 Mile of Route**  
**\*Within 3/4 Mile of Route**

Reduced one-way trip fares, \$.50, are available for older adults/seniors, and persons with disabilities.

### **Specialized Transit Services**

HT also provides HT Ride which is the specialized transit service component meeting the needs of individuals who cannot use fixed-route service - senior and individuals with disabilities. This specialized service is comprised of two categories: general shared ride services and ADA service. Shared ride service consists of pooled rides to medical appointments, senior centers, and employment (on a limited basis) to eligible Howard County residents. The ADA service provides general purpose shared ride service to individuals with disabilities who are eligible under the ADA.

#### ***HT Ride***

HT Ride provides specialized curb-to-curb transportation for senior citizens and individuals with disabilities. HT Ride is provided for those individuals who cannot use the fixed-route HT services. This specialized service is categorized in two forms: 1) General Services transportation is provided, for those eligible, to and from locations in Howard County with limited service available to medical centers in Baltimore and 2) ADA transportation service is limited to areas that are within 3/4 of a mile of HT fixed-route service. For General Service request, operating hours are Monday through Friday primarily 9:00 a.m. to 3:00 p.m. and must allow 48 hours advanced notice. For ADA service requests, operating hours are the same as HT fixed-route service and must allow one day advanced notice. Eligibility for these specialized transit services is determined through successful completion of the application process with the Howard County Office on Aging or the Howard County Disability Services office. This service provided over 100,000 passenger trips for FY 2007.

HT Ride trips are provided by the same contractor operating the fixed-route services for CTC, which is currently First Transit. However, the rate of payment differs, as all paratransit trips are paid at a single per-trip rate (\$34), rather than an hourly rate as used for the fixed-route services. CTC oversees the HT Ride service, including service quality monitoring. First Transit takes the trip reservations, schedules the trips, answers user calls ("where's my ride..") and provides reporting on the service to CTC for analysis and reports to the County.

FTA regulations require that each agency providing ADA paratransit service establish a process to determine eligibility. ADA paratransit service is required for persons who are unable, as the result of a physical or mental impairment, and without assistance of another individual on board, to ride, or disembark from an accessible vehicle that is used for fixed-route transit services. It is also required for persons with a

disability who would be able to ride fixed-route bus if it is equipped with a wheelchair lift or other boarding device, but who wish to ride at a time and place when the system is unable to provide such a vehicle on the route. Service is limited to areas that are within  $\frac{3}{4}$  mile of HT fixed-route service. An ADA eligibility application must be completed along with certification from a physician/health care professional.

### **ADA Fare**

HT Ride service coverage is the entire County; however, ADA service is limited to the  $\frac{3}{4}$  mile distance from fixed-route service. The base fare for the trip is \$2.50 one way. However, reduced fares may be available for eligible individuals with limited income.

### **Job Access Reverse Commute (JARC)**

Through the JARC program, funding has been provided for the Red Route, which addresses the needs of persons leaving welfare and low-income individuals to have access to local and out-of-area employment, training, childcare, and support services in Howard and Anne Arundel Counties. This program was established to address the labor force consisting of mainly entry-level, minimum wage positions with non-traditional work hours.

### **HT System Performance**

The route analysis is based on the MTA adopted standards for evaluating productivity. Their standards for evaluating fixed-route and demand-response services are included as Table 2-2. The fixed-route services provided by HT are considered small-urban system services, and the applicable minimum standards for operations will be discussed here. The performance standards are derived from a compilation of sources that include industry research, industry experience, and peer reviews. The performance standards assessed for each route include:

- *Operating Cost Per Hour* – total cost of operations with respect to total service hours, which is calculated as the time from when the driver pulls out for service until the driver returns from service.
- *Operating Cost Per Mile* – total cost of operations with respect to total service miles, which is calculated as miles from driver pull-out to driver pull-in, which includes deadhead mileage.

**Table 2-2: Performance Standards**

**Fixed-Route Standards**

<b>Small Urban Fixed-Route</b>	<b>Successful</b>	<b>Acceptable</b>	<b>Needs Review</b>
Operating Cost per Hour	< \$45	\$45-\$50	> \$50
Operating Cost per Mile	< \$2.50	\$2.50-\$3.50	> \$3.50
Operating Cost per Passenger Trip	< \$4.00	\$4.00-\$6.00	> \$6.00
Local Operating Revenue Ratio	> 50%	40% -50%	< 40%
Farebox Recovery Ratio	> 25%	20-25%	< 20%
Passenger Trips per Mile	> 0.75	0.65-0.75	< 0.65
Passenger Trips per Hour	> 12	8 - 12	< 8

**Demand-Response Standards**

<b>Demand-Response/Rural Fixed-Route</b>	<b>Successful</b>	<b>Acceptable</b>	<b>Needs Review</b>
Operating Cost per Hour	< \$30	\$30-\$40	> \$40
Operating Cost per Mile	< \$1.50	\$1.50-\$2.50	> \$2.50
Operating Cost per Passenger Trip	< \$9.00	\$9.00-\$13.00	> \$13.00
Local Operating Revenue Ratio	> 40%	30% - 40%	< 30%
Farebox Recovery Ratio	> 15%	7%-15%	< 7%
Passenger Trips per Mile	> 0.25	0.15-0.25	< 0.15
Passenger Trips per Hour	> 4	2.5 - 4	< 2.5

- *Operating Cost Per Passenger Trip* – total cost operations with respect to total ridership, which is calculated as each passenger boarding counted as one passenger trip.
- *Farebox Recovery* – total farebox receipts with respect to total operating cost.
- *Passenger Trips Per Mile* – total passenger trips with respect to the total service miles.
- *Passenger Trips Per Hour* – total passenger trips with respect to the total service hours.

For each route, in Appendix B of the Technical Appendix there is a data table containing monthly operations data for FY07 and FY08, and six charts accompany the table, with each chart representing the performance of the route with respect to one of the MTA measures mentioned previously. It should be noted that the MTA guidelines involving cost (cost per mile, cost per hour, cost per trip) were developed using data that is now several years old, and these have not been adjusted by MTA to reflect general inflation in transportation costs, much less the significant fuel cost increases of the past year. The most useful single measure is the boardings (person-trips) per hour measure, as it reflects usage in relation to the amount of service provided. Generally speaking, the majority of transit operating costs are hourly (wages and benefits), so higher values of trips per hour reflect better use of resources.

Ridership and other system performance measures have fluctuated with the amount of service provided (which is a function of funding availability), but service levels have generally increased over the past five years. Given the numerous service changes that occurred the last two years, comparisons between these two fiscal years do not necessarily allow provide a complete picture of system performance, so an in-depth analysis of monthly performance data for the last two years was completed. Over the last two fiscal years, major service changes occurred in April 2007, and there were service quality issues following a change in operating contractors in August 2007.

Table 2-3 displays system wide HT fixed-route operating and cost data that was reviewed for the period FY 2004-2008.. During this period overall system ridership increased by approximately 21% from FY04 to FY08, with the exception of a slight decline from FY04 to FY05. Also from FY04 to FY08, the number of service hours and service miles declined, with the largest decrease occurring from FY04 to FY05, approximately 21%. However, service and hours have gradually increased since this period. The ridership response to the service reduction is significant in revealing that the ridership levels dropped only slightly despite major cutbacks in service miles and hours, suggesting that the demand is relatively inelastic with respect to service levels,

Table 2-3: Howard Transit Fixed-Route Operating Data (FY04 - FY08)

FY	Total Operating Expenses	Percent Change Expenses	Total Annual Passenger Trips	Percent Change Trips	Total Service Hours	Percent Change Hours	Total Service Miles	Percent Change Miles	Farebox	Percent Change Farebox	Operating Cost Per Hour	Change in Cost/Hr	Operating Cost Per Mile	Change in Cost/Mile	Operating Cost Per Trip	Change in Cost/Trip
2004	\$4,022,561		672,178		87,735		1,422,989		\$261,944		\$45.85		\$2.83		\$5.98	
2005	\$4,001,594	-0.5%	643,065	-4.3%	68,955	-21.4%	1,029,719	-27.6%	\$368,208	40.6%	\$58.03	26.6%	\$3.89	37.5%	\$6.22	4.0%
2006	\$4,044,474	1.1%	727,311	13.1%	74,790	8.5%	1,101,947	7.0%	\$415,991	13.0%	\$54.08	-6.8%	\$3.67	-5.6%	\$5.56	-10.6%
2007	\$4,912,315	21.5%	759,269	4.4%	74,010	-1.0%	1,207,938	9.6%	\$419,795	0.9%	\$66.37	22.7%	\$4.07	10.8%	\$6.47	16.3%
2008	\$3,177,362	-35.3%	818,182	7.8%	78,737	6.4%	1,263,212	4.6%	\$263,421	-37.3%	\$40.35	-39.2%	\$2.52	-38.1%	\$3.88	-40.0%

FY04 Operation Cost based on FY05 proposed budget sheet.

FY04 Trips, Hours, and Miles taken from "04 Core Report": Hours = "Revenue In-Service Hours"; Miles = "Revenue In-Service Miles".

FY05 Operations Costs data taken from "05 Core Report", Operations Report Section 2, and is comprised of the sum of "Actual Operations" and FY05 Trips, Hours, and Miles taken from "05 Core Report", Operations Report Section 1, and is comprised of: Trips = "Total"; Hours = "Total Hours - Estimated"; Miles = "Total Miles - Actual".

FY06 Ops Cost, Trips, Hours, Miles based on Fixed-Route Subtotal from Form 2a.

FY07 Ops Cost, Trips, Hours, Miles based on Fixed-Route Subtotal from Form 2a.

FY 08 Ops Cost, Trips, Hours, Miles based on Fixed-Route Ops Data, "Table 13".

which is consistent with on-board survey data reporting that most trips on fixed-route are work trips or other non-discretionary trip purposes. Cost per passenger trip has increased from this period as well, escalating from \$5.98 to \$6.24, approximately an 4% increase, Farebox revenue increased throughout the FY04 to FY08 period, with the largest increase occurring from FY04 to FY05 following a major fare increase, approximately 40%. However, annual increases thereafter were significantly less as fares remained stable.

HT Ride ridership, Table 2-4, increased marginally, less than 1%, during the FY 06 to FY07 period; but significantly during the FY07 to FY08 period, approximately 23%. There were minimal changes with hours, an increase of 1%, and miles, an increase of less than .3% during FY06 to FY07; but hours increased by 22% and miles increased by 36% during FY07 to FY08. Operations Cost during the FY06 to FY07 period increased by 19%, and by 47% during FY07 to FY08. There was a decrease in the farebox revenue from FY06 to FY07 at 13%, and a decrease of 8% from FY07 to FY08. Cost per passenger has increased during FY06 to FY08 from \$20.07 to \$28.53. The increase in cost, coupled with the minimal changes in service hours and miles, results from an increase in the hourly contract rates under the new contract. In FY08, the contract per trip rate was \$30.56, in FY09 the per trip rate is \$32.06.

### Performance Summary

Overall, there are some noticeable impacts from the service changes implemented in April 2007. As anticipated, the data for FY08, supports industry experience that service changes require about 12 - 18 months to recover a stable ridership and also allow an opportunity for increased ridership. Table 2-5 contains summary performance data for FY08. Overall, productivity increased for all but two routes. The last quarter of FY08 witnessed significant increases in ridership on all routes, driven by the significant increases in the price of gas, which made the personal vehicle alternative much more expensive to use.

With the improved performance in FY08, the Blue, the Cold, and the Purple Routes failed to achieve the MTA productivity standard of eight trips per hour. Compared to FY07, FY08 achieved significant gains in trips per hour with respect to the Brown and Yellow Routes. Marginal increases from FY07 to FY08 in the trips per mile were also achieved, with three routes achieving the MTA standard. Virtually all of the cost related standards were not achieved by HT, but that is because the basic hourly contract rate that CTC pays First Transit is greater than the hourly cost standard in the MTA guidelines – which reflects the fact that the MTA guidelines are now several years old, and also include cost values from many rural systems that operate in lower cost labor markets. In FY08 the contract rate per hour was \$59.82, and in FY09 the rate per hour is \$62.75.



Table 2-4: HTRide Operating Data (FY06 - FY08)

FY	Total Operating Expenses	Percent Change Expenses	Total Annual Passenger Trips	Percent Change Trips	Total Service Hours	Percent Change Hours	Total Service Miles	Percent Change Miles	Farebox	Percent Change Farebox	Operating Cost Per Hour	Change in Cost/Hr	Operating Cost Per Mile	Change in Cost/Mile	Operating Cost Per Trip	Change in Cost/Trip
2006	\$2,024,746		100,906		40,362		716,429		\$64,816		\$50.16		\$2.83		\$20.07	
2007	\$2,409,487	19.0%	101,166	0.3%	40,763	1.0%	718,067	0.2%	\$56,237	-13.2%	\$59.11	17.8%	\$3.36	18.7%	\$23.82	18.7%
2008	\$3,556,673	47.6%	124,672	23.2%	49,869	22.3%	976,953	36.1%	\$51,395	-8.6%	\$71.32	20.7%	\$3.64	8.5%	\$28.53	19.8%

FY 06 Operating Cost, Trips, Hours, Miles based on Form 2a.

FY 07 Operating Cost, Trips, Hours, Miles based on Form 2a.

FY 08 Operating Cost, Trips, Hours, Miles based on Form 2a.

Table 2-5: Performance Summary

Route	Operating Cost Per Hour			Operating Cost Per Mile			Operating Cost Per Passenger Trip			Farebox Recovery Ratio			Passenger Trips Per Mile			Passenger Trips Per Hour		
	< \$45 S	\$45-50 A	> \$50 NR	< \$2.50 S	\$2.50 - \$3.50 A	> \$3.50 NR	< \$4.00 S	\$4.00 - \$6.00 A	> \$6.00 NR	> 25% S	20 - 50% A	< 20% NR	> .75 S	.65 - .75 A	< .65 NR	> 12 S	8 - 12 A	< 8 NR
Blue		\$60.02			\$3.38			\$7.79			6.4%			0.43				7.70
Brown		\$68.52			\$4.19			\$5.67			8.6%			0.74			12.09	
Gold		\$64.19			\$4.03			\$13.13			5.7%			0.31				4.89
Green		\$67.03			\$6.10		\$3.09				17.3%	1.98						21.71
Orange		\$66.94			\$5.71			\$7.84			5.0%			0.73				8.54
Purple		\$67.34			\$3.96			\$10.19			7.1%			0.39				6.61
Red		\$67.31			\$4.47			\$5.50			8.6%	0.81						12.23
Silver		\$67.76			\$3.77			\$6.26			4.5%			0.60				10.82
Yellow		\$66.71			\$3.92			\$6.98			7.0%			0.56				9.56
Yellow Exp		\$57.69			\$2.63			\$12.38			5.7%			0.21				4.66

Notes: The following designations are used: 'S' - Successful, 'A' - Acceptable, and 'NR' - Needs Review  
 These designations provide a basic assessment of route performance for each indicator

## Fare Comparison

Table 2-6 presents a comparison of HT transit fares with other providers serving the County and with similar systems elsewhere in the state. It can be seen that the base fare levels for HT transit are relatively high for suburban/small urban service, though they are lower than CTC Connect-a-Ride fares. Because a high percentage of users are traveling on the bus for employment purposes, and because gas prices have climbed during the last year, the fare elasticity on HT fixed routes may be relatively inelastic compared to some similar size systems, as indicated by the fact that ridership did not decline substantially last time fares were raised. However, raising fares again in the near future should only be considered as a last resort to maintain services. The benefits of transit to the user, the community, and the environment only are realized when people ride, and to the extent that higher fares discourage ridership, the benefits are reduced.

## INVENTORY OF OTHER TRANSIT PROVIDERS

In order for this plan to be an effective assessment of transit service in Howard County, other fixed-route transportation services that operate in Howard County merit discussion. Their services must be catalogued and their impact on the overall objectives for Howard County transit discussed. This section identifies other transit providers – fixed-route and human service – and describes the existing services.

### Connect-A-Ride (Fixed-Route)

Connect-A-Ride is the local transit service also managed by CTC in the central Maryland region, primarily serving the City of Laurel and western Anne Arundel County. To address inter-county and regional trip needs in this area it operates in four counties in central Maryland. This service links northern Prince George's County, Howard County (Columbia Mall), western Anne Arundel County (Russett Green and Glen Burnie), and eastern Montgomery County (Burtonsville and Briggs Chaney) to Laurel Center Mall. Figure 2-21 represents those Connect-A-Ride services that operate in Howard County.

The Connect-A-Ride system consists of 12 routes with varying hours of operations. Most of the service begins at 6:00 a.m., with three routes providing limited (peak hour) service. Route F provides limited service from the State Highway 197 (MD-197) Park & Ride Lot and the National Security Agency. Route C provides service from the Laurel Mall (Transit Center) to All Saints Road, Old Scaggsville Road, and Whiskey Bottom. The Laurel Loop service operates on a limited evening schedule.

**Table 2-6: Fare Summary of Transit Providers in Howard County and the Region**  
 (\*Providers that serve Howard County are in Bold.)

<b>Transit System</b>	<b>Base Fare - Fixed Routes</b>	<b>Base Fare - General Public Demand-Responsive</b>	<b>ADA Paratransit</b>	<b>Elderly/Disabled</b>	<b>Other</b>
Annapolis Transit	\$1.00 one-way trip Free transfers		\$2.00	<i>Fixed-Route</i> - \$.50 one-way trips	<ul style="list-style-type: none"> <li>• County routes are by zone</li> <li>• City has downtown Free Fare Zone</li> <li>• Students - \$.50</li> <li>• Various passes/tokens</li> </ul>
Anne Arundel Co. DoAD				Serves elderly and disabled only - donations requested	
<b>CTC - Connect-a-Ride</b>	\$2.00 one-way trip \$5.00 all-day pass Free transfers		\$4.00 one-way trip	\$1.00 one-way trip	<ul style="list-style-type: none"> <li>• Children 5 and under free</li> <li>• Monthly passes</li> </ul>
<b>Howard Transit</b>	\$1.50 one-way trip Free transfers		\$2.50 one-way trip	<i>Fixed-Route</i> - \$.50 one-way trip <i>Demand-Responsive</i> - \$2.50 one-way trip	<ul style="list-style-type: none"> <li>• Children under 5 free</li> <li>• Students - \$.50</li> <li>• Various passes and tickets</li> </ul>
<b>MTA - Baltimore</b>	\$1.60 bus one-way trip \$1.00 shuttles one-way trip \$2.00 express one-way trip Free transfers \$3.50 Day Pass		\$1.85 one-way trip	<i>Fixed-Route</i> \$.55 bus one-way trip \$.50 shuttles one-way trip \$.95 express one-way trip	<ul style="list-style-type: none"> <li>• Various passes, discounts</li> </ul>
<b>WMATA - Metropolitan D.C.</b>	\$1.25 (SmarTrip) or \$1.35 (cash) bus one-way trip \$3.00 (SmarTrip) or \$3.10 (cash) express one-way trip Free transfers, except		\$2.50 - \$6.50 one-way trip depending on distance (measured in zones)	\$.60 one-way trip	<ul style="list-style-type: none"> <li>• Children 4 and under free</li> <li>• Discounted student passes available for D.C. residents</li> <li>• Free transfers valid within three hours</li> </ul>

Transit System	Base Fare - Fixed Routes	Base Fare - General Public Demand-Responsive	ADA Paratransit	Elderly/Disabled	Other
	from local to express routes – must pay difference				
Baltimore CountyRide		<i>Within County</i> - \$2.50 one-way trip within County <i>Outside County</i> - \$5.00 each way \$10 if rural resident is under 60 years			<ul style="list-style-type: none"> <li>• Higher fares outside county</li> <li>• Higher fares without pre-purchased tickets (\$3.00)</li> </ul>
Frederick TransIT	\$1.10 one-way trip \$1.25 commuter trips Free transfers		\$2.00 one-way trip	<i>Fixed-Route</i> - \$.55 one-way trip <i>Demand-Responsive</i> - \$1.50 one way medical trip/\$2.50 one way non-medical trip	<ul style="list-style-type: none"> <li>• Route deviations \$1.00 per one-way trip</li> <li>• Children under 3 ft Free</li> <li>• Various tickets and passes</li> </ul>
Harford Transit	\$1.00 one-way trip Free transfers		\$2.00 one-way trip	<i>Fixed-Route</i> - \$.50 one-way trip <i>Demand-Responsive</i> • \$1.00 one-way to Senior Centers • \$2.00 one-way other trips	
Montgomery County Ride-On	\$1.35 one-way trip \$1.25 one way trip Smartrip Free transfers to bus Fees for transfers to/from rail		\$2.50 one-way trip (WMATA MetroAccess)	<i>Fixed-Route</i> - seniors and disabled Free <i>Demand-Responsive</i> - have taxi subsidy program	<ul style="list-style-type: none"> <li>• Various passes and tokens</li> </ul>
Prince George's County: The Bus	\$.75 one-way trip	Call a Bus - \$1.00 one-way trip	\$2.50 one-way trip (WMATA MetroAccess)	<i>Fixed-Route</i> - \$.35 one-way trip <i>Demand-Responsive</i> - Call-a-Bus - \$.50 one-way trip	

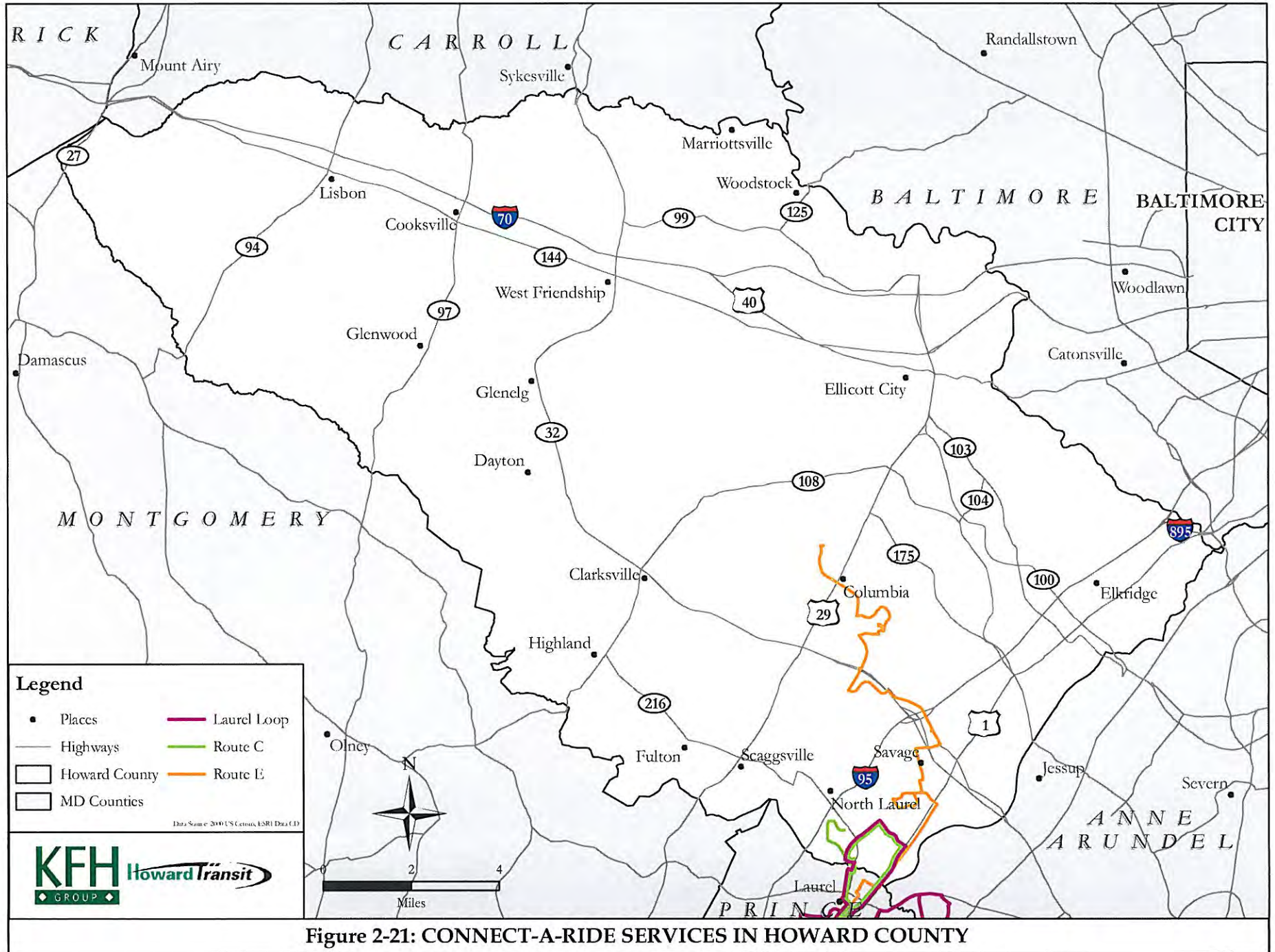


Figure 2-21: CONNECT-A-RIDE SERVICES IN HOWARD COUNTY

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## **Administration**

CAR is also managed by CTC. For the Laurel area services it is a grant recipient receiving state funding support from the Maryland Department of Transportation (MDOT) through the Washington Suburban Transit Commission (WSTC), an agency created under State law to support suburban transit in the Maryland suburbs of Washington, D.C., primarily Montgomery and Prince George's County. Prince George's County does not provide any funding for these services from local sources, but the City of Laurel makes a limited contribution. CTC is also the applicant to the MTA Statewide Planning program for state/federal funding to support CAR services in western Anne Arundel County, operated under an MOU with Anne Arundel County. Anne Arundel County provides local match funding toward this service, plus a contribution to the local match for the Laurel services. Howard County provides a similar contribution to CTC to help support the CAR routes that provide service in Howard County. The western Anne Arundel services were originally funded as part of the JARC program. All CAR services are operated for CTC by their service contractor, First Transit, using contractor-owned buses. Combining the HT and CAR services into a single operating contract increases the scale of the overall operating contract, which results in a lower cost per hour from the operating contractor.

### **Connect-A-Ride Service in Howard County**

There are three Connect-A-Ride routes that provide service into Howard County: Route C, Route E, and the Laurel Loop. Each route is discussed in the following paragraphs. Each route description is accompanied by two figures: the first figure demonstrates the route and destinations in proximity to the route, and population density information; the second figure demonstrates specific places in proximity to the route using a  $\frac{1}{4}$  and  $\frac{3}{4}$  mile buffer. The  $\frac{1}{4}$  mile distance addresses the potentially maximum distance people will generally walk to access public transit services. The  $\frac{3}{4}$  mile distance establishes the basic distance requirement for ADA service.

#### **Route C**

Route C, Figure 2-22, provides services connecting Laurel Mall (Transit Center) to Whiskey Bottom. Service starts at 6:00 a.m. and runs until 6:00 p.m., Monday through Friday. It also provides Saturday service 9:00 a.m. to 6:00 p.m. Headways are 30 minutes, Monday through Friday and 45 minutes on Saturday. Some destinations that lie within the  $\frac{1}{4}$  mile area are the SSTAR Center, The Seasons, and the Laurel Race Track. In Figure 2-23, the route profile demonstrates 7 facilities within  $\frac{3}{4}$  mile of the route, for that portion that operates in Howard County. Most of the facilities located within  $\frac{1}{4}$  mile are high density housing facilities and human service agencies.

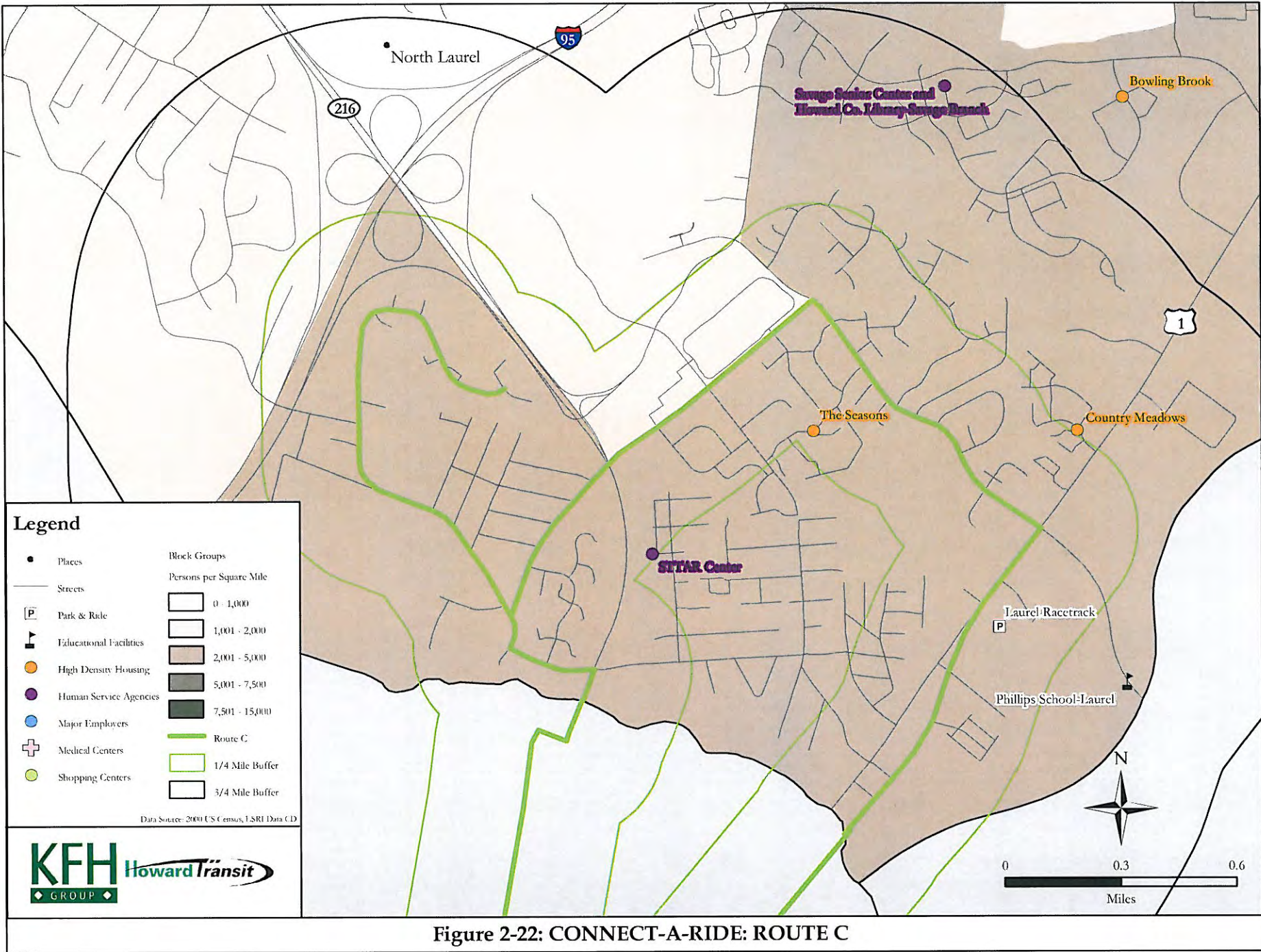


Figure 2-22: CONNECT-A-RIDE: ROUTE C



Figure 2-23: CTC: ROUTE C PROFILE

**MAJOR TRIP GENERATORS**

**Educational Facilities**  
Phillips School - Laurel

**High Density Housing**  
Country Meadows  
The Seasons

**Human Service Agencies**  
Howard County Library-Savage Branch  
Savage Senior Center  
STTAR Center

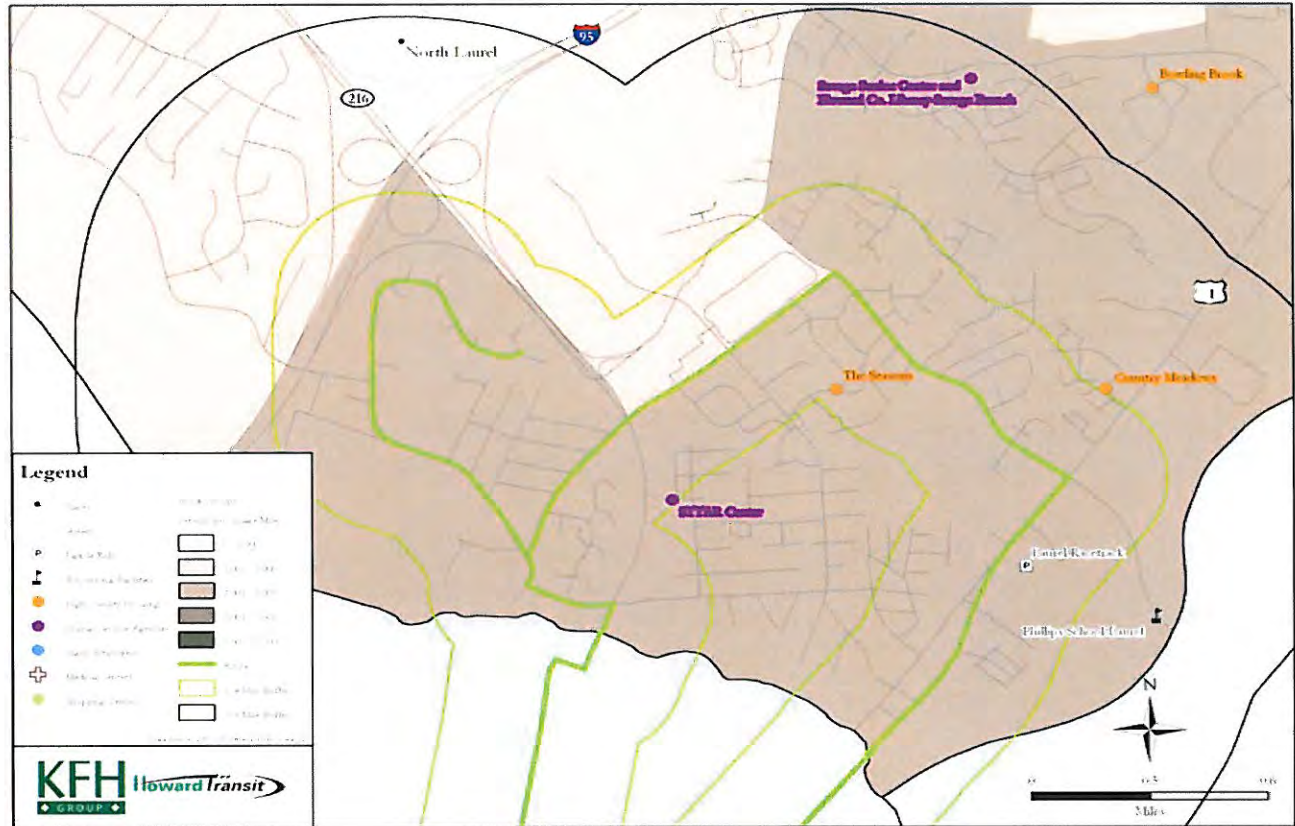
**Major Employers**  
(None)

**Medical Centers**  
(None)

**Shopping Centers**  
(None)

**Park & Ride Lot Locations**  
Laurel Racetrack

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*



**SERVICE DESCRIPTIONS**

Service Type:	Fixed-Route
Service Description:	General Public
Area Description:	Laurel to Whiskey Bottom
Hours of Service:	6am-6pm Mon-Fri, 9am-6pm Sat
Days of Service:	Mon-Sat
Fares:	\$2.00 for General Public \$1.00 for Seniors
Round Trip Miles:	9.25

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips:	48,441
Annual Total Hours:	3,648
Annual Total Miles:	46,929
Annual Operating Cost:	\$272,605
Passenger Trips per Hour:	13.28
Operating Cost per Hour:	\$74.73
Operating Cost per Mile:	\$5.81
Operating Cost per Passenger Trip:	\$5.63



### *Route E*

The Route E, Figure 2-24, provides service from the Laurel Mall (Transit Center) to Columbia. This route provides service to a lot of places in this corridor. Destinations serviced include: North Laurel, Maier Industrial Park, Gorman Road, Knightsbridge, Savage, Guilford Rd, Rivers 95 Industrial Park, Owen Brown, Columbia Town Center. Service operates from 6:00 a.m. through 7:45 p.m. Some destinations that lie within the ¼ mile buffer include the Loyola College-Columbia Center, East Columbia Senior Center, King's Crossing, Savage Senior Center, Woodside Center, Humanim, United States Food Service, Inc. and Laurel Racetrack. In Figure 2-25, the route profile demonstrates 58 facilities within ¾ mile of the route, for that portion that operates in Howard County. Most of the facilities located within ¼ mile are high density housing sites.

### *Laurel Loop*

The Laurel Loop, Figure 2-26, provides service from the Laurel Mall (Transit Center) to points along Whiskey Bottom Road, All Saints Road, and US 1. Stops include Laurel Hospital, Parkview on 197, Laurel Lakes, and Whiskey Bottom. Some destinations that lie within the ¼ mile buffer include Country Meadows, the Seasons, STTAR Center, and the Laurel Racetrack. In Figure 2-27, the route profile demonstrates seven facilities within ¾ mile of the route, for that portion that operates in Howard County. Most of the facilities located within ¼ mile are high density housing sites and human service agencies. It should be noted that during the course of the study, the Laurel Loop was discontinued, primarily because of a lack of local match funding for the CAR Laurel services. In the absence of adequate funding, the Laurel Loop was identified as the low productivity CAR service, and following public hearings it was discontinued.

As mentioned in the previous assessment of HT services, the hourly contract rate for the operation of these services is higher than the MTA minimum acceptable standard. This makes it virtually impossible to satisfy the cost standards. In FY08, the contract rate per hour was \$65.04, and in FY09 it is \$68.24.

### *Fares*

As of September 17, 2007, the base CAR fare for a one-way trip is \$2.00 and allows for one free transfer, within two hours. Reduced fare for senior/disabled is \$1.00. Ten-ride tickets are available and are offered at \$18.00 full fare, and \$9.00 reduced fare. Monthly passes are also available; for full fare the amount is \$67.00 and for (Student/Discounted Fare) the amount is \$33.00. Reduced one-way trip fares, \$.50, are available for older adult/seniors, and the disabled. Transfers are free, but only effective for two hours.

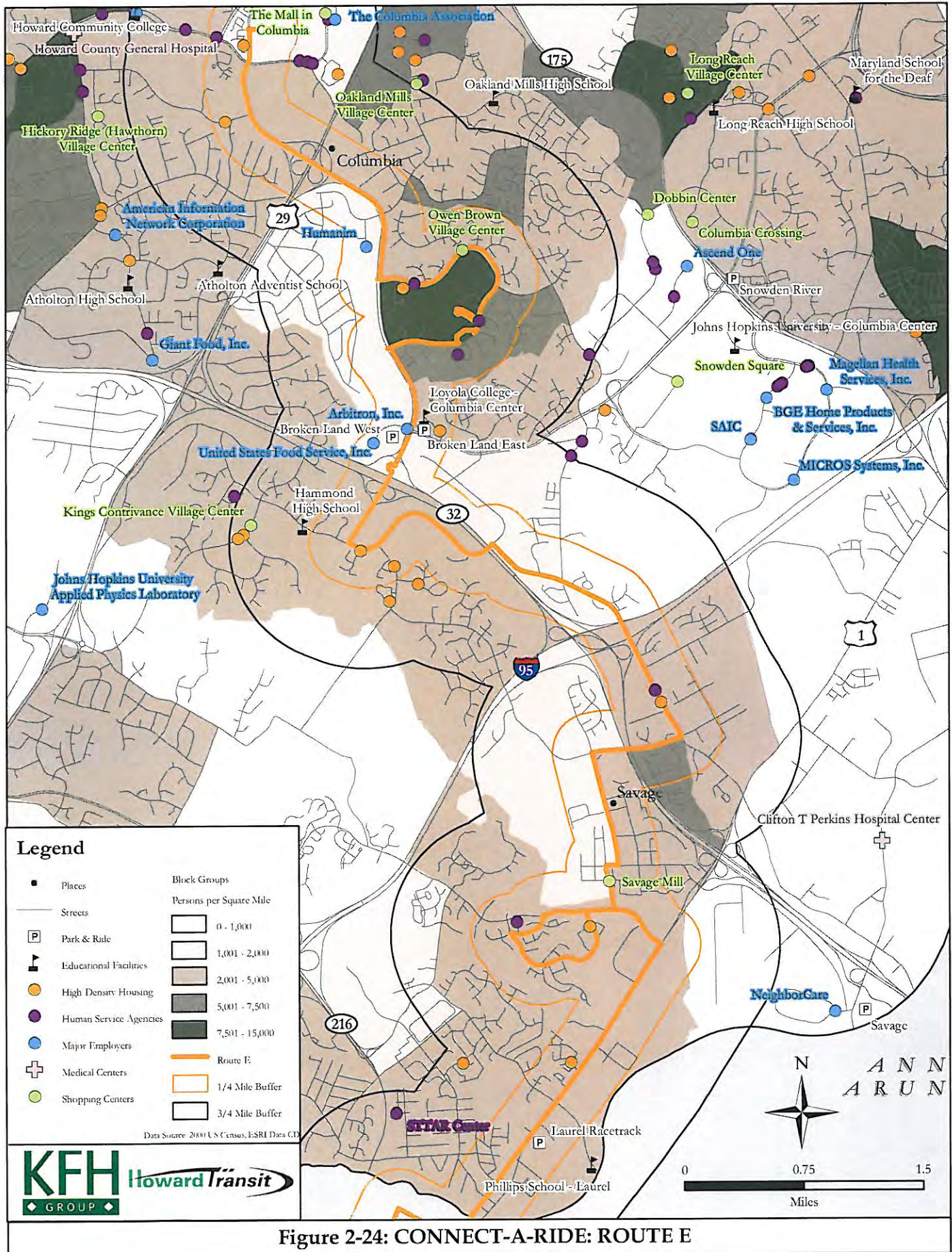


Figure 2-24: CONNECT-A-RIDE: ROUTE E

Figure 2-25: CTC: ROUTE E PROFILE

**MAJOR TRIP GENERATORS**

- Educational Facilities**
- Hammond High School
- Howard Community College
- Loyola College-Columbia Center
- Phillips School-Laurel
- Wilde Lake High School
- High Density Housing**
- Avalon at Symphony Glen
- Beech's Farn
- Bowing Brook
- Brighton Gardens
- Chimneys of Candlerock
- Columbia Commons
- Columbia Town Center
- Country Meadows
- Dominion at Eden Brook
- Dominion Kings Place
- Gateway Village
- Gramercy of Town Center
- Huntington Downs
- King's Crossing
- The Evergreens at Columbia Town
- The Seasons
- Major Employers**
- Arbitron, Inc
- Humanim
- The Columbia Association
- United States Food Service, Inc.
- Medical Centers**
- (None)
- Shopping Centers**
- Owen Brown Village Center
- Savage Mill
- The Mall in Columbia
- Park & Ride Lot Locations**
- Broken Land East
- Broken Land West
- Laurel Racetrack
- Human Service Agencies**
- Association of Community Services
- Career Links
- Congregations Concerned for the Homeless
- \*Within 1/4 Mile of Route*
- \*Within 3/4 Mile of Route*

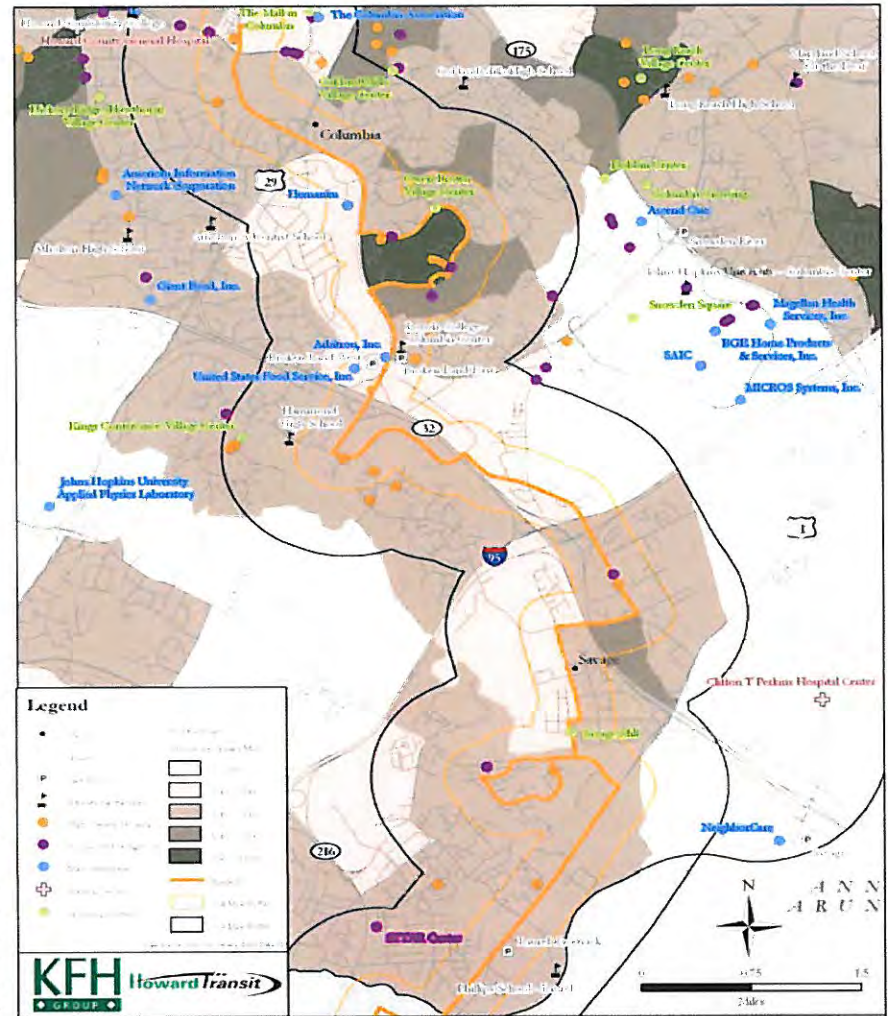
- Human Service Agencies (Continued)**
- Crohn's & Colitis Foundation of America, Inc.
- East Columbia Senior Center
- Family & Children's Services of Central MD
- FIRN
- Guilford Senior Center
- Healthy Families Howard County
- Howard County Library - Central Branch
- Howard County Library-East Columbia Branch
- Howard County Library-Savage Branch
- Howard Plaza Pregnancy Center
- Leadership Howard County
- Leadership U
- League of Women Voters of Howard County
- National Family Resiliency Center
- Owen Brown Senior Center
- The Volunteer Center Serving Howard County
- Voices For Children
- Women's Giving Circle
- PFLAG**
- Howard County Recreation & Parks
- Savage Senior Center
- School to Employment Program
- STTAR Center
- Woodside Center

**SERVICE DESCRIPTIONS**

Service Type:	Fixed-Route
Service Description:	General Public
Area Description:	Laurel Mall to Columbia Mall
Hours of Service:	6am-7:45pm Mon-Fri, 9am-6:45pm Sat
Days of Service:	Mon-Sat
Fares:	\$2.00 for General Public, \$1.00 for Seniors
Round Trip Miles:	32.69

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips:	93,721
Annual Total Hours:	7,379
Annual Total Miles:	121,192
Annual Operating Cost:	\$536,349
Passenger Trips per Hour:	12.70
Operating Cost per Hour:	\$72.69
Operating Cost per Mile:	\$4.43
Operating Cost per Passenger Trip:	\$5.72



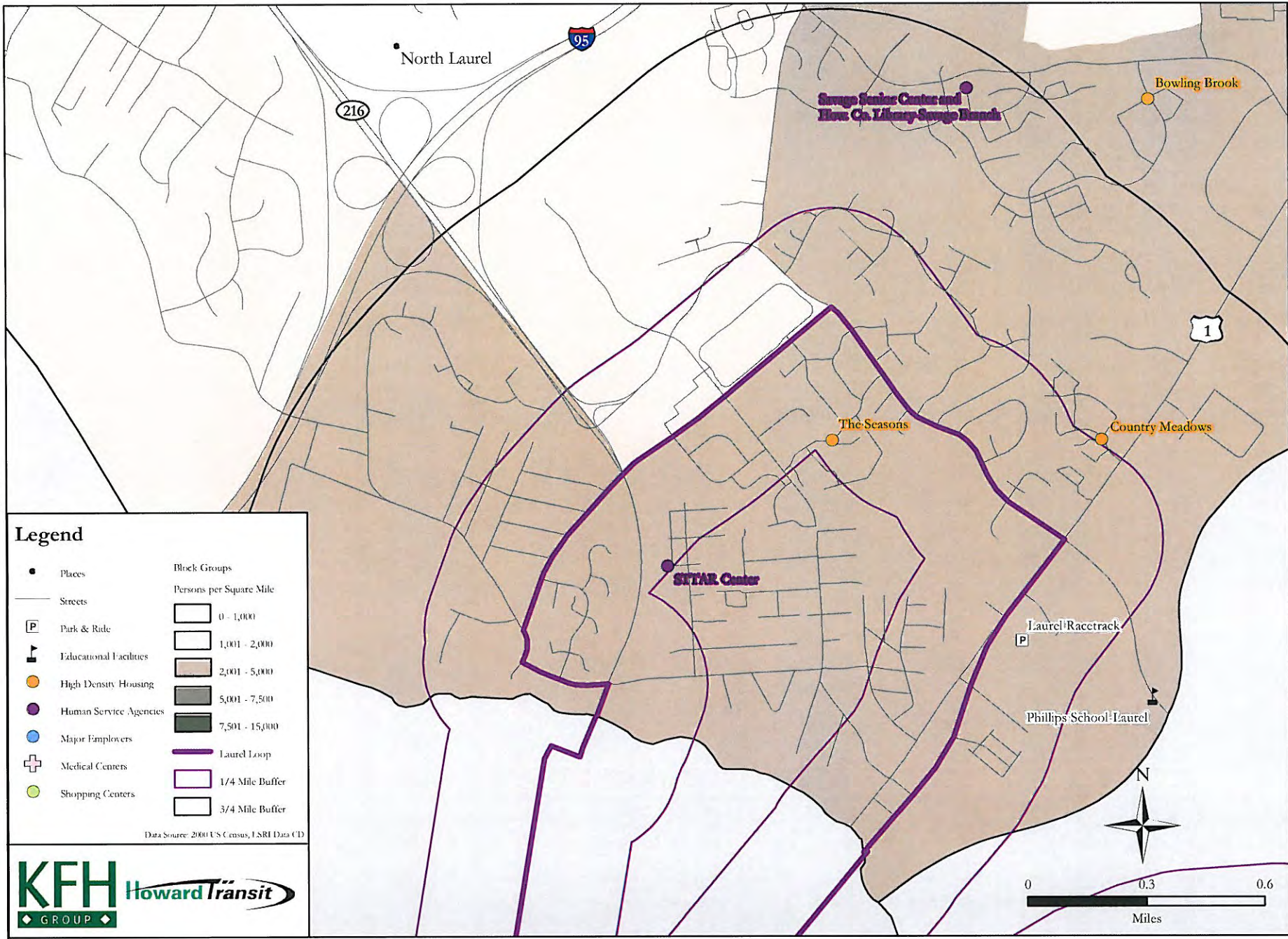


Figure 2-26: CONNECT-A-RIDE: LAUREL LOOP

Figure 2-27: CTC: ROUTE LAUREL LOOP PROFILE

**MAJOR TRIP GENERATORS**

**Educational Facilities**  
Phillips School - Laurel

**High Density Housing**  
Country Meadows  
The Seasons

**Human Service Agencies**  
Howard County Library-Savage Branch  
Savage Senior Center  
STTAR Center

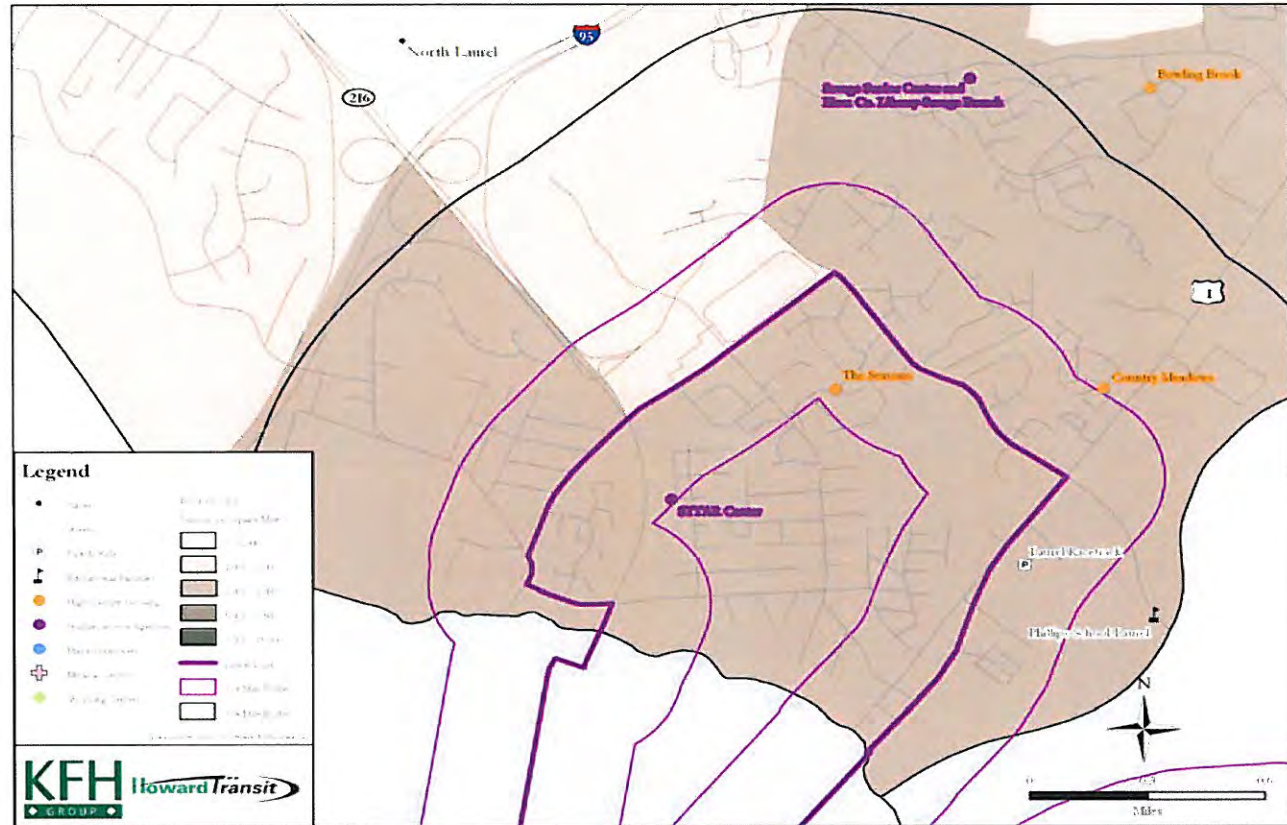
**Major Employers**  
(None)

**Medical Centers**  
(None)

**Shopping Centers**  
(None)

**Park & Ride Lot Locations**  
Laurel Racetrack

*\*Within 1/4 Mile of Route*  
*\*Within 3/4 Mile of Route*



**SERVICE DESCRIPTIONS**

Service Type: Fixed-Route  
 Service Description: General Public  
 Area Description: Laurel to Whiskey Bottom  
 Hours of Service: 7pm-10 pm Mon-Fri, 9am-9pm Sur  
 Days of Service: Mon-Fri, also Sun in Nov/Dec  
 Fares: \$2.00 for General Public  
 \$1.00 for Seniors  
 Round Trip Miles: 25

**PRODUCTIVITY DATA (FY 2008)**

Annual Passenger Trips: 8,491  
 Annual Total Hours: 1,056  
 Annual Total Miles: 19,816  
 Annual Operating Cost: \$75,152  
 Passenger Trips per Hour: 8.04  
 Operating Cost per Hour: \$71.15  
 Operating Cost per Mile: \$3.79  
 Operating Cost per Passenger Trip: \$8.85

### *Connect-a-Ride Demand-Response*

The required ADA complementary paratransit services are provided in the ¾ mile service area in Howard County by the HT Ride service, and in Anne Arundel County by CAR's RYDE program. The RYDE service is provided at \$4.00 per trip, twice the base fare, as allowed under ADA regulations. ADA paratransit in Laurel is provided by the Metro Access service of the Washington Metropolitan Transit Authority (WMATA).

### *Connect-a-Ride Performance*

The three routes that provide fixed-route service into Howard County are assessed here. These services are provided under a different transit system and, thus, a different set of overall agency objectives. A review of these services can provide some understanding of the cooperation of two local systems and promote some sense of regionalism. Appendix B contains the data and charts supporting the route assessment discussed below. For each route there is a table containing ridership and operations data for FY07 and FY08, and each table is accompanied by a set of charts representing how this data compares to the MTA performance standards.

- **Route C:** From FY07 to FY08 there was an increase in miles, operations costs and a decrease in passenger trips, hours, and farebox revenue. The costs per trip and hour increased, while cost per mile remained relatively the same. In terms of productivity, trips per mile were the same, and trips per hour increased. The service did satisfy the cost per trip, trips per mile, and trips per hour performance standards.
- **Route E:** From FY07 to FY08 there was an increase in passenger trips, hours, operations costs and a decrease in miles, and farebox. The cost per trip, cost per hour, and cost per mile all increased. In terms of productivity, trips per mile increased while trips per hour decreased. For FY08, the service did satisfy the trips per mile and trips per hour performance standards.
- **Laurel Loop:** From FY07 to FY08, there was an increase in passenger trips, farebox, and a decrease in miles, hours, and operations costs. The cost per trip decreased while the cost per hour increased, while the cost per mile remained relatively the same. In terms of productivity, trips per mile and trips per hour increased. For FY08, the service satisfied the trips per hour performance standard.

## Maryland Transit Administration - (Commuter and Fixed-Route Bus Services)

The MTA sponsors six commuter bus routes and one regular fixed-route. Figure 2-28 represents the routes that provide service in Howard County. The services are designed to provide commuter service from Howard County to Baltimore and the Washington region. These services are managed by the MTA, and operated either directly by the MTA (Route 150) or by private bus operators operating under contract to the MTA. MTA does the planning for these services in response to user input and their own public outreach, so these services are not directly a focus of consideration under the Howard County TDP. Table 2-7 presents basic ridership and productivity statistics for the routes serving Howard County.

Much of the ridership boards at park and ride lots, including:

- Broken Land Parkway East,
- Broken Land Parkway West,
- Clarksville,
- Long Gate,
- Scaggsville, and
- Snowden River Parkway.

Table 2-8 lists all the park and ride lots in Howard County, along with their locations and whether or not they are also served by local transit. With the recent increase in fuel prices, ridership on the commuter routes has increased, and capacity issues at some of the park and ride lots have emerged. Again, these lots are primarily a State Highway Administration responsibility, though the County does work with the state to address capacity and management issues.

### *Routes*

- **Bus Routes 310/311** – provides services connecting Columbia, Baltimore, and Johns Hopkins Hospital. Stops in Howard County include: the Village Center (Harper’s Farm Rd), Columbia Mall, and the Park & Ride lots at Broken Land and Snowden River. The 311 Route provides most service in Howard County with three morning departures from the Village Center. The 310 Route starts at the Snowden River Parkway, with the 311 Route also having a stop there. Both routes continue onto Baltimore with the 310 Route continuing to Johns Hopkins Hospital and the 311 Route providing service in downtown Baltimore. Following January 12, 2009, the service pattern changed to five northbound morning trips and five southbound trips in the late afternoon/evening. All trips are on the 310 Route. The 311 Route has been discontinued.



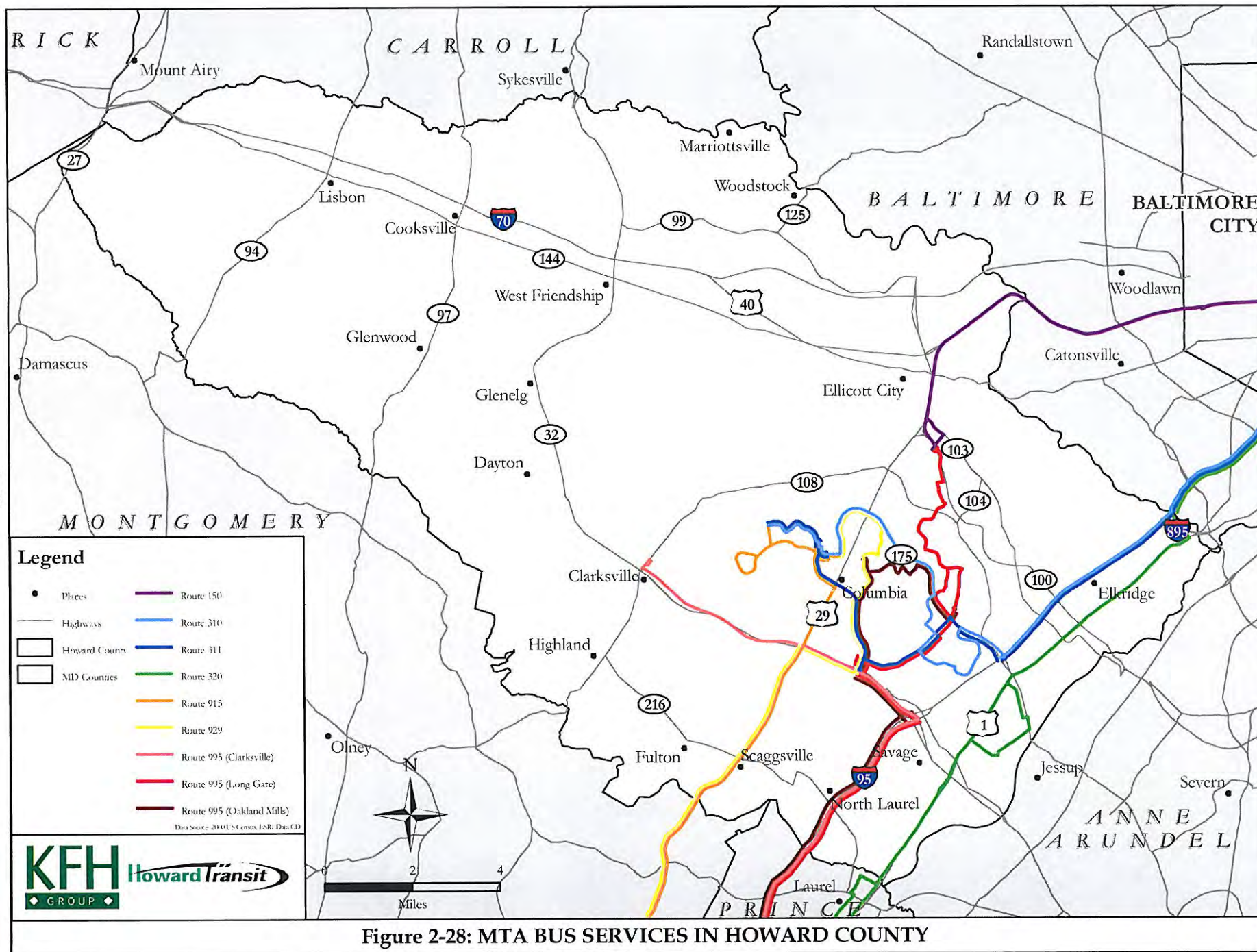


Figure 2-28: MTA BUS SERVICES IN HOWARD COUNTY

**Table 2-7: MTA Commuter Bus -- Howard County Route Data: FY 2007**

Howard Co.	Ridership	Service Miles	Operating Costs	Oper Cost/Mile	Oper Cost/Trip	Pass Trips/Mile	Farebox Recovery
310	39,117	45,034	\$428,581	\$9.52	\$10.96	0.87	26.8%
311	36,958	52,843	\$501,978	\$9.50	\$13.58	0.70	22.2%
320	42,699	66,033	\$421,111	\$6.38	\$9.86	0.65	21.5%
915	155,488	168,264	\$1,642,172	\$9.76	\$10.56	0.92	36.5%
929	210,048	272,454	\$1,936,492	\$7.11	\$9.22	0.77	41.7%
995	219,550	303,030	\$2,423,186	\$8.00	\$11.04	0.72	34.3%

Table 2-8: Howard County Park & Ride and Proximity to Transit

Name	Address	City	County	State	ZIP Code	Spaces	Inside 1/4 Mile	Between 1/4 & 3/4 Mile	Outside 3/4 Mile
Broken Land East	MD 32 & Broken Land Parkway	Columbia	Howard	MD	21045	325	x		
Broken Land West	MD 32 & Broken Land Parkway	Columbia	Howard	MD	21046	318	x		
Clarksville	MD 32 & MD 108	Clarksville	Howard	MD	21029	170	x		
Cooksville	Frederick Road & MD 97	Glenwood	Howard	MD	21738	19			x
Dorsey	MD 100 & US 1	Elkridge	Howard	MD	21075	NA	x		
Laurel Racetrack	Main Street & First Street	Laurel	Howard	MD	20724	NA	x		
Long Gate	MD 100 & Long Gate Parkway	Ellicott City	Howard	MD	21043	300	x		
Oakland Ridge	US 29 & MD 108	Columbia	Howard	MD	21045	99	x		
Savage	MD 32 & Dorsey Run Road	Annapolis Junction	Howard	MD	20701	NA	x		
Scaggsville	US 29 & MD 216	North Laurel	Howard	MD	20723	416	x		
Snowden River	MD 175 & Snowden River Parkway	Columbia	Howard	MD	21046	210	x		
West Friendship	I-70 & MD 32	West Friendship	Howard	MD	21784	63			x
Woodbine	I-70 & MD 94	Woodbine	Howard	MD	21797	42			x

- **Bus Route 320** – provides services connecting Laurel, Howard County, and downtown Baltimore. The service provides several stops in Howard County along US 1: Whiskey Bottom Rd, Guilford Rd, and Patuxent Range Rd., to name a few. Prior to January 12, 2009, from Baltimore to Laurel, there were 4 trips in the morning and two trips in the afternoon. From Laurel to Baltimore there was one morning trip and 3 evening trips. After January 12, the service pattern changed to four southbound trips in the morning, and four northbound trips in the late afternoon/evening.
- **Bus Route 915** – provides service connecting Columbia, Ellicott City, Silver Spring, and Washington D.C. The service provides several stops in Howard County at the Columbia Mall and along Little Patuxent and Broken Land Parkways, and the Broken Land Park & Ride. From Columbia to Silver Spring/Washington D.C. there are nine morning trips. From Washington D.C./Silver Spring there are ten afternoon trips provided, with certain stops only made by request.
- **Bus Route 929** – provides service connecting Columbia, Silver Spring, and Washington D.C. Stops in Howard County include Village of Wilde Lake, Village of Oakland Mills, The Mall at Columbia, Village of Owen Brown, and Kings Contrivance and the Park & Ride lots at Broken Land and Scaggsville. From Howard County to Washington D.C. there are 12 morning trips and two afternoon trips. From Washington D.C. to Howard County there is one morning trip and 12 afternoon trips.
- **Bus Route 995** – provides service connecting Clarkesville, Ellicott City, Columbia, and Washington D.C. Stops in Howard County include the Clarksville, Long Gate, Snowden River and Broken Land Park & Ride lots. From Howard County to Washington D.C., there are 14 morning trips, however, not all trips make all stops, there are five express service trips. From Washington D.C. to Howard County there are 14 afternoon trips, also with five trips providing express service in Howard County.
- **MTA Route 150** – provides service connecting Long Gate Park and Ride at the Long Gate Shopping Center with downtown Baltimore. Other stops are all on US-40 in the Ellicott City area. From Howard County there are three morning inbound trips, and four inbound afternoon trips. Outbound to Howard County there are four morning trips, and three afternoon trips.

During the course of the study, funding reductions led MTA to propose elimination of the 310/311 and 320 Routes, which would result in a major reduction of service between the County and Baltimore destinations. Following public input at a

hearing, negotiations between the County and MTA resulted in service changes to reduce costs, coupled with a County contribution of \$200,000 towards the continued operation of these services.

## **HUMAN SERVICE AGENCY TRANSPORTATION**

Transportation is a vital component in each human service agency's ability to successfully achieve its mission. This is reflected by the size of their transportation programs and their commitment to providing and/or supporting transportation services. Publicly available transportation resources include, but are not limited to:

- Senior Transportation,
- Transportation for children,
- Medical transportation,
- Transportation service for persons with disabilities, and
- Transportation to employment sites.

### **Neighbor Ride**

Neighbor Ride is a transportation alternative for Howard County's older residents. A significant number of older Americans no longer drive; they often stay at home, making it difficult to access activities and interaction that contributes to their quality of life. This service supplements public and private transportation services. It is available to all seniors, age 60 and older, who need transportation to healthcare or personal appointments, visits with friends and other activities. As this operation is made possible by volunteer staff and drivers, more flexibility is necessary to accommodate ride requests. Ride requests are to be made at least three business days in advance to allow time for volunteer staff to plan accordingly. Requests can be made using the internet or making a phone call to Neighbor Ride.

### **HANDS**

HANDS is an additional program providing volunteer transportation for seniors to and from medical appointments.

### **ARC of Howard County**

The mission of the ARC is to help children and adults with cognitive and developmental disabilities. Services include social activities to vocational training that includes job placement and support. ARC does provide transportation services to its clients, using its own fleet of vehicles.

### **Athelas Institute, Inc.**

The mission of the institute is to provide a variety of quality educational, rehabilitative, residential, employment, and individual support options for individuals with developmental disabilities. It also provides door-to-door transportation for clients in its Howard County programs.

### **Center for Social Change, Inc.**

The center is a non-profit organization that provides a wide range of support services to children and adults with developmental disabilities and related developmental disorders including autism. Services in Maryland include residential services for adult individuals and children, adult day care services, supported employment programs for adults, an autism waiver services center, and various special projects for supported employment. Transportation services are provided to clients.

### **Creative Options, Inc.**

Is a private non-profit organization that provides Adult Day Support Services, Community Residential Support Services, and Family & Individual Support Services. Ancillary services include case management plan design, medication administration, transportation and social/recreational activities, behavioral support services, and nursing support services. The service area is the greater Baltimore metro area.

### **Howard County Office on Aging**

The Howard County Office on Aging is a division of the Howard County Department of Citizen Services, and is the principal agency that plans, advocates, develops, and coordinates programs and services for seniors and their family members. The Office on Aging is the primary agency that certifies users for HT's HT Ride/Paratransit service for older people. Seniors, or people age 50 and disabled, can call the Senior Information & Assistance line to complete the certification process. The certification process is free. People can use HT Ride for a variety of destinations, including medical appointments and senior centers for a small fee. In some cases private transportation options for seniors are available: Columbia Association and Owen Brown Community Center. The Office on Aging also provides free tickets for people that meet income guidelines.

### **Howard County Department of Social Services (DSS)**

The DSS provides services to individuals and families that focus on self-sufficiency, stability, and safety from abuse and neglect. Services provided cover a wide area of needs: cash and food, medical assistance, services for adults, and energy

assistance. Clients are known to use HT transit services to access Community Action Council centers.

The DSS also administers the Head Start Program, and transportation for participating children is directly operated. Head Start centers are located in Columbia and Ellicott City. Buses are only for children, parents are not allowed onto the vehicle.

### **Howard County Health Department**

The health department is responsible for improving the health of Howard County residents. By State and County authority, the Health Department is responsible for enforcing certain federal, state, and county laws and regulations. Within the Health Department, the Medical Assistance/HealthChoice Transportation Program provides transportation services for Howard County residents who are Medical Assistance / HealthChoice recipients, to medical providers who accept these programs. All active Medical Assistance/HealthChoice clients who reside in Howard County are in need of ambulatory/wheelchair non-emergency transportation may use AAA Transport. AAA Transport conducts the screening for eligible recipients and they require 24-hours advance notice for an appointment. The transportation is for Medical Assistance approved medical appointments and takes clients from their home to the closest available provider, which is usually within Howard County. The Health Department encourages individuals requesting transportation services, to exhaust all other transportation options before seeking Medical Assistance transportation. This effort includes directing clients to HTRide, which then incurs the costs of a paratransit trip while receiving only the fare. HTRide would like to be able to bill the Medicaid program for the entire cost of serving these client trips.

Transportation service is provided between the hours of 5:00 a.m. - 9:00 p.m., Monday through Friday, with limited Saturday service. Business hours for scheduling appointments are from 9:00 a.m. - 5:00 p.m., Monday through Friday. For FY08, the Health Department provided service to 1,200 unduplicated clients. Funding for transportation services is provided through state and federal grants.

### **Humanim**

Humanim offers five core services: Mental Health, Vocational, Neuro-Rehabilitation, Developmental Disabilities, and Deaf Services. Our services are available to children, adolescents, adults, and older adults. Humanim seeks to develop access to quality care for those in greatest need regardless of age, gender, geography, ethnicity or human service requirements. Transportation services are provided for individuals to and from job sites. There are two facilities in Howard County providing

services - Woodside Court and Gerwig Lane. Clients must go through a screening process to determine eligibility for transportation services. Daily transportation services are provided for approximately 220 clients. The transportation service is scheduled, based on client needs, and manifests are developed two weeks in advance.

Transportation is operated directly, though on occasion Humanim will make arrangements with HT Ride. The transportation services provide up to 76,000 trips per year. The fleet consists of 12 15-passenger vans and one 21-passenger bus. Hours of operation are 9:00 a.m. - 2:00 p.m., Monday through Friday for the day program; pick-ups start at 7:00 a.m. Hours of operations for job coaching/vocational training are 5:30 a.m. - 5:30 p.m., Monday through Friday

### **The Growth Center / Sheppard Pratt**

The Growth Center provides psychiatric rehabilitation programs for emotionally disabled adults. Assistance and services includes pre-vocational units, recreational, educational, and therapeutic components. Classes offered include symptom management, self-esteem, anti-stigma groups, medication management, crisis management, and peer support. Sheppard Pratt at Howard County operates an out patient mental health clinic which provides mental health services to adults and children. Some transportation services are provided to clients.

Human service transportation has long benefited from a high level of coordination, with agencies working together under the Urban-Rural Transportation Alliance (URTA), which later formed a basis for the County's HTRide paratransit program. Senior transportation in the County is provided by HTRide for nutrition and other senior center programs. Transportation for developmentally disabled persons to training and employment is generally provided by the agencies that provide the residential, training and employment services. Head Start transportation for low-income pre-school programs is provided by the Department of Social Services. The major human service transportation program that offers some potential for additional coordination is the transportation provided by the Department of Health for Medicaid eligible (low-income) persons for medical purposes. These are currently performed by a contractor.

## **SUMMARY AND CONCLUSIONS**

Howard County has developed a transit system that offers a relatively high level of fixed-route service in the areas of the County that have densities supportive of transit, and a significant paratransit program to provide services to persons who are unable to access or use the fixed-route services. Even the higher-density areas of the



County have population densities that are suburban rather than urban, and so the productivity of the fixed-route services is a concern. However, all but four of the routes meet key MTA productivity standards, and one of those is very close. One of them, the Purple Route serves employment areas and provides service in the redeveloping Route 1 corridor, which should lead to increased utilization over the time horizon of this plan. The other route, the Blue Route, serves a low-density higher income area, and plans are already underway for restructuring it to focus on park and ride service to serve BRAC-related growth. The County also benefits from regional connections provided by the CTC CAR services linking Columbia and the southeastern corner of the County with Laurel. These services are utilized and address trip needs that cross jurisdictional boundaries. These are vulnerable to reductions because of the fact that CTC does not have a local match source for the operations. Other important services for County residents include the MTA commuter bus services, which are critical for many persons as a substantial portion of the County's population works outside the County. The value of these services is reflected in the County's response to MTA's recent effort to reduce these services, which resulted in continued service with a County contribution.

## Chapter 3

# Public Outreach

### INTRODUCTION

This chapter identifies and incorporates information received from residents of Howard County during public outreach efforts. Public input is an important part of the TDP planning process and members of Howard County were active participants. Comments received addressed a range of transit services. Areas discussed included: quality of service, vehicle conditions, travel time, scheduling, and service to underserved areas. The chapter is structured chronologically, with the first set of summary comments provided at the initial public outreach efforts. These efforts included meetings with community groups, and interviews with individual Public Transportation Board members. The next section includes comments voiced at the Public Transportation Board hearings and comments on the documentation made available to the community. Overall, these comments were considered during the development of potential transit strategies and alternatives, which is the subject of Chapter 4.

### PRELIMINARY OUTREACH EFFORTS

This section provides a summary collection and assessment of comments received during the preliminary outreach efforts. These efforts started with public outreach meetings with several organizations throughout Howard County. The notes from these meetings are located in the Technical Appendix, Appendix C. These meetings included visits with the Association of Community Services, Department of Citizen Services, the initial Public Transportation Board Meeting, and one-on-one interviews.

In summary participants provided the following:

- Need to increase service area (Catonsville/Burtonsville/Maple Lawn) and service hours.
- Need to make services more accessible for low-income and human service agencies.
- Need to provide service that loops around the Columbia Mall and immediate surrounding area - make Lakefront accessible.
- Need to improve signage on buses, difficult to determine which vehicle pertains to a route.
- Improve marketing efforts for transit services in Howard County.
- Need more information on Ft. Meade-BRAC impacts.
- Increased paratransit services to Baltimore City medical facilities.
- Need policy/zoning that links land development and potential transit demand.
- Need to support bike/pedestrian improvement efforts around the county.

## **PRESENTATIONS AND OTHER COMMENTS**

Other opportunities for public input included public presentations at the Public Transportation Board hearings and the availability of presentation materials for public review. Presentation materials were made available on the Howard County Government website and printed documents were also available at various public facilities in Howard County. As prescribed by the Public Transportation Board, comment periods were allotted throughout this planning process. Major themes are discussed in this section, and the comments are included as Appendix D of the Technical Appendix.

Generally, comments expressed were related to increased services (hours of operation), some new service, improved vehicle conditions, improved route/schedule information, and improved paratransit services. Specific comments received included:

- New services connecting Elkridge and Ellicott City.
- New service connecting places along Montgomery Rd., the Linwood Shopping Center, and the Watermont area to Long Gate shopping center.
- New service from Maple Lawn Farms to Ft. Meade.
- New services that include the John Hopkins facilities and nearby Montpelier Rd.
- Need more active participation of business and community associations to help employees/residents meet their transportation needs.
- More connecting service to MARC and MTA commuter services.
- Development of guidelines necessary to monitor and evaluate overall service, performance, and service quality.
- Need a stronger link between land use and transit. Currently proposed and future projects can benefit from considering potential accessibility to transit services.
- Shuttle services around the Columbia Mall and a major transfer center.
- Need more information on BRAC – Ft. Meade impacts.
- Need to establish vehicle (capital) replacement program; condition of vehicles are cause for concern – mileage, air condition/heating, and seating.
- Need to clearly define transit’s contribution and support for the development of walkable neighborhoods.
- Need more coordination between transit services and human service agency needs.
- Consider Transit Only Lanes (MD-175, US-29, Broken Land Pkwy, Little Patuxent Pkwy, Gov. Warfield Pkwy, Cedar Ln).

## **SUMMARY**

Generally, comments relate to the increasing demand for transit service as a result of fluctuating fuel prices and the increasing population, especially those segments that are transit dependent. Items mentioned include more hours of operation, larger vehicles, increased frequencies (shorter headways), and the addition of service to areas that are not served. There is also support for connecting these local services with other regional services to increase regional connectivity and convenience to access other parts of the region. With respect to the population characteristics, there is an understanding that the older adult population will increase significantly in the near future; and an overall increase in population that demands specialized transit services.

Finally, a major area of input concerned service quality, particularly for HTRide. Users expressed concern about continuing problems with late trips, excessive on-board times, lost drivers, vehicle problems (lift function, heating and air-conditioning, etc.) and scheduling. Service quality issues for fixed-route were more limited, with some comment about on-time performance and vehicle condition (including lift failures, smoking buses, as well as heating and cooling).

# Chapter 4

## Service and Organizational Alternatives

This chapter is intended to document the “menu” of potential service and organizational options that were considered by the Public Transportation Board (PTB) and the Technical Steering Committee. It includes service alternatives developed to address areas without service or with productivity issues, detailed route-by-route service alternatives, capital requirements (both vehicles and facilities), a discussion of organizational issues, and proposed service guidelines. It includes cost estimates, and an assessment of the options in terms of implementation issues. The actual plan, i.e. the recommended options in a phased approach, is presented in the next chapter.

### SERVICE CONCEPTS

Based on the information presented in the first two chapters of this report (the needs assessment and overview of current services), and an extensive process of gathering input from the PTB, stakeholders, and the public memoranda developed for this plan, several concepts were developed for use in the development of alternatives.

#### Frequency Improvements

One significant comment from a number of sources is that there needs to be a period of stability in the routes, as the coverage of the current system is now very good in the areas with sufficient density. This observation was linked with the desire to work on increasing frequencies on the existing routes, including increased frequencies to the destinations at the ends. For that reason one set of alternatives addresses the costs of increasing frequencies from the current 60-minute headways to 30-minute headways during the peak hours. The options begin with the Green Route, which links the Mall transfer point to Howard County General Hospital, the Florence Bain Center, and Howard Community College. It currently has the highest ridership in the system, and standing loads have been observed. Two options are presented for it—one that is peak-hour only, and one that also includes the mid-day period. Thirty-minute peak

hour headways are then presented for other routes in order of their ridership, including the Red, Brown, and Silver Routes. The other routes in the system have lower productivity, and doubling the peak-hour capacity is likely to severely diminish their productivity by spreading relatively few riders over many more miles and hours of service.

Despite the focus on the existing routes, the needs assessment process, the review of development activity, and the outreach process all suggested several areas in which route alternatives are called for, either to provide service in areas currently lacking service, or restructuring current services. These include:

### **Southeast County**

The public comments and the needs assessment suggested a need for some level of general public services. This was conceptualized as a need for fixed-route HT services connecting Columbia with the County's largest single employment site (Johns Hopkins Applied Physics Laboratory, also known as APL), the Montpelier Research Park, the Maple Lawn residential and commercial development (transit-oriented higher-density development), Emerson (also higher density new development), the new North Laurel Community Center, and Laurel. Other suggestions for this area included service to Reservoir High School, and connections to the Burtonsville Park and Ride lot in Montgomery County to allow connections to Metrobus services.

### **Columbia Town Center**

The plans developed by the County and by General Growth Properties (GGP) for the Columbia Town Center area have both included support for additional density, supported by improved transit. The GGP plan included a conceptual shuttle in the expanded area of increased density around the Mall, along with a Transit Center and improved higher frequency shuttles offering connections to the Village Centers. The alternatives presented include an initial mid-day shuttle for the Town Center area, designed to improve access and address public input calling for transit links to the offices and services that are east of Little Patuxent Parkway. It would allow employees to leave their cars to access the retail and restaurant areas during the mid-day. A second concept is an expanded shuttle serving new development, at a higher-frequency and with greatly expanded hours of service, to facilitate connections in the Town Center area from the beginning of commute hours to the time that movies let out.

### **Northeast County**

The current Yellow Route suffers to some extent from low productivity and circuitous routing, and it includes so much route mileage that it is at the edge of being

able to run reliably on-time. It provides the connection between the Town Center, Long Gate, and Ellicott City destinations. It is so tight, in terms of schedule, that the Circuit Court was dropped as a destination in the recent past, and public (and Court) input has made clear that public access to the Courts requires transit service. For that reason alternatives have been developed to restructure the Yellow Route to provide for additional coverage and service hours, to serve the Court, and to serve Mount Hebron High School.

A related issue is the need identified in the outreach to link the Ellicott City area with the Route 1 corridor, without requiring a trip through Laurel and Columbia. A route alternative linking Ellicott City and the Route 1 corridor is included. It also serves some previously unserved high and moderate density areas along Route 103.

The restructured routes (Yellow East and West) and the new route taken together should be linked at a common transfer point in the Ellicott City area with the limited MTA bus service to create a transit sub-center or hub to facilitate connectivity and serve as a focal point for transit in this region of the County.

### **BRAC Routes**

The BRAC process has designated Fort George G. Meade (FGGM) as the location to receive 5,719 direct Defense Department jobs, 922 contractor jobs, and estimated 3,409 indirect and induced jobs, all located in an additional 22 million square feet of buildings and parking facilities. The Fort is located in the western part of Anne Arundel County, near Howard County, and it is likely that some portion of these employees will choose to live in Howard County and commute. The shift in jobs will take place beginning in 2012, within the time horizon of this TDP.

At this point it is problematic to translate the increased jobs into demand for local transit for several reasons. One is that a significant number of the persons in jobs being transferred to FGGM have indicated that they intend to stay in their current homes (mostly in Virginia) and commute. Some 58% of the Defense Information Systems Agency (DISA) employees surveyed said they would commute, not move. This preference may change over time as these persons experience the traffic congestion on the major commuter routes. A second is that many of these persons are relatively high income, likely have autos, and will use them to commute. A third factor is that parking at FGGM is not constrained in the short run, though there are policies that will affect the new construction to limit parking to 60% of the amount previously required. The recent increase in gas costs, however, has led to an increase in the consideration of transit options by commuters, particularly for long commutes. This is reflected in major increases in commuter rail and bus patronage, as well as on HT local buses. Given the incomes, the parking situation, and the propensity to commute, it is not clear that there



is a major new transit market for local services from Howard County to FGGM, though it certainly makes sense to provide for transit access which is not currently available.

The study team obtained data from the BMC Regional Travel Demand model, mapped in Figure 4-1, showing the relative number of peak hour commuters to FGGM in 2015, at the mid- to end-point of this TDP's time horizon. As can be seen in the map, there are no Traffic Analysis Zones in Howard County with the highest level of peak-hour work trips to FGGM, and there are only three with the next highest level. One is in the eastern part of the County, near I-95, Route 1 and Route 100, and the other two are in the Savage/North Laurel area. A route alternative was developed to serve the northernmost TAZ, linking the Gateway area to the Dorsey MARC station, NSA and FGGM with peak-hour service—if there are 500 trips per day overall, and there is a transit mode share of 5%, this would result in 25 transit trips each way in the peak. The BMC model does not show significant commuting from the Columbia area to FGGM, though this may be in some degree the result of the fact that the planned Town Center housing is not completely represented in the model for 2015, and that the TAZs for that area are very small in area. At this point there is no route proposed from Columbia to FGGM to deal with BRAC.

## SERVICE ALTERNATIVES

### Existing Service: Increased Frequency

#### ❖ *Service Concept 1A: Increased Peak-Hour Frequency for the Green Route*

- Concept Description/ Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Increase service to reduce headways to 30-minutes (from the current 60 minutes) for seven hours per day (three hours in the morning, and four hours in the afternoon), weekdays only.
  - Fixed-route, fixed-schedule service on the current route linking Columbia Mall (transfer point), Howard County General Hospital, and Howard Community College.
  - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
  - Uses hybrid 35' transit buses equipped with wheelchair lift or ramp.

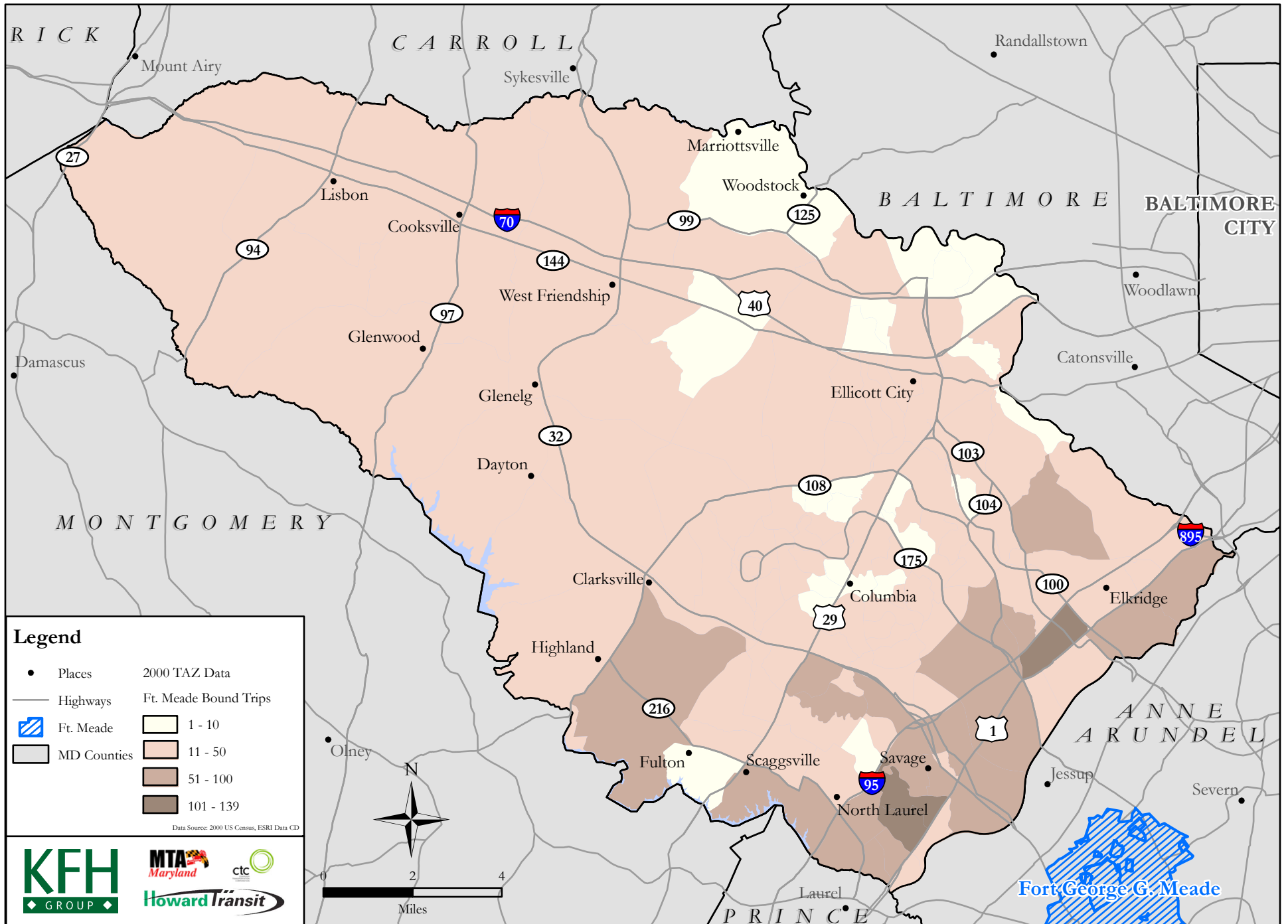


Figure 4-1: BMC Travel Demand Model, Morning Peak Trips to Fort Meade, 2015

- Benefits:
  - Provides higher-frequency service on the busiest HT route, one with current standees on some trips.
  - Responds to user and stakeholder input requesting higher frequency service.
  - Reduces wait times for users.
  - Connects with all schedules at transfer point (during peak).
  - Supports increased residential and office densities and future pedestrianization of the Town Center.
  - Responds to public input requesting transit access within Town Center (around Mall, and to offices across the street).
  - Potential ridership increase—transit rider elasticities with respect to service improvements are higher for frequency improvements than for fare discounts.
- Costs: \$146,000 additional hourly operating costs, and \$520,000 for one additional hybrid 35' transit bus.
- Productivity Expectation: After 18 months -- 25 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Opportunity to initiate in the near future, could be a marketing opportunity if combined with new buses and associated publicity.
  - Funding could involve private contributions linked to Town Center development phasing.
  - As a fixed-route service ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
  - Potential for operational issues during peak shopping seasons due to traffic congestion—could cause bunching, headway problems if buses are caught in traffic. Bus priority lanes or signal priority possible in areas where other transit routes would also benefit.
  - Eligible for FTA/MTA transit funding.

❖ **Service Concept 1B: Increased Peak-Hour and Mid-day Frequency for the Green Route**

- Concept Description/Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Increase service to reduce headways to thirty-minutes (from the current 60 minutes) for 11 hours per day, weekdays only.
  - Fixed-route, fixed-schedule service on the current route linking Columbia Mall (transfer point), Howard County General Hospital, and Howard Community College.
  - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
  - Uses hybrid 35' transit buses equipped with wheelchair lift or ramp.
  
- Benefits:
  - Provides higher-frequency service on the busiest HT route, one with current standees on some trips.
  - Responds to user and stakeholder input requesting higher frequency service.
  - Addresses needs for higher frequency for mid-day trips to respond to Community College, Bain Center, and medical trips that are not necessarily morning and evening.
  - Reduces wait times for users.
  - Connects with all schedules at transfer point (during peak and mid-day).
  - Supports increased residential and office densities and future pedestrianization of the Town Center.
  - Responds to public input requesting transit access within Town Center (around Mall, and to offices across the street).
  - Potential ridership increase—transit rider elasticities with respect to service improvements are higher for frequency improvements than for fare discounts.
  
- Costs: \$230,000 additional hourly operating costs, and \$520,000 for one additional hybrid 35' transit bus. Note that the incremental cost over providing peak hour 30-minute service is limited to the operating cost differential of \$84,000.

- Productivity Expectation: After 18 months -- 20 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Opportunity to initiate in the near future, could be a marketing opportunity if combined with new buses and associated publicity.
  - Productivity (boardings per hour and mile) will likely decline from current high levels, because ridership will not increase to the same extent as miles and hours.
  - Funding could involve private contributions linked to Town Center development phasing as this route could be considered a shuttle linking Town Center and key nearby destinations.
  - As a fixed-route service, ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
  - Potential for operational issues during peak shopping seasons due to traffic congestion—could cause bunching, headway problems if buses are caught in traffic. Bus priority lanes or signal priority possible in areas where other transit routes would also benefit.
  - Eligible for FTA/MTA transit funding.

❖ ***Service Concept 1C: Increased Peak-Hour Frequency for the Red Route***

- Concept Description/Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Increase service to reduce headways to 30-minutes (from the current 60 minutes) for seven hours per day (three hours in the morning, four hours in the afternoon), weekdays only.
  - Fixed-route, fixed-schedule service on the current route linking Columbia Mall (transfer point), with residential, employment, and retail at Long Reach Village Center, Columbia Crossing, Dobbin Center, Snowden Square, the Department of Social Services, and other Columbia Gateway businesses and offices.
  - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
  - Uses hybrid 35' transit buses equipped with wheelchair lift or ramp.

- Benefits:
  - Provides higher-frequency service on the second busiest HT route.
  - Responds to user and stakeholder input requesting higher frequency service.
  - Reduces wait times for users.
  - Connects with all schedules at transfer point (during peak).
  - Supports increased residential and office densities and future pedestrianization of the Town Center.
  - Potential ridership increase—transit rider elasticities with respect to service improvements are higher for frequency improvements than for fare discounts.
  
- Costs: \$297,000 additional hourly operating costs, and \$1,040,000 for two additional hybrid 35' transit buses.
  
- Productivity Expectation: After 18 months - 20 passenger boardings per vehicle service hour.
  
- Implementation Issues:
  - Productivity (boardings per hour and mile) will likely decline from current high levels, because ridership will not increase to the same extent as miles and hours.
  - As a fixed-route service, ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
  - Potential for operational issues during peak shopping seasons due to traffic congestion—could cause bunching, headway problems if buses are caught in traffic. Bus priority lanes or signal priority possible in areas where other transit routes would also benefit.
  - Eligible for FTA/MTA transit funding.
  - Some stakeholders requested express services in the peak hour between Columbia transfer point and major employment destinations near the end of this route, as a strategy to reduce travel times and address crowding on particular trips—this may be a less-costly way to initiate added frequencies, because few express trips would be needed than the seven hours of service proposed in this alternative.
  - Could be linked to extended service to improve coverage—BRAC route to Dorsey and NSA/Fort Meade.

❖ *Service Concept 1D: Increased Peak-Hour Frequency for the Brown Route*

- Concept Description/ Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Increase service to reduce headways to 30-minutes (from the current 60 minutes) for seven hours per day (three hours in the morning, four hours in the afternoon), weekdays only.
  - Fixed-route, fixed-schedule service on the current route linking Columbia Mall (transfer point), with Columbia Medical Plan, Oakland Mills Village Center, Owen Brown Village Center, Snowden Square and Kings Contrivance Village Center.
  - Provides transfer points at Oakland Mills to the Gold Route, at Owen Brown and Guilford Road at Gerwig to the CAR E Route, at Snowden Square to the Red and Silver Routes, and at Kings Contrivance to the Orange Route.
  - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
  - Uses hybrid 35' transit buses equipped with wheelchair lift or ramp.
  
- Benefits:
  - Provides higher-frequency service on the third busiest HT route.
  - Responds to user and stakeholder input requesting higher frequency service.
  - Reduces wait times for users.
  - Connects with all schedules at transfer point (during peak).
  - Supports increased residential and office densities and future pedestrianization of the Town Center.
  - Potential ridership increase—transit rider elasticities with respect to service improvements are higher for frequency improvements than for fare discounts.
  
- Costs: \$297,000 additional hourly operating costs, and \$1,040,000 for two additional hybrid 35' transit buses.
  
- Productivity Expectation: After 18 months – 20 passenger boardings per vehicle service hour.

- 
- Implementation Issues:
    - Productivity (boardings per hour and mile) will likely decline from current high levels, because ridership will not increase to the same extent as miles and hours.
    - As a fixed-route service, ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
    - Potential for operational issues during peak shopping seasons due to traffic congestion—could cause bunching, headway problems if buses are caught in traffic.
    - Eligible for FTA/MTA transit funding.
  
  - ❖ *Service Concept 1E: Increased Peak-Hour Frequency for the Silver Route*
    - Concept Description/Attributes:
      - General Public Service—No eligibility, trip purpose, or age requirements.
      - Increase service to reduce headways to 30 minutes (from the current 60 minutes) for seven hours per day (three hours in the morning, four hours in the afternoon), weekdays only.
      - Fixed-route, fixed-schedule service on the current route linking Columbia Mall (transfer point), with Broken Land Parkway Park and Ride, Snowden River Parkway, Snowden Square, MD Food Center (Jessup), Dorsey MARC, Arundel Mills (Anne Arundel Community College), BWI Thurgood Marshall Airport, Terminal, BWI Amtrak/MARC, and BWI MTA Light Rail station.
      - Provides service to transfer points to MTA Commuter Buses at several locations, at Snowden Square to the Red and Brown Routes, at MD Food Center to Purple and Gold Routes, to MARC Camden Line at Dorsey, to MARC Penn Line at BWI, to MTA Light Rail at BWI, to MTA Bus at BWI and BWI Business District stations, and to CAR West Anne Arundel J and K Routes and Arundel Mills.
      - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
      - Uses hybrid 35' transit buses equipped with wheelchair lift or ramp.
  
    - Benefits:
      - Provides higher-frequency service on the fourth busiest HT route.

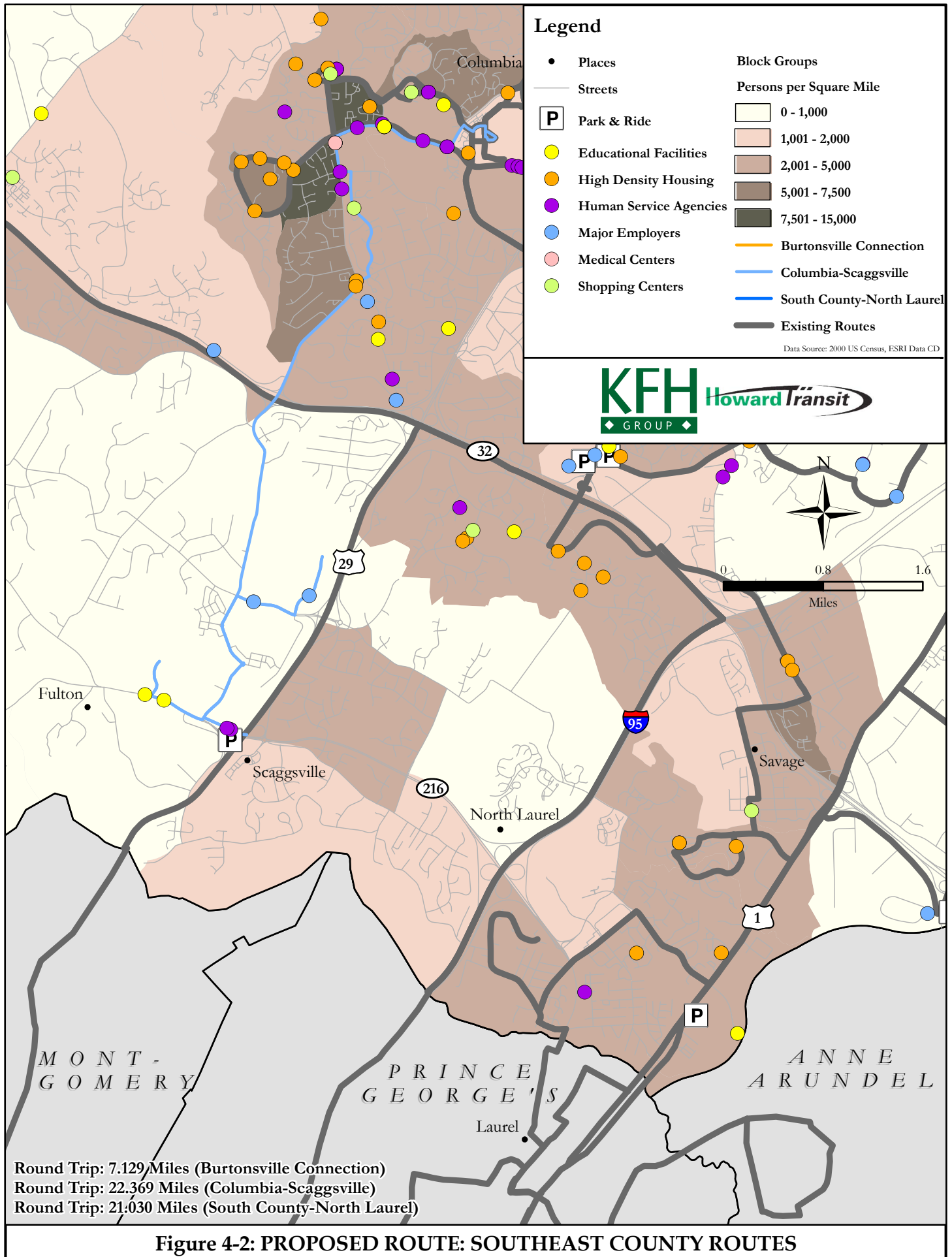


- Adds to the higher-frequency network where it connects with Red and Brown Routes, commuter rail and light rail.
  - Provides for improved regional connectivity by providing less wait time for persons connecting to rail and light rail modes for trips to Baltimore or Washington.
  - Responds to user and stakeholder input requesting higher frequency service.
  - Reduces wait times for users.
  - Connects with all HT schedules at Columbia transfer point (during peak).
  - Supports increased residential and office densities and future pedestrianization of the Town Center.
  - Potential ridership increase—transit rider elasticities with respect to service improvements are higher for frequency improvements than for fare discounts.
- Costs: \$439,000 in additional hourly operating costs, and \$1,560,000 for three additional hybrid 35' transit buses.
  - Productivity Expectation: After 18 months - 15 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - Productivity (boardings per hour and mile) will likely decline from current high levels, because ridership will not increase to the same extent as miles and hours.
    - As a fixed-route service ADA complementary paratransit is required; however, when it is in the HT service area it should be covered by HT ADA service. No new coverage in Anne Arundel County, so it should be covered by the same ADA complementary paratransit service now provided for the Silver Route.
    - Potential for operational issues at Columbia Mall and Arundel Mills Mall during peak shopping seasons and at BWI due to traffic congestion—length of route will continue to be an issue.
    - Eligible for FTA/MTA transit funding.

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## New Service: South County

- ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
- ❖ *Concept 2A: Columbia to Reservoir High School via APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride, using US 29 and Broken Land Parkway between Johns Hopkins Road and Columbia Mall (Express during this portion)*
  - Concept Description/Attributes:
    - General Public Service—No eligibility, trip purpose, or age requirements.
    - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
    - Uses US 29 and Broken Land Parkway between Johns Hopkins Road and Columbia Mall (Express during this portion).
    - Service provided as fixed-route service, requires HT Ride ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
    - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot, and with all HT services and CTC Route E at Columbia Mall.
    - Uses small bus hybrid bus equipped with wheelchair lift or ramp (if low-floor).
  - Benefits:
    - Serves areas in County that currently have no fixed-route public transportation at all.
    - Serves major employer—APL—and Montpelier businesses identified as key destinations by public during outreach.
    - Serves Maple Lawn Transit-Oriented high density residential/commercial development, an area with future transit supportive density. Public input from this area has also requested service.
    - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service.
    - Provides service to previously unserved high school.
    - Serves Scaggsville Park and Ride lot, allows connection to MTA Commuter Buses.



**Figure 4-2: PROPOSED ROUTE: SOUTHEAST COUNTY ROUTES**

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- Costs: \$329,000 in annual operating costs, one \$360,000 hybrid small bus.
  - Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study, because of high incomes of persons along the route.
    - To adequately serve APL and Montpelier would need to go into properties to reach key buildings—costs include mileage for that purpose.
    - Potentially low productivity until Maple Lawn build-out.
    - Potentially case could be made for some funding from Maple Lawn Transportation Management District—if not for continuing operation, perhaps marketing support, stop improvements, etc.
    - Eligible for FTA/MTA transit funding.
  - ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
  - ❖ *Concept 2B: Columbia to Reservoir High School via APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride, using Cedar Lane and Sanner Road to Johns Hopkins Road (Local service on this portion)*
  - Concept Description/Attributes:
    - General Public Service—No eligibility, trip purpose, or age requirements.
    - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
    - Service provided as fixed-route service, requires HT Ride ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
    - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot, and with all HT services and CTC Route E at Columbia Mall.
    - Uses small bus hybrid bus equipped with wheelchair lift or ramp (if low-floor).

- Benefits:
  - Serves areas in County that currently have no fixed-route public transportation at all.
  - Serves major employer – APL – and Montpelier businesses identified as key destinations by public during outreach.
  - Serves Maple Lawn Transit-Oriented high density residential land Commercial development, an area with future transit supportive density. Public input from this area has also requested service.
  - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service. Potentially serves Robinson Nature Center development on Cedar Lane.
  - Potentially serves professional offices, Seventh Day Adventist Church and multi-family complex on Cedar Lane.
  - Provides service to previously unserved high school.
  - Serves Scaggsville Park and Ride lot, allows connection to MTA Commuter Buses.
  
- Costs: \$657,000 in annual operating costs, \$720,000 for two hybrid small buses.
  
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
  
- Implementation Issues:
  - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study, because of high incomes of persons along the route.
  - Additional time required to provide local service on Cedar Lane necessitates two buses, and increases operating costs.
  - To adequately serve APL and Montpelier would need to go into properties to reach key buildings – costs include mileage for that purpose.
  - Potentially low productivity until Maple Lawn build-out.
  - Potentially case could be made for some funding from Maple Lawn Transportation Management District – if not for continuing operation, perhaps marketing support, stop improvements, etc.
  - Eligible for FTA/MTA transit funding.

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- ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
  - ❖ *Concept 2C: Columbia to Burtonsville via APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride, using Cedar Lane and Sanner Road to Johns Hopkins Road (Local service on this portion), with extension to Burtonsville Shopping Center/Park and Ride.*
    - Concept Description/Attributes:
      - General Public Service—No eligibility, trip purpose, or age requirements.
      - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
      - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
      - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot and at Burtonsville Park and Ride, with WMATA Route 29 services at Burtonsville Park and Ride, and with all HT services and CTC Route E at Columbia Mall.
      - Uses small bus hybrid bus equipped with wheelchair lift or ramp (if low-floor).
    - Benefits:
      - Serves areas in County that currently have no fixed-route public transportation at all.
      - Serves major employer—APL—and Montpelier businesses identified as key destinations by public during outreach.
      - Serves Maple Lawn Transit-Oriented high density residential/commercial development, an area with future transit supportive density. Public input from this area has also requested service.
      - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service. Potentially serves Robinson Nature Center development on Cedar Lane.
      - Potentially serves new professional offices, Seventh Day Adventist Church and multi-family complex on Cedar Lane.
      - Provides service to previously unserved high school.
      - Serves Scaggsville and Burtonsville Park and Ride lots, allows connection to MTA Commuter Buses and to WMATA Route 29

services at Burtonsville. Also would permit connection to both WMATA and CTC services from Burtonsville to Laurel, including service to Switzer Lane.

- Costs: \$657,000 in annual operating costs, \$720,000 for two hybrid small buses.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study, because of high incomes of persons along the route.
  - Additional time required to provide local service on Cedar Lane necessitates two buses, and increases operating costs.
  - To adequately serve APL and Montpelier would need to go into properties to reach key buildings—costs include mileage for that purpose.
  - Potentially low productivity until Maple Lawn build-out.
  - Potentially case could be made for some funding from Maple Lawn Transportation Management District—if not for continuing operation, perhaps marketing support, stop improvements, etc.
  - Duplicates MTA Commuter Bus service between Scaggsville Park and Ride and Burtonsville.
  - ADA responsibility for the route would fall to Howard County, and since the extension to Burtonsville is new territory it would add potential trips and costs.
  - Eligible for FTA/MTA transit funding.
- ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
- ❖ *Concept 2D: Columbia to Laurel via APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/North Laurel Community Center, using US 29 and Broken Land Parkway between Johns Hopkins Road and Columbia Mall (Express during this segment).*

- Concept Description/ Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
  - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
  - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot, with WMATA Route 29 services at Burtonsville Park and Ride, and with all HT services and CTC Route E at Columbia Mall, and with CTC services at Laurel Mall.
  - Uses small bus hybrid bus equipped with wheelchair lift or ramp (if low-floor).
  
- Benefits:
  - Serves areas in County that currently have no fixed-route public transportation at all.
  - Serves major employer—APL—and Montpelier businesses identified as key destinations by public during outreach.
  - Serves Maple Lawn Transit-Oriented high density residential/commercial development, an area with future transit supportive density. Public input from this area has also requested service.
  - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service.
  - Serves currently unserved residential development areas on Route 216 east of US 29.
  - Serves higher-density development at Emerson.
  - Serves new North Laurel Community Center, north Laurel residential development.
  - Provides service to previously unserved high school, and
  - Serves Scaggsville Park and Ride lot, allows connection to MTA Commuter Buses.
  
- Costs: \$657,000 in annual operating costs, \$720,000 for two hybrid small buses.
  
- Productivity Expectation: After 18 months - 8 passenger boardings per vehicle service hour.



- 
- Implementation Issues:
    - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study, because of high incomes of persons along the route.
    - To adequately serve APL and Montpelier would need to go into properties to reach key buildings—costs include mileage for that purpose.
    - Potentially low productivity until Maple Lawn build-out.
    - Potentially case could be made for some funding from Maple Lawn Transportation Management District—if not for continuing operation, perhaps marketing support, stop improvements, etc.
    - Eligible for FTA/MTA transit funding.
  
  - ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
  
  - ❖ *Concept 2E: Columbia to Laurel via APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Burtonsville Park and Ride/Emerson/North Laurel Community Center, using Cedar Lane and Sanner Road to Johns Hopkins Road (Local service on this portion), with extension to Burtonsville Shopping Center/Park and Ride, and Route 216/Leishear Road/Gorman Road to Laurel.*
  
  - Concept Description/Attributes:
    - General Public Service—No eligibility, trip purpose, or age requirements.
    - Hourly service: 7:00 a.m. to 6:00 p.m., Weekdays only.
    - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
    - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot, with WMATA Route 29 services at Burtonsville Park and Ride, and with all HT services and CTC Route E at Columbia Mall, and with CTC services at Laurel Mall.
    - Uses small bus hybrid bus equipped with wheelchair lift or ramp (if low-floor).

- Benefits:
  - Serves one area identified as “moderate need” (based on transit dependency characteristics) that currently has no transit service.
  - Serves areas in County that currently have no fixed-route public transportation at all.
  - Serves major employer – APL – and Montpelier businesses identified as key destinations by public during outreach.
  - Serves Maple Lawn Transit-Oriented high density residential/commercial development, an area with future transit supportive density. Public input from this area has also requested service.
  - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service.
  - Serves currently unserved residential development areas on Route 216 east of US 29.
  - Serves higher-density development at Emerson.
  - Serves new North Laurel Community Center, north Laurel residential development.
  - Provides service to previously unserved high school.
  - Serves Scaggsville and Burtonsville Park and Ride lots, allows connection to MTA Commuter Buses, WMATA Route 29 services, and WMATA and CTC service from Burtonsville to Laurel.
- Costs: \$985,000 in annual operating costs, \$1,080,000 for three hybrid small buses.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study, because of high incomes of persons along the route.
  - To adequately serve APL and Montpelier would need to go into properties to reach key buildings – costs include mileage for that purpose.

- 
- Very long route with much out-direction travel for some riders (for example going from North Laurel to Columbia via Burtonsville).
  - Potentially low productivity until Maple Lawn build-out, and due to extensive mileage in yet-to-be developed areas between US 29 and north Laurel.
  - Potentially case could be made for some funding from Maple Lawn Transportation Management District—if not for continuing operation, perhaps marketing support, stop improvements, etc.
  - Eligible for FTA/MTA transit funding.
- ❖ *Service Concept: Southeast County—APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Emerson/Laurel (See Figure 4-2).*
  - ❖ *Concept 2F: General Public Demand-Response curb-to-curb transportation service in the region south of Columbia to Laurel on the east, the Patuxent on the south, and Route 108 on the west, including APL/Montpelier/Maple Lawn/Reservoir High School/Scaggsville Park and Ride/Burtonsville Park and Ride/Emerson/North Laurel Community Center.*
- Concept Description/ Attributes:
    - General Public Service—No eligibility, trip purpose, or age requirements.
    - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
    - Service provided as curb-to-curb demand-response service, does not require additional ADA complementary paratransit. Service requires advance reservation/telephone call.
    - Connects with MTA commuter buses to Silver Spring/Washington at Scaggsville Park and Ride lot, with all HT services and CTC Route E at Columbia Mall.
    - Uses hybrid cutaways equipped with wheelchair lift or ramp (if low-floor).
  - Benefits:
    - Provides a transit option for the general public in the moderate density (overall), developing south county area, including initial service to largest employer.
    - Could be an initial phase of transit service development for this area.
    - Serves one area identified as “moderate need” (based on transit dependency characteristics) that currently has no transit service.
-

- Serves areas in County that currently have no local general public demand-response or fixed-route public transportation at all.
  - Serves major employer – APL – and Montpelier businesses identified as key destinations by public during outreach.
  - Serves Maple Lawn Transit-Oriented high density residential/commercial development, an area with future transit supportive density. Public input from this area has also requested service.
  - By providing service as Maple Lawn builds out encourages new residents to utilize transit upon arrival, perhaps forgo third car or even to choose this area over others with no service.
  - Serves currently unserved residential development areas on Route 216 east of US 29.
  - Serves higher-density development at Emerson.
  - Serves new North Laurel Community Center, north Laurel residential development.
  - Provides service to previously unserved high school.
  - Serves Scaggsville Park and Ride lots, allows connection to MTA Commuter Buses.
  - Serves Highland area.
- Costs: \$657,000 in annual operating costs, \$400,000 for two hybrid cutaway small buses.
  - Productivity Expectation: After 18 months -- 3 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - Difficult to estimate capacity requirements, since there is not any similar service in the County or adjacent areas.
    - Potential cost per trip is high, but this is also true for the startup of fixed-route services in a low-density/higher-income area.
    - Scheduling trips will add burden to scheduling/dispatch systems. Most successful examples of this service in other part of the country offer same day service with one-hour advance reservation call (Denver RTD Call-n-Ride services, for example), or allow for direct telephone call to a zone driver (Hampton Roads Transit).
    - Does not serve many locations identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in

Chapter 1 of this study, because of high incomes of persons along the route.

- To adequately serve APL and Montpelier would need to go into properties to reach key buildings—costs include mileage for that purpose.
- Very long route with much out-direction travel for some riders (for example going from North Laurel to Columbia via Burtonsville).
- Potentially low productivity until Maple Lawn build-out, and due to extensive mileage in yet-to-be developed areas between US 29 and north Laurel.
- Potentially case could be made for some funding from Maple Lawn Transportation Management District—if not for continuing operation, perhaps marketing support, stop improvements, etc.
- Eligible for FTA/MTA transit funding.

❖ *Service Concept: Columbia Town Center (See Figure 4-3).*

❖ *Service Concept 3A: Mid-day Town Center Shuttle Circulator.*

- Concept Description/Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Twenty-Minute Headway: 10:00 a.m. to 2:00 p.m., Weekdays.
  - Fixed-route, fixed-schedule service.
  - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
  - Uses rubber-tired Trolley Bus equipped with wheelchair lift.
- Benefits:
  - Provides local mid-day service in a developing activity center that is currently too spread-out to be pedestrian accessible for many persons. It would allow employees to leave cars parked while doing mid-day trips.
  - Builds initial presence for downtown shuttle services in support of increased densities and future pedestrianization of the Town Center.
  - Responds to public input requesting transit access within Town Center (around Mall, and to offices across the street).
- Costs: \$121,000 in annual operating costs, and one \$520,000 hybrid accessible rubber-tired trolley.

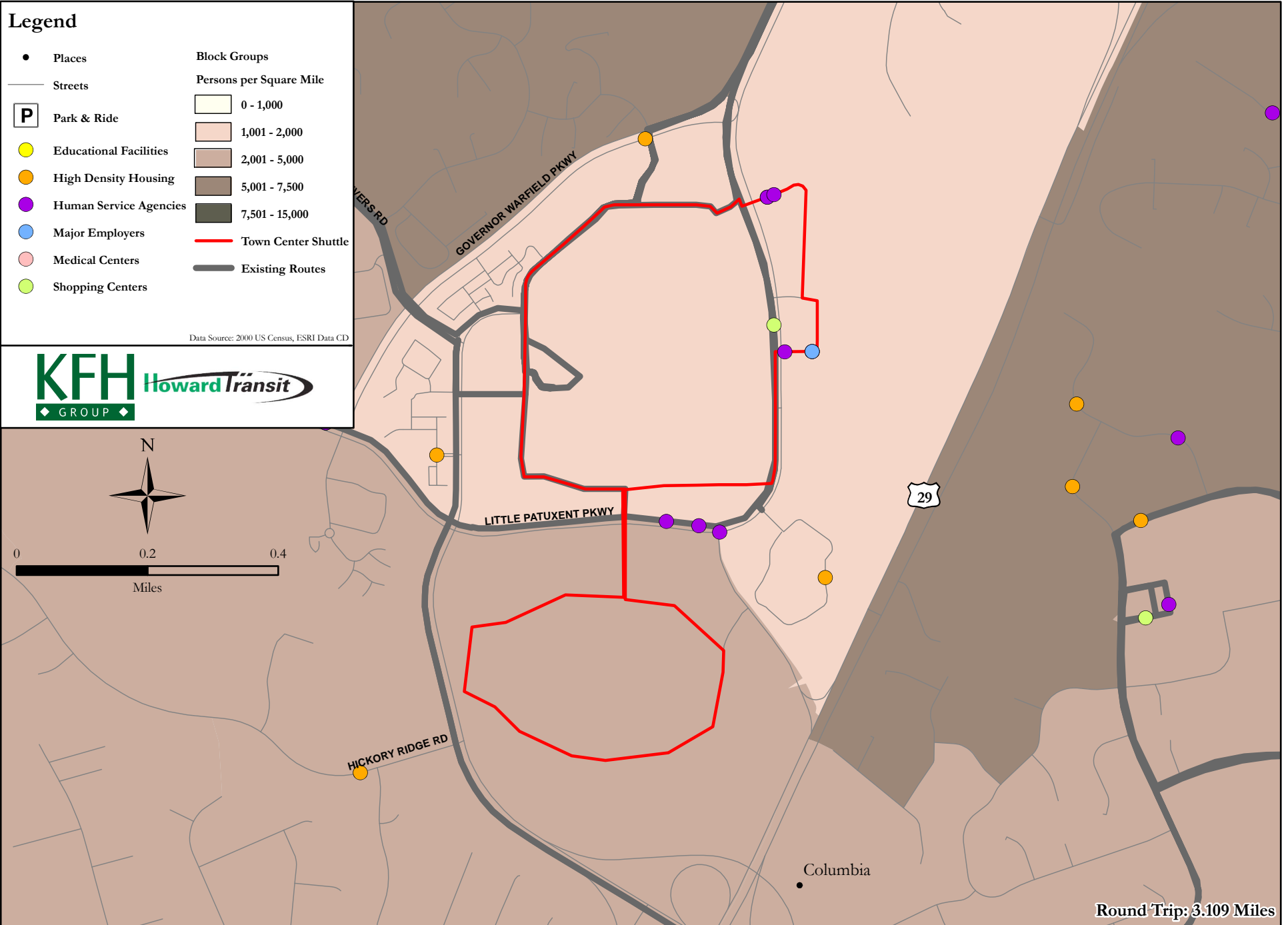
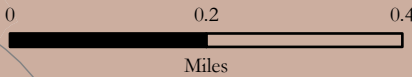
# Legend

- Places
  - Streets
  - P** Park & Ride
  - Educational Facilities
  - High Density Housing
  - Human Service Agencies
  - Major Employers
  - Medical Centers
  - Shopping Centers
- | Block Groups            |                     |
|-------------------------|---------------------|
| Persons per Square Mile |                     |
|                         | 0 - 1,000           |
|                         | 1,001 - 2,000       |
|                         | 2,001 - 5,000       |
|                         | 5,001 - 7,500       |
|                         | 7,501 - 15,000      |
|                         | Town Center Shuttle |
|                         | Existing Routes     |

Data Source: 2000 US Census, ESRI Data CD



4-25



Round Trip: 3.109 Miles

**Figure 4-3: PROPOSED ROUTE: TOWN CENTER SHUTTLE**

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- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - Needs to offer transfers to other HT routes.
    - Funding could involve private contributions linked to Town Center development phasing.
    - As a fixed-route service, ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
    - Distinctive vehicle, good signing, and intense marketing are needed to attract choice riders.
    - Eligible for FTA/MTA transit funding.
  - ❖ *Service Concept: Columbia Town Center (See Figure 4-3)*
  - ❖ *Service Concept 3B: All-day Town Center Shuttle Circulator*
    - Concept Description/Attributes:
      - General Public Service—No eligibility, trip purpose, or age requirements.
      - Ten-Minute Headway: 6:00 a.m. to 11:00 p.m., weekdays, weekends, and holidays.
      - Fixed-route, fixed-schedule service.
      - Connects with HT services at Columbia Mall transfer point, or at proposed Columbia Town Center Transit Center (if built).
      - Uses rubber-tired Trolley Buses equipped with wheelchair lift.
    - Benefits:
      - Provides high-frequency service in a developing activity center that is currently too spread-out to be pedestrian accessible for many persons. It would allow employees to leave cars parked while doing mid-day trips, and allow residents of adjacent areas to take a shuttle to commuter and local transit services without use of a personal vehicle.
      - Supports increased residential and office densities and future pedestrianization of the Town Center.
      - Responds to public input requesting transit access within Town Center (around Mall, and to offices across the street).

- Costs: \$1,025,000 in annual operating costs, and \$1,040,000 for two hybrid accessible rubber-tired trolleys.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Needs to offer transfers to other HT routes.
  - Funding could involve private contributions linked to Town Center development phasing.
  - As a fixed-route service ADA complementary paratransit is required; however, as it is in the HT service area it should be covered by HT ADA service.
  - Distinctive vehicle, good signing, and intense marketing are needed to attract choice riders.
  - Potential for operational issues during peak shopping seasons due to traffic congestion—could cause bunching, headway problems if buses are caught in traffic. Bus priority lanes or signal priority possible in areas where other transit routes would also benefit.
  - Eligible for FTA/MTA transit funding.

❖ *New and Restructured Service: Northeast County*

❖ *Service Concept 4A: Northeast County—Restructure current Yellow Route into Yellow East and Yellow West, Connecting at Wal-Mart or Normandy Ridge Shopping Center (See Figure 4-4)*

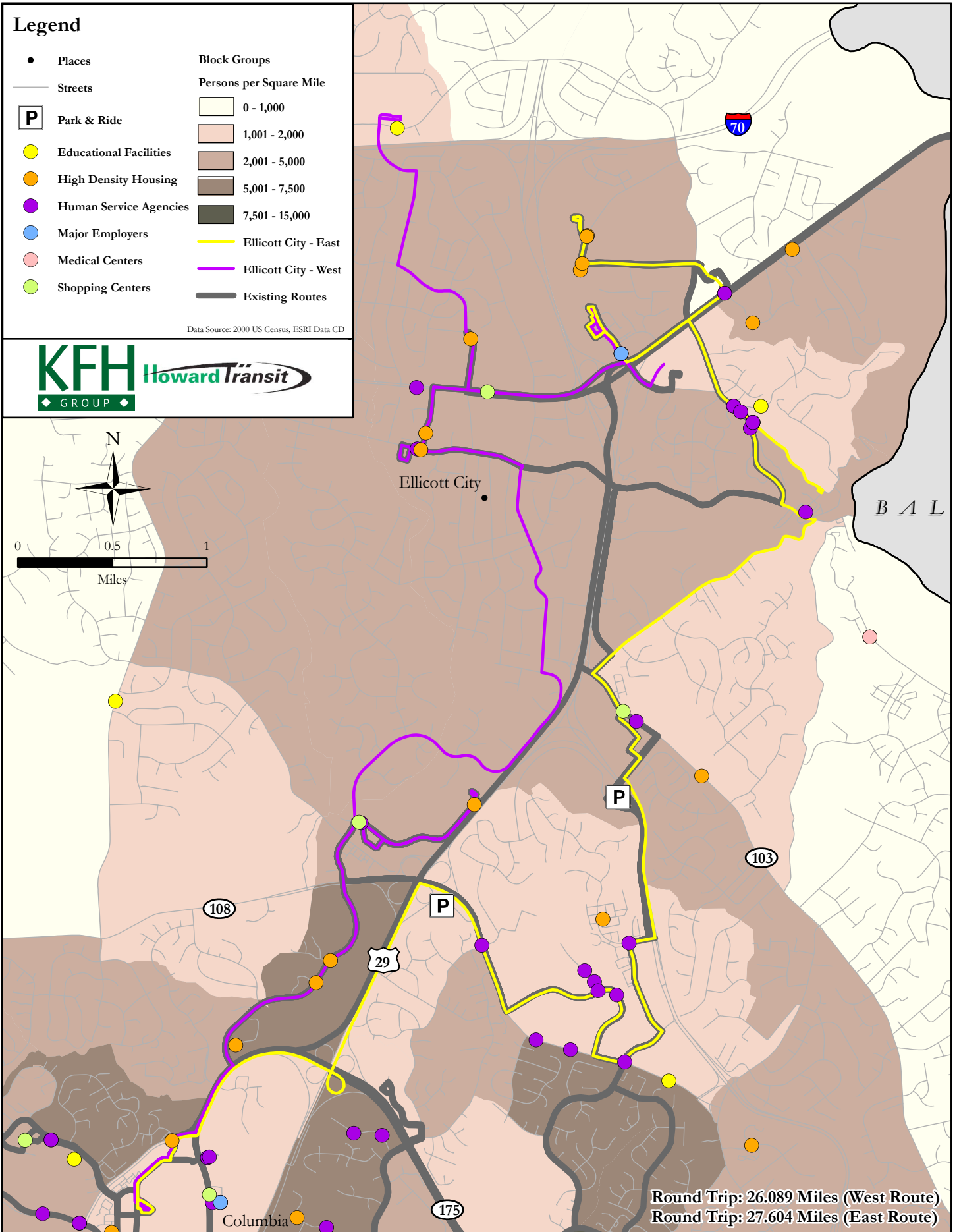
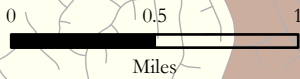
- Concept Description/Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
  - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
  - Connects with MTA Express Route 150 (to Baltimore), and Commuter Bus Route 995 (to Washington, D.C.) at Long Gate Park and Ride.
  - Uses small hybrid bus equipped with wheelchair lift or ramp (if low-floor).



# Legend

- Places
  - Streets
  - P** Park & Ride
  - Educational Facilities
  - High Density Housing
  - Human Service Agencies
  - Major Employers
  - Medical Centers
  - Shopping Centers
- | Block Groups            |                      |
|-------------------------|----------------------|
| Persons per Square Mile |                      |
|                         | 0 - 1,000            |
|                         | 1,001 - 2,000        |
|                         | 2,001 - 5,000        |
|                         | 5,001 - 7,500        |
|                         | 7,501 - 15,000       |
|                         | Ellicott City - East |
|                         | Ellicott City - West |
|                         | Existing Routes      |

Data Source: 2000 US Census, ESRI Data CD



Round Trip: 26.089 Miles (West Route)  
 Round Trip: 27.604 Miles (East Route)

**Figure 4-4: PROPOSED ROUTE: ELLICOTT CITY - EAST & WEST**

- Benefits:
  - Extends transit service on the west side of US 29 to areas not currently served.
  - Provides more service hours/miles to allow extension of transit to previously unserved high school (Mount Hebron).
  - Provides service to Medical Research Park.
  - Provides more coverage service in moderate needs areas of County north of U.S.40, responding to information from public outreach efforts.
  - Provides for service to Circuit Court, in response to stakeholder input.
  - Serves Long Gate Park and Ride lot, with service connecting to MTA 150 Express service and MTA 995 Commuter Bus service.
- Costs: \$375,000 in incremental annual operating costs (in addition to current costs of Yellow Route), and requires \$360,000 for one additional small cutaway hybrid bus.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Yellow East still a tight schedule on hourly headway.
  - Some of new coverage is in areas not identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study.
  - Would require transfer for persons traveling from one side of Ellicott City to the other.
  - To adequately serve Circuit Court requires circuitous routing and extra miles and time on Yellow East.
  - Potentially lower productivity on Yellow West because of limited number of major destinations.
  - Eligible for FTA/MTA transit funding.

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❖ *New and Restructured Service: Northeast County*

❖ *Service Concept 4B: Northeast County—New Route between Ellicott City and Dorsey, via Route 103 (see Figure 4-5)*

- Concept Description/Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Hourly service: 6:00 a.m. to 7:00 p.m., Weekdays only.
  - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
  - Connects with MTA Express Route 150 (to Baltimore), and Commuter Bus Route 995 (to Washington, D.C.) at Long Gate Park and Ride, and to HT Purple Route and to MARC at Dorsey Station.
  - Uses small hybrid bus equipped with wheelchair lift or ramp (if low-floor).
- Benefits:
  - Links Ellicott City and U.S. 1/I-95 Corridors.
  - Extends transit service on the east side of US 29 to moderate needs areas not currently served, identified in Chapter 1 needs analysis.
  - Provides service to Medical Research Park.
  - Serves Long Gate Park and Ride lot, with service connecting to MTA 150 Express service and MTA 995 Commuter Bus service, and MARC at Dorsey.
- Costs: \$657,000 in annual operating costs, and requires \$720,000 for two additional small cutaway hybrid buses.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Serves low-density areas, relatively few major destinations, designed to provide a linkage between two sides of eastern county—but does not serve Columbia. Would require careful scheduling to facilitate connections at either end.

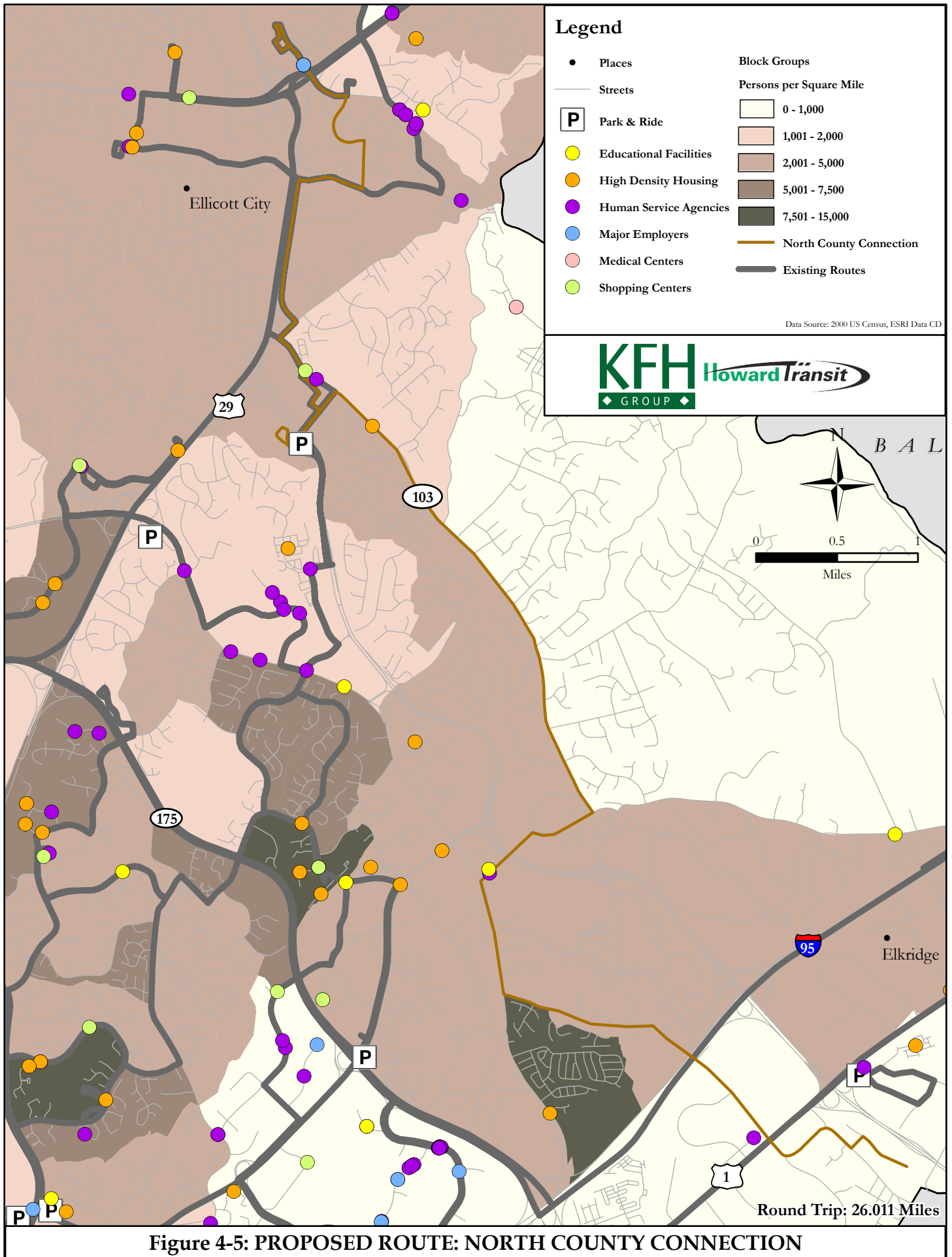


Figure 4-5: PROPOSED ROUTE: NORTH COUNTY CONNECTION

- Transfer point to Purple could be at Dorsey, for northbound Purple, but more direct at Route 1 for southbound Purple.
- Some of new coverage is in areas not identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study.
- Would require transfer for persons traveling from Route 1 corridor, or from west Ellicott City.
- Eligible for FTA/MTA transit funding.

### **New Service: BRAC**

#### **❖ *Service Concept 5A: East County --New Route between Gateway area and NSA/Fort Meade, via Jessup and Dorsey MARC Station (see Figure 2-6)***

- Concept Description/ Attributes:
  - General Public Service—No eligibility, trip purpose, or age requirements.
  - Peak Hour Service only, Weekdays only.
  - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
  - Connects with HT Red Route at Gateway, with HT Purple at Route 1/Dorsey MARC.
  - Uses small hybrid bus equipped with wheelchair lift or ramp (if low-floor).
- Benefits:
  - Links major Howard County Traffic Analysis Zone with peak hour commuters to Fort Meade in 2015, based on BMC regional travel demand model.
  - Provides for service to NSA and Fort Meade from eastern Howard County, within likely potential travel time.
  - Could be designed to operate to Columbia, serving as Red Express to Gateway.
- Costs: \$294,000 in annual operating costs, and requires \$720,000 for two additional small cutaway hybrid buses.

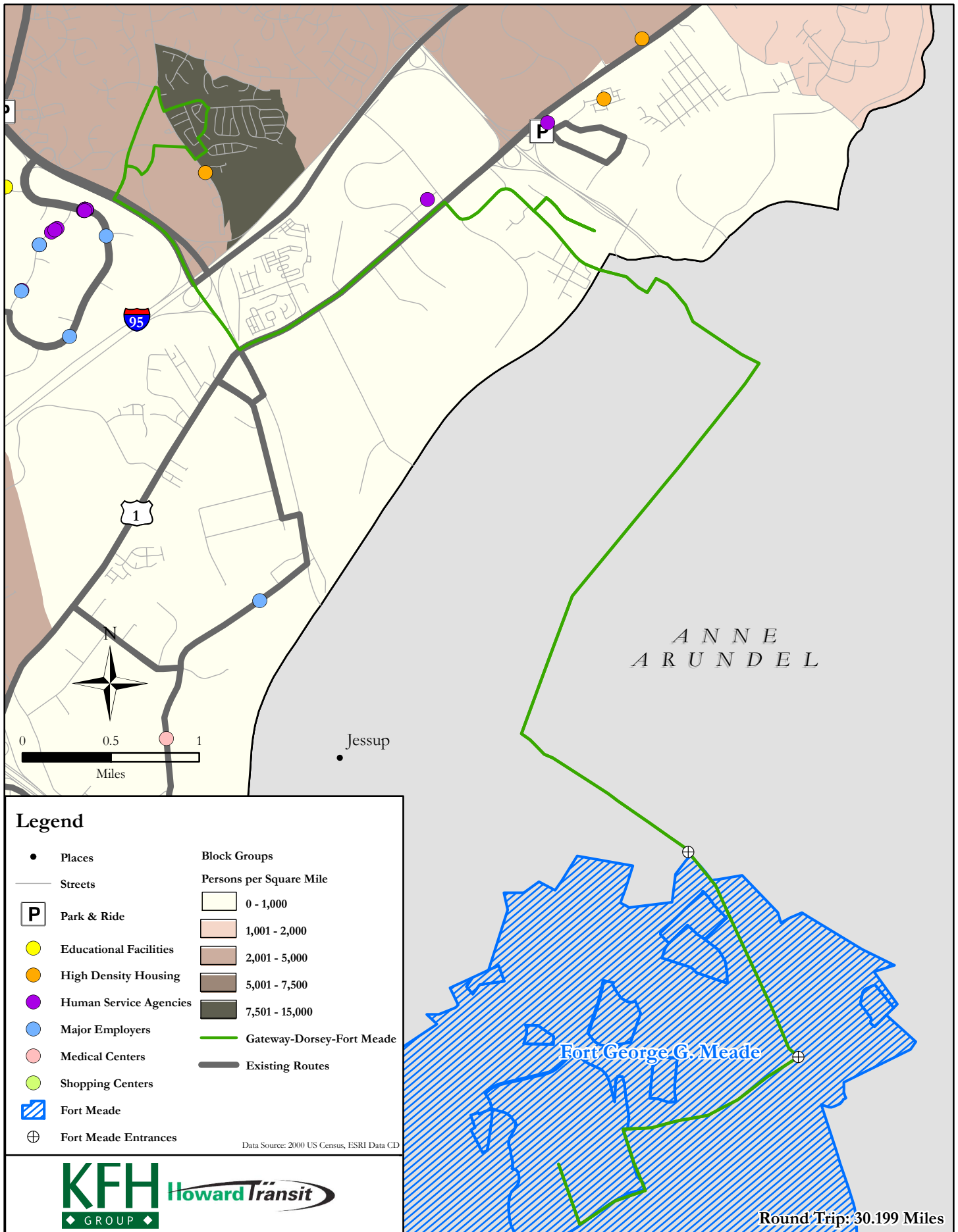


Figure 4-6: PROPOSED ROUTE: GATEWAY-DORSEY-FORT MEADE

- 
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - Relatively little mileage in residential pickup areas, would require many riders to transfer.
    - Not clear if residential area identified in BMC model results is fully-built – ridership may not materialize soon.
    - Would need to terminate inside Fort Meade secured area, so security concerns will need to be addressed.
    - Transfer point to Purple could be at Dorsey, for northbound Purple, but more direct at Route 1 for southbound Purple.
    - Most of the new coverage is in areas not identified as “high need” (based on the number of potentially transit dependent persons) or “moderate need” (based on the density of potentially transit dependent persons) in Chapter 1 of this study.
    - Would require transfer for persons traveling from Route 1 corridor, or from Columbia on Red, or from Ellicott City on new proposed route.
    - Eligible for FTA/MTA transit funding.
- ❖ **Service Concept 5B: Clarksville-Broken Land Parkway-Savage MARC-NSA-FGGM (see Figure 4-7)**
- Concept Description/Attributes:
    - General Public Service—No eligibility, trip purpose, or age requirements.
    - Peak Hour Service only, Weekdays only.
    - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
    - Connects with HT Silver, CAR Route E, MTA Commuter Buses at Broken Land Parkway Park and Ride, with HT Purple at Savage MARC.
    - Uses 30' hybrid bus equipped with wheelchair lift or ramp (if low-floor).

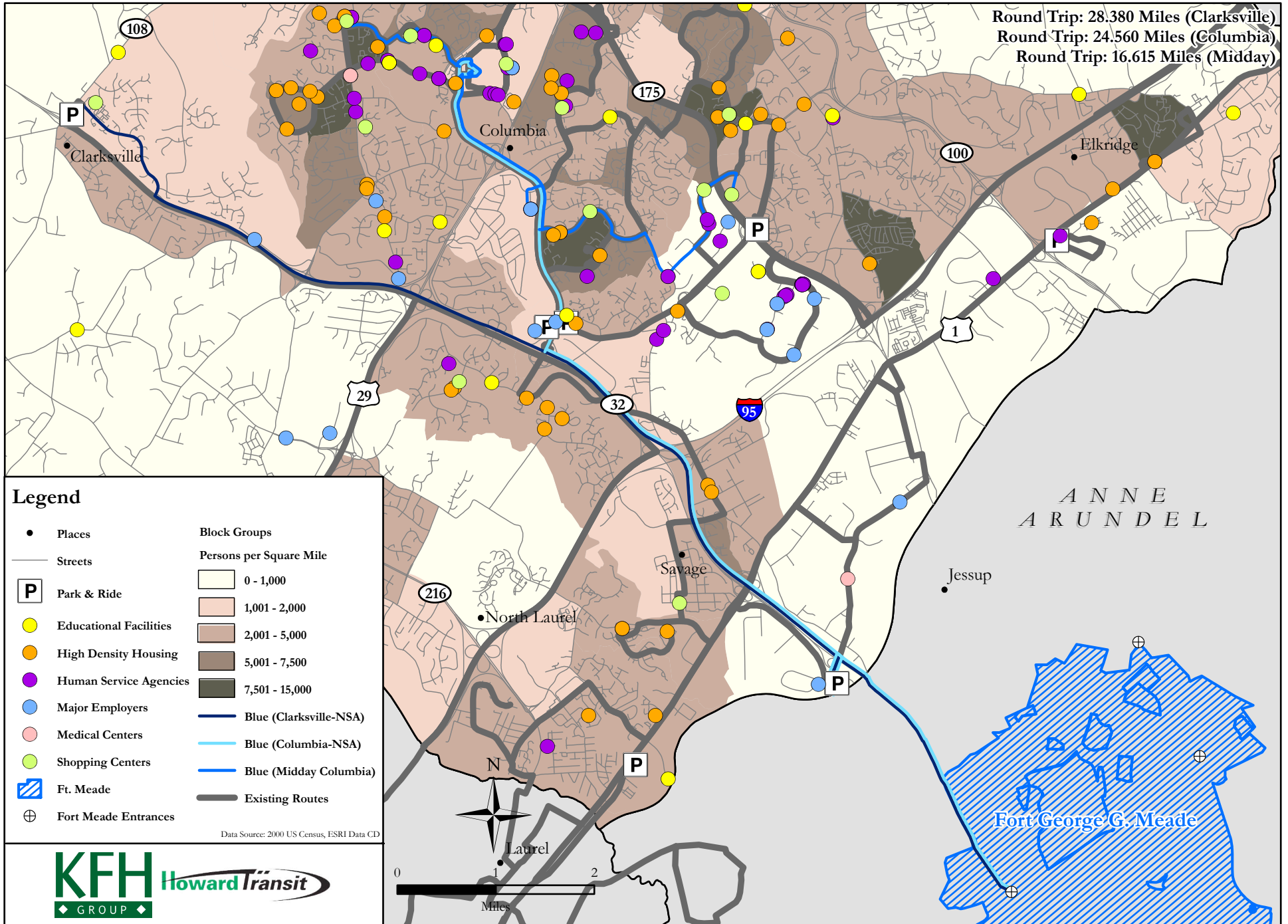


Figure 4-7: PROPOSED ROUTE: RESTRUCTURED BLUE ROUTE



- 
- Benefits:
    - Links park and ride lot at Clarksville with NSA/FGGM, providing transit service opportunity for western Howard/Northeastern Montgomery commuters.
    - Provides for linkage to/from Savage MARC.
  - Costs: \$168,000 in annual operating costs, and requires \$360,000 for one additional small cutaway hybrid bus.
  - Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
  - Implementation Issues:
    - No mileage in residential pickup areas, would require all riders to transfer from auto or other transit modes.
    - Not clear if ridership will develop in the absence of parking limitations or severe traffic congestion.
    - Would need to terminate inside Fort Meade secured area, so security concerns will need to be addressed.
    - Scheduling to serve MARC commuter trains at Savage may be problematic.
    - Eligible for FTA/MTA transit funding.
  - ❖ **Service Concept 5C: Columbia-Broken Land Parkway-Savage MARC-NSA-FGGM (see Figure 4-7)**
    - Concept Description/Attributes:
      - General Public Service—No eligibility, trip purpose, or age requirements.
      - Peak Hour Service only, Weekdays only.
      - Service provided as fixed-route service, requires ADA complementary paratransit coverage within  $\frac{3}{4}$  of a mile either side of the route by advance reservation.
      - Connects with HT Silver, CAR Route E, MTA Commuter Buses at Broken Land Parkway Park and Ride, with HT Purple at Savage MARC.
      - Uses 30' hybrid bus equipped with wheelchair lift or ramp (if low-floor).

- Benefits:
  - Links Town Center, with increased higher-density residential growth to NSA/FGGM.
  - Links park and ride lot at Broken Land Parkway with NSA/FGGM, providing transit service opportunity for Columbia commuters.
  - Provides for linkage to/from Savage MARC.
- Costs: \$168,000 in annual operating costs, and requires \$360,000 for one additional small cutaway hybrid bus.
- Productivity Expectation: After 18 months -- 8 passenger boardings per vehicle service hour.
- Implementation Issues:
  - Limited mileage in residential pickup areas, would benefit from timed linkages with other HT routes at transit center Columbia.
  - Not clear if ridership will develop in the absence of parking limitations or severe traffic congestion.
  - Would need to terminate inside Fort Meade secured area, so security concerns will need to be addressed.
  - Scheduling to serve MARC commuter trains at Savage may be problematic.
  - Eligible for FTA/MTA transit funding.

### Summary of Service Alternatives

Table 4-1 presents summary statistics for all the service alternatives described above. Estimated operating costs are based on the number of service hours required to operate the route, times \$82.57 per hour. That figure is a 5% escalation on the sum of the current First Transit hourly transit service rate of \$62.75, plus \$15.98 per hour in CTC management costs. The CTC costs are actually allocated by hours, so if the services could be operated strictly as incremental additions, with no increases in CTC staffing, it is possible that the overall hourly cost would be reduced somewhat.

The service hours required were estimated by taking the round-trip mileage for the proposed (or existing) service, assuming an average travel speed for the bus, applying the desired headway, and determining how many buses would be needed to serve the route on the desired schedule. The number of buses times the span of service, therefore provides the hours of service.

Table 4-1: Summary of New and Restructured Service Alternatives

Routes	Round-Trip Route Length	Estimated Speed	Cycle Time	Base Headway	Base Vehicles	Peak Headway	Peak Vehicles	Base Span	Peak Span	Base Period Trips	Peak Period Trips	Total Trips	Daily Miles	Daily Hours	Days per Year	Annual Miles	Annual Hours	Cost per Hour <sup>1</sup>	Annual Operating Cost
<b>PROPOSED</b>																			
<b>Fl. Meade</b>																			
Columbia Gateway - Dorsey MARC - Fort Meade	27.61	18.2	91	60	2	60	2	0	7	0	7	7	193.27	14	254	49,091	3,556	82.57	\$293,619
Clarksville-Savage MARC-NSA-Fort Meade	28.38	30	57	60	1	60	1	0	8	0	8	8	227.04	8	254	57,668	2,032	82.57	\$167,782
Columbia-Savage MARC-NSA-Fort Meade	24.56	25	59	60	1	60	1	0	8	0	8	8	196.48	8	254	49,906	2,032	82.57	\$167,782
<b>Ellicott City</b>																			
Columbia Mall to Ellicott City - West	24.3	17.4	84	60	2	60	2	13	0	13	0	13	315.9	26	306	96,665	7,956	82.57	\$656,927
Columbia Mall to Ellicott City - East	35.47	18	118	60	2	60	2	13	0	13	0	13	461.11	26	306	141,100	7,956	82.57	\$656,927
Ellicott City-Long Gate-Dorsey MARC (103)	26.011	17	92	60	2	60	2	13	0	13	0	13	338.143	26	306	103,472	7,956	82.57	\$656,927
<b>Columbia Town Center</b>																			
Columbia Town Center Shuttle	3.02	10	18	10	2	10	2	17	0	102	0	102	308.04	34	365	112,435	12,410	82.57	\$1,024,694
Columbia Town Center Mid-day Shuttle	3.02	10	18	20	1	20	1	4	0	12	0	12	36.24	4	365	13,228	1,460	82.57	\$120,552
Mid-day Columbia Shuttle--(Restructured Blue)	16.615	10	100	60	2	60	2	7	0	7	0	7	116.305	14	254	29,541	3,556	82.57	\$293,619
<b>South Howard County</b>																			
South County - Columbia Mall to Laurel TC without Burtonsville Connection	37.47	19.1	118	60	2	60	2	13	0	13	0	13	487.11	26	306	149,056	7,956	82.57	\$656,927
South County - Columbia Mall to Laurel TC with Burtonsville Connection	44.6	19.1	140	60	3	60	3	13	0	13	0	13	579.8	39	306	177,419	11,934	82.57	\$985,390
South County-Columbia Mall-APL/Montpelier-Maple Lawn-Burtonsville	25.02	19.1	79	60	2	60	2	13	0	13	0	13	325.26	26	306	99,530	7,956	82.57	\$656,927
South County-Columbia Mall-APL/Montpelier-Maple Lawn-Reservoir HS	17.9	19.1	56	60	1	60	1	13	0	13	0	13	232.7	13	306	71,206	3,978	82.57	\$328,463
South County-Demand-Response					2		2	13					0	26	306	0	7,956	82.57	\$656,927
Columbia Mall to Scaggsville P & R-Cedar Lane/APL/Montpelier/Maple Lawn	22.4	19.1	70	60	2	60	2	13	0	13	0	13	291.2	26	306	89,107	7,956	82.57	\$656,927
Laurel TC to Scaggsville P & R via N.Laurel CC, Emerson	21.03	19.1	66	60	2	60	2	13	0	13	0	13	273.39	26	306	83,657	7,956	82.57	\$656,927
Burtonsville to Scaggsville P & R	7.2	19.1	23	60	1	60	1	13	0	13	0	13	93.6	13	306	28,642	3,978	82.57	\$328,463
Columbia Mall to Burtonsville P & R via Scaggsville/Maple Lawn	29.6	19.1	93	60	2	60	2	13	0	13	0	13	384.8	26	306	117,749	7,956	82.57	\$656,927
<b>EXISTING</b>																			
<b>Howard Transit</b>																			
Brown (Weekday-30 minute peak)	32.62	17.4	112	60	2	30	4	10	7	10	14	24	782.88	48	257	201,200	12,336	82.57	\$1,018,584
Green (Weekday 30 min peak)	12	13	55	60	1	30	2	10.3	7	10	14	24	288	24.3	253	72,864	6,148	82.57	\$507,632
Green (Weekday 30 min peak and midday)	12	13	55	60	1	30	2	6.3	11	6	22	28	336	28.3	253	85,008	7,160	82.57	\$591,193
Red (Weekday-30 min peak)	33.9	18.2	112	60	2	30	4	11	7	11	14	25	847.5	50	257	217,808	12,850	82.57	\$1,061,025
Silver(Weekday-30 minute peak)	51.76	19.1	163	60	3	30	6	10.5	7	10	14	24	1242.24	73.5	253	314,287	18,596	82.57	\$1,535,430

<sup>1</sup>Cost per hour utilized the following formula 1.05(\$62.75/hr. + \$15.98/hr.) = \$82.57/hr (1.05 is a 5% escalation factor to 2010, \$62.75 is First Transit's operation rate, and \$15.89 is CTC's management rate)

Assumed average speeds for bus transit in urban areas are typically 11-12 miles per hour. HT speeds on existing routes vary considerably from that because of the suburban/rural nature of the service area, and the fact that some routes run stretches at highway speed with limited stops. Travel speeds for existing routes were derived from the current services, and for new proposed services the speed on a similar existing route was used.

There is no total provided on this table because many of the alternatives are mutually exclusive—only one would be selected from a group. Also, it is possible that they could be implemented incrementally, with one concept initially, growing into another route later on.

### **Paratransit**

The needs analysis documented in Chapter 1 included a review of the County's Human Services Plan, which identified a number of populations that are at risk. For many persons in these groups, transportation to both programs and activities of daily living is critical to their quality of life. The HT Ride paratransit program serves many such persons who are unable to use the fixed-route services, whether because of physical or economic reasons, or because the fixed-route services do not provide service in the areas where these individuals live. HT Ride is a critical component of the County's transit program in meeting these needs. It is also a significant element of the program in that the operating cost and management attention devoted to these services are disproportionately greater than the fixed-route service on a per-trip basis, and so service quality issues, performance problems, and capacity constraints are all magnified.

The human services plan document identified a key issue for the County as the aging of the population: the older adult population will double by 2015, according to forecasts. Older adults make up a significant segment of the HT Ride user population, and so it is likely that this service will need to grow significantly to meet the increasing travel needs of this population. In addition to the capacity issues, much of the stakeholder input for the TDP dealt with service quality issues on HT Ride services, including late trips, drivers unfamiliar with the County, scheduling problems (including routing), and limited service hours. From a program perspective, another issue identified is the cost per trip (\$35 per trip is the current rate paid to the operating contractor), with the potential for increases if the contractor is unable to achieve the planned productivity.

There are several ways in which these various issues can be addressed, and it is likely that no one option is the solution to all the issues, and in fact most possible

actions are likely to have impacts on capacity, costs, and service quality. The potential alternatives begin with expansion of the service.

### **Paratransit Alternative A: Annual Increase in Service to Meet Demand**

Although the human service planning process has identified increases in the numbers of older adults, translating the changes in the population to estimated paratransit demand requires some assumptions. The study team looked at data collected for the “Recommendations for Public Transit Systems and Other Mobility Providers”<sup>1</sup> which included the older adult ridership in several Washington jurisdictions, and found that there is no direct linear relationship between ridership on these specialized services and the older adult population levels. However, the data allowed a reasonable set of assumptions that correlated with the current HT Ride experience to some degree, and this was used as a basis for estimating what resources might be required to meet a doubling of demand by 2015, given the current level of productivity (trips per hour). The assumptions and resulting estimates are as follows:

- Ten percent of the combined population of older adults (55 and above) and persons with disabilities are likely to use paratransit services each year (at some level).
- Assuming three trips per user per month as an average rate (some will be much more, some less), the current annual demand would be 136,350 trips, which is quite close to the budgeted FY 2009 amount.
- At the FY 2009 budgeted cost per trip of \$35, this level of ridership would cost \$4,772,250.
- If the demand doubled by 2015, the annual increase in costs would be \$954,450, at current rates.
- The current HT Ride paratransit fleet of 28 vehicles would need to be increased by 30, at a total capital cost of \$1,980,000 (30 vehicles times \$66,000 for hybrid cutaways), or \$396,000 per year.

### **Alternative B: Address 50% of the Demand with Increased Capacity, and Implement a Taxi Subsidy Program and Demand Management Strategies**

A second alternative for paratransit services is to assume that the County will add capacity to HT Ride that would address only 50% of this projected increase in

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<sup>1</sup> Meeting the Transportation Needs of Northern Virginia’s Senior, “Recommendations for Public Transit Systems and Other Mobility Providers”, prepared for the Northern Virginia Transportation Commission, March 24, 2006.

demand, and that other strategies would be used to meet these needs. This alternative would therefore require an annual increase in HT Ride trip costs of \$477, 225, and an increase in the fleet of 15, spread over five years at an annual cost of \$198,000.

One significant addition to this service would be a taxi-subsidy program similar to those operated by the Department of Aging and Disabilities in Anne Arundel County, or in Montgomery and Prince George's County. This would allow eligible persons who have registered with the program to receive a certain amount of coupons that can be used to pay for trips on taxis operated by firms that participate in the program. It has the advantage that the paratransit system can direct some users and some trips that cannot be served efficiently by the HT Ride services to the taxi program, and it also provides for service in afternoon and weekend hours when the full paratransit service is not available (HT Ride ADA paratransit service must be available whenever the fixed-route services are operating, but services to other populations have more restricted hours). Based on the Anne Arundel program, which serves a similar population, the estimated annual cost of the taxi program is \$200,000 per year in the initial years. Anne Arundel funds it with their annual state SSTAP allocation, which could be a funding source for this program.

In addition to these services, this alternative involves efforts to manage costs by managing demand. This includes enhanced efforts to train older adults and persons with disabilities to use the available accessible fixed-route services. The County has a relatively dense network of such services in the more densely populated parts of the County, and this network is likely to be improved in terms of coverage and frequency if parts of the TDP are ever implemented. Such an effort will involve staff time, and it needs to be well-publicized and ongoing. It also needs the support of the fixed-route service provider, in terms of making sure that operators can use the accessibility equipment and are properly trained and have the needed attitude.

A related policy is to set fare levels to encourage persons who are able to use the fixed-route service. In many places this is accomplished by having significant fare differentials, charging more for the expensive paratransit trip. On HT Ride this is complicated somewhat by the fact that the system carries both ADA paratransit and program trips, some of which may not require a fare. One alternative used in some jurisdictions is to allow eligible paratransit riders to ride for no fare on fixed-route – the loss of \$1.50 in farebox revenue is more than made up by the savings of the \$35 paratransit trip.

Paratransit program policies may also need to be changed to allow the system to manage demand and costs to accommodate the growth in need, and this may need to be combined with changes in the contract method of billing for paratransit trips. If users are permitted to specify all of their trips at their own discretion, it can increase

costs by limiting the possibilities for combining trips on the same vehicle. ADA regulations limit the degree to which the system can shift scheduled pickup times, but there may be more scope to do this for program trips. A vehicle that can be scheduled to pick up ten persons on the way to the senior center for a program will likely be much more efficient than having ten riders all call for trips such that five vehicles are used to meet their schedule preferences. The changes in billing may be required if the County is to capture any savings from such policy changes—by paying per trip the contractor will be the benefactor of having ten passengers on one vehicle rather than two each on five vehicles. For that reason, once the County reviews its user policies, it needs to consider whether or not improvements in productivity can be reflected in the overall per trip rate, or whether or not different per trip rates (by user group—for example ADA and older adult trips) can be negotiated.

Another solution may be to work toward bringing the scheduling function into the management contract, rather than have it as a function of the operator. In such a case, the operating contractor would bid on providing paratransit at a particular cost per service hour, and the productivity on the service would be controlled by the County's management contractor, who would schedule the trips and assign them to the operator. There are significant issues with such a change, as it would require software, computers, training, improved phone systems, etc. for the management contractor—with the possibility of a difficult period (both in terms of service quality and productivity) until full competency was achieved with the new scheduling system. Prior to undertaking such a step, every effort should be made to review the current scheduling system and the use of software to make sure that the existing system is optimized.

## **CAPITAL PROGRAM**

Along with the service options listed above, there are capital needs for vehicles shown to serve these if they are operated as expansions to existing service. However, the plan needs to include other capital needs as well, including the timely replacement of existing vehicles, passenger facilities, the Central Maryland Transit Operations Facility (CMTOF), and other potential capital needs. This section addresses these needs.

### **Vehicles: Replacement**

Whether or not there are any service expansions requiring existing vehicles, prudent management and public input all call for a capital replacement program that replaces existing vehicles based on the years of service and mileage accumulated, given the design life of the vehicle. Timely replacement results in increased reliability,

improved passenger amenities (air-conditioning and heat), lower operating costs, and an improved perception of transit by non-users.

Transit vehicles are actually designed with a particular service life associated with the type of vehicle, and each vehicle must be submitted by the manufacturer to a testing program sponsored by the FTA (if the vehicle will be purchased with federal funds). The states are allowed some discretion in applying these guidelines as they assess applications for replacement vehicles. In Maryland, the MTA guidelines are as follows:

***Buses***

- Full size heavy duty (approximately 35' - 40') transit buses: at least 12 years of service or an accumulation of at least 500,000 miles.
- Medium size heavy duty (approximately 30') transit buses: at least ten years of service or an accumulation of at least 350,000 miles.
- Small size medium duty (under 30') transit buses: at least seven years of service or an accumulation of at least 200,000 miles.
- School bus type vehicles: at least six years of service or an accumulation of at least 150,000 miles.
- Small specialized transportation (non-transit) buses and single wheel mini-buses: at least five years of service and an accumulation of 150,000 miles; or at least six years of service and an accumulation of 100,000 miles; or seven years regardless of mileage.

***Raised Roof Vans, Standard Vans, Mini-Vans, and Automobiles***

- At least four years of service and an accumulation of 150,000 miles; or
- At least five years of service and an accumulation of 100,000 miles; or
- At least six years of service regardless of mileage.

Under extraordinary circumstances, vehicles may need replacement prior to the end of their normal useful lives. In these situations, the applicant must justify the need for the early replacement, including a detailed description of the condition of the vehicle. The MTA is extremely reluctant to replace vehicles prior to the end of their normal service life and only under extenuating circumstances will this be approved.



Based on these criteria, the vehicle replacement plan for the Howard County fleet for the period FY 2010-2014, along with the estimated costs by type of vehicle, is presented in Table 4-2. The County fleet is still recovering to some extent from a period of deferred replacement, so the investment in the early years is significant. MTA provides a significant share of the funding for capital, particularly for replacement. In FY 2009 Howard County requested \$747,000 for capital from the State, and received \$736,200. The combined Federal/State share of the total capital cost program was 90% of these costs. The MTA is willing to provide 90% of the funding for vehicles that are at the estimated state prices. For some bus and van types, the State does a competitive procurement and local systems can order from that procurement, and for other bus types the state establishes a price that it will pay, and the funding will pay 90% of that amount at a maximum. However, Howard County has adopted a policy calling for all new transit vehicles to be hybrids, which are considerably more expensive. For that reason, the actual County share of the true costs is much higher, because the County must pay 100% of the differential for the hybrid vehicles. Table 4-2 shows estimated costs for hybrid vehicles, which are much higher than the diesel or gasoline vehicles that MTA will fund. The vehicle unit costs are provided by CTC and the County, based on recent procurements and data collection.

The expansion vehicle cost will depend on the alternatives chosen for inclusion in the plan, and the phasing of the implementation. Recommended phasing is presented in the next chapter.

### **Passenger Facilities**

Passenger facilities used by HT riders and administered by the County include the transfer point located at Columbia Mall, and the bus stops located along routes throughout the community. HT also stops at the Dorsey MARC station, and it uses stops at several State Highway Administration park and ride lots. The County has worked with CTC on the development of a stop inventory, and several years ago an inventory was developed that includes information on the stop location (latitude and longitude) and the amenities at each stop. There are approximately 450 stops in the County. The County also has a plan for installing shelters at the stops, and in general has been able to install several each year. The plan calls for installing 77 shelters at locations selected for a variety of criteria.

During the course of the study, public and stakeholder input was provided indicating some issues with the HT fixed-route stops. One set of comments related to maintenance of the stop information, in particular the need to maintain updated schedule and route information at stops where such information is provided. Another set involves the need for an assessment of bus stops with regard to their accessibility to persons with disabilities (there are ADA standards for bus stop accessibility), and the

Table 4-2: Howard County Vehicle Replacement Plan

Fiscal Year	Proposed Vehicle	Replaces	Service Type	Seating Capacity (Seats/ Wheelchairs)	Estimated Total Unit Cost (Hybrid)	Estimated Cost (State) (Diesel)	Potential State Funding (at 90%)	Estimated Local Share (at 10%)	Hybrid Incremental Cost (Local)	Estimated Total Local Share
2009	LF Transit	57	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	Truck Bus	58	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	79	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	77 <sup>1</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Cutaway	70	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	71	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	72	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	36	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	39	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	40	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
Subtotal					\$2,680,000	\$1,233,300	\$1,109,970	\$123,330	\$1,446,700	\$1,570,030
2009	LF Transit	80	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	LF Transit	82	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	LF Transit	84 <sup>2</sup>	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	LF Transit	86	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	Cutaway	35	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	38	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
Subtotal					\$2,800,000	\$1,985,871	\$1,787,284	\$198,587	\$814,129	\$1,012,716
2011	Truck Bus	85 <sup>3</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Truck Bus	81	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Cutaway	33	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2011	Cutaway	32	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	34	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	30	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	29	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
Subtotal					\$1,620,000	\$558,529	\$502,676	\$55,853	\$1,061,471	\$1,117,324
2012 <sup>4</sup>	Truck Bus	9512	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9513	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9516	FR	20/2 <sup>5</sup>	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9517	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9518	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9519	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Cutaway	31	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2012	Cutaway	5	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
Subtotal					\$1,820,000	\$592,234	\$533,011	\$59,223	\$1,227,766	\$1,286,989
2013	LF Transit	9510	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	LF Transit	9511	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	Cutaway	6	PT	18/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2013	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
Subtotal					\$1,500,000	\$1,023,914	\$921,523	\$102,391	\$476,086	\$578,477
2014	Truck Bus	9504	FR	27/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2014	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	29	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
Subtotal					\$1,150,000	\$635,871	\$572,284	\$63,587	\$514,129	\$577,716
<b>Totals</b>					<b>\$11,570,000</b>	<b>\$6,029,719</b>	<b>\$5,426,747</b>	<b>\$602,972</b>	<b>\$5,540,281</b>	<b>\$6,143,253</b>

- (1) Current Spare #63 will be sold, and #77 will become a spare.
- (2) Current Spare #66 will be sold, and #84 will become a spare.
- (3) Current Spare #67 will be sold, and #85 will become a spare.
- (4) Vehicles 1, 2, 3, and 4: Toyota Prius Sedan (County Funded); in 2012 replacement at \$25K each.
- (5) For the 20/2 seating capacity, based on MTA information, there is no vehicle price. The price of the vehicle type with similar seating capacity was used.

\*For Year 2014, "Vehicle Type" was determined based on previous year information that shows correlation between "Service Type" and "Proposed Vehicle"

FR = Fixed-Route  
 PT = Paratransit  
 LF = Low-Floor

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connectivity between the stops and accessible pathways for persons with disabilities and for the general public. The County has a pedestrian plan calling for improved pedestrian access to bus stops, but there is an additional need to document the needs, prioritize projects, and begin a program to address such needs.

Transit operators in the Washington region have been involved in a regional bus stop inventory and assessment for the last three years, and have developed a template and a set of guidelines for bus stop improvement. All of the Washington region's 19,000 bus stops have been inventoried and assessed. In Montgomery County the assessment has been used as the basis for a six-year, \$11,000,000 program to upgrade the bus stops in the County. These resources have been combined with a contract with a private firm that installs and maintains bus shelters in return for the ability to have an advertising panel. Such contractors often make a payment to the transit provider in addition to providing the installation, the shelter itself, the electric power to the shelter, cleaning, and repairs. This recent experience, and the input received regarding the bus stops in the County, suggest that a useful project would be an updating of the County's bus stop inventory, including an assessment of pathway connectivity and accessibility, as the first step in developing an ongoing capital Bus Stop Improvement program. Such a program would focus on improvements to the major transfer points to ensure that there are shelters, seating, lighting, and information at the places where there is significant transfer activity. It would support the development of secondary transfer hubs in Ellicott City, and at a location in the Route 1 Corridor. It would also focus on identifying needed improvements for connectivity, and for improved accessibility.

The proposed Bus Stop Improvement Program would include the following elements:

- *Bus Stop Study*: Includes development of guidelines, updating the inventory, and performing an assessment of needs and estimated costs. It would need to include pedestrian linkages in the study. Estimated cost approximately \$50,000.
- *Annual Bus Stop Capital Improvement Program*: Based on identified needs, the estimated cost for all 450 stops would be \$1,620,000, based on an average of \$3,600 per stop. As an annual element, the estimated annual capital cost is \$325,000 per year. Additional staffing or contractor labor for the County to monitor the implementation is included in this estimate.
- *Shelter Program*: Based on the current shelter needs list of 77 shelters at \$20,000 each, the total cost to address this existing list would be \$1,540,000. As an alternative, the County could contract with a shelter advertising firm,

which would eliminate this cost to the County and could potentially even generate some revenue.

The other major passenger facility need is improvement to the main transfer point at Columbia Mall.

### **Passenger Transfer Facilities – Town Center Columbia**

The outreach effort for this study included input from users and stakeholders regarding the current main transfer facility at Columbia Mall, including:

- Capacity – it has limited curb space and so at main transfer times buses are double-parked – the available curb space is more appropriate for 3-4 buses than the 8-10 that may be there at peak times.
- Confusion – Buses for each route do not always wait at the same location, so riders may have to wander among the buses looking for the appropriate connection.
- Safety – Having riders walking in the road looking for buses is a safety hazard. Also, riders coming from the Mall have to cross the Sears garage entry lanes.
- Convenience – Users have a significant walk from the Mall entry doors.

The GGP plan Transportation Strategies for Columbia Town Center includes a call for development of an improved transit center as part of the ongoing redevelopment of this area. It is seen as having improved amenities, and becoming a key connection point between expanded Town Center shuttles, HT routes, and commuter buses. The inclusion of this concept would also increase the visibility and role of transit generally, and the inclusion of this concept in the GGP strategies represents an opportunity for HT to work with the developers to improve the transit center significantly and make a visible, convenient and accessible focal point for the transit system in the County.

While the concept is included in the GGP planning presentations, at this point there is a need to develop information about all aspects of such a facility. It should have a location that is central to the Town Center redevelopment, convenient to the Mall for pedestrians. Access to the street network, and on the streets around the Mall may need to include short segments of transit only roadway, or queue-jumpers including the necessary signal priority. All are intended to make sure that the entire transit system is not trapped in peak holiday season traffic. The new facility would need to be much

larger, serving perhaps nine existing HT routes, two CTC routes, two MTA commuter bus routes, plus have the potential for five HT expansion routes and one MTA expansion. It should also have space for kiss-and-ride short-term parking and pickup areas, limited area for staging buses needed for backup, spaces for taxis, and other demand-responsive service vehicles. Given all of these needs, and the general nature of the current plans for the Town Center, it is necessary that the County follow a process of project development that would include an initial scoping study to make sure that the sizing and needs are fully considered, and to identify and cost potential sites and roadway improvements. A second study phase would follow agreements that have secured the site, providing architectural and engineering work, prior to final design and then construction. Because the roles and contributions of the developer, the County and State/federal funding are yet to be determined, this process could well take a substantial amount of time and staff attention. However, the pending changes to Columbia Town Center represent a unique opportunity, and this facility should be addressed in the TDP.

### **Other Capital Needs**

Stakeholder input has also suggested a need for some other capital projects. For the fixed-route system there is interest in the community in being able to use Smart cards for fare payment, and having accessible ways (kiosks or farecard vending machines) to obtain such cards and add value. Smart Cards are plastic cards with an embedded computer chip which can store dollar value to pay for transit trips. The user buys the card (typical card costs are \$5.00 for the card itself) and loads value on it at a machine that accepts cash and credit cards. The user can then use the card to pay when boarding a transit vehicle, with the appropriate fare deducted from the value on the card. The card does not actually have to run through any machinery – the transaction takes place by having the card in close proximity to a card reader on a farebox or turnstile. There is a regional SmarTrip card used by WMATA and the Washington area transit systems, and by the MTA and Baltimore area systems. Originally this program was going to include systems such as HT and Annapolis Transit, but the cost of the equipment and the ongoing maintenance, repair and support has cause the state to focus on the larger systems. Aside from a level of convenience, the major benefit to the user is the ability to use the same card on multiple systems – for example to pay an HT fare and then an MTA fare, all out of the same electronic “purse”. It should be noted that even with the SmarTrip card, bus users making transfers, even on the same system, have to obtain a paper bus transfer to present to the driver of the connecting bus.

It is possible that Howard County could join the regional Smart Card system, but there would be a need for the County to make the commitment to the staffing needed to maintain and operate the system – potentially two or more persons. In addition, the fare boxes, readers and other equipment have a significant cost. Currently HT riders

may transfer directly only to CAR, MTA Express, and MTA Commuter buses. While MTA Express may have Smart Card fareboxes, the CAR and Commuter buses do not, and neither does the MARC Commuter Rail service. Howard County riders using the buses to reach the Washington Metro could use such a card, but they currently have the option of purchasing a card just for that purpose. At this time the potential benefits of such cards do not appear to be worth the likely costs, given the other needs of the system.

Another potential capital need is the acquisition of Mobile Data Terminals for the HT Ride paratransit vehicles. Often these are combined with Automatic Vehicle Location (AVL), but HT Ride has AVL without the full data terminals. The data terminals put computing equipment on the bus, and facilitate communication from dispatch to the driver by making most of it digital. Rather than dealing with paper manifests and trip reports, the terminal provides the driver with pickup instructions, and it collects data on the time of arrival and departure, the user, etc. as the vehicle is moving. The data is then downloaded at the end of the service day, and can be used for reporting and billing (if a system is carrying riders funded from different sources). HT Ride's coordinated service of ADA and agency riders would likely be able to make great use of the MDT's data collection capabilities, and if combined with AVL it could improve communication with the drivers, providing updated information about users (such as cancellations or call-back return trips) on the screen for visual reference and documentation. This technology has not been requested by HT Ride, but should be considered as a potential capital alternative.

Security cameras on the buses are one more capital alternative. Howard County provided justification for on-board security cameras in its FY 2009 MTA application, but was not funded at this time—consideration should be given to including this option in future years. HT does not at this time have a major on-board security problem, but the presence of the cameras acts as a deterrent to prevent the creation of a culture of on-board problems, and it protects the drivers in case of disputes, accidents or complaints that users may have, in which case the camera record can be used to assess what happened.

## **POLICY OPTIONS**

### **Organizational Alternatives**

Initially the transit management organizational structure for Howard County was considered to be a settled issue, as it has evolved based on a contract for management services with the CTC, overseen by County staff in the Department of Planning and Zoning. However, the outreach process for the study has suggested that

at least some stakeholders are interested in examining alternative organizational structures.

One of the primary reasons for this seem to be concerns that the chain of authority and responsibility is too long to be effective in dealing with quality of service issues, or implementation of policies. There are a number of quality of service issues, particularly with regard to the HT Ride paratransit service, that continue to be brought before the PTB, and it is thought, by some, that they are not resolved because having multiple agencies allows each to see the problems as something to be addressed by another agency. In theory the fact that the County has a contract with CTC, and CTC with its operator First Transit, and that this contract has standards and penalties included, should permit the resolution of such issues. From this perspective, alternative organizational structures that would result in improved resolution of issues and implementation of policies is the desired change.

A second major interest of those looking for organizational alternatives is the notion that transit as an activity needs to have a high visibility in the County's government, reflecting County support for transit. The thinking is that the current organizational structure evolved from a time in which the Columbia Association was shedding the responsibility for transit, while the County Executive was not seeking to embrace a County role as transit provider. Contracting for management and operation was seen as a useful structure that would support transit operation, but without adding County staff and organizational structure. Now, with greater environmental awareness, a substantially bigger transit program, and greater public support for transit, it is thought that a greater role in the County government is appropriate. This is linked to the responsibility issue as well, in that some feel that the director of a transit office or department would have more authority over transit management and operations, whether contracted or in-house.

Finally, a third issue is that of cost. The management contractor, CTC, has a total of 18.5 Full-Time Equivalent (FTE) positions, and this staff also supports CAR services in Laurel and western Anne Arundel County. The costs are allocated based upon the service hours of each service, so there is no current CTC staff dedicated to the Howard County contract. The size of the contract has led some to wonder if there may be cost-savings to the County if it brought some or all of the transit functions under the County government. The cost issue requires an assessment of the staff that would be required, the pay rates they would have under the County classification system, the cost of County general and administrative expenses, the cost of space to house the staff, the cost of equipment, and the location of such a program in the County structure (under Planning and Zoning, under Public Works, a new Office, or a new Department?).

The scope of a full study of the options is beyond the scope of this TDP. The basic options that would need to be investigated include:

- Continuation of the current contracting structure as is, or
- Continuation of the current structure with some modifications, or
- Creation of higher level, more separate and visible County transit program outside of Planning and Zoning, while retaining the contracted management and operations, or
- Bringing some or all of the management functions performed by CTC under County government as a County activity, while contracting the operations out, or
- Bringing the entire enterprise under County government, including management and operations, or
- Creation of a separate regional public entity (similar in nature to a transit authority), to take over the transit function.

There is currently an on-going study funded by the MTA to look at the sustainability of CTC as a provider of regional transit services, and it is also looking at organizational models for a regional public entity. Maryland does not have legislation in place to allow the creation of transit authorities (like Pennsylvania or North Carolina) or transit commissions (the Virginia version), so creation of such an entity would likely require legislation, and that would require County support.

Anne Arundel County is also examining these issues in their TDP, and is heading in the direction of creating an organizational model similar to the current Howard system, but with the transit operations management under the Department of Aging and Disabilities, and transit planning only remaining in Planning and Zoning. It would then have competitive contracting through an RFP for transit management. Under the Central Maryland Transit Operations Facility management concept, it was thought that the RFP for management services would be jointly issued under an MOU between Howard and Anne Arundel Counties, allow the new facility to have significant scale economies in terms of the number of service hours under contract and the ability to spread management costs over more services.

Given the number of potential organizational alternatives and the need to develop detailed assessments of the job functions, pay rates, overhead, and support costs for different options, it is recommended that an additional organizational study be



undertaken if the County wishes to seriously address the possibility of change in the organizational structure of transit planning, management, and operation for the County.

### **Service and Performance Guidelines**

Another issue that emerged as part of the stakeholder input is the lack of any formal statement of County policy on transit services (where should various kinds of service be operated, what is the desired span of service, what is the policy on headways), on transit performance (when do we drop a service because is unproductive? when should a service be revised?), and on transit service quality (what is considered late? How many late trips are acceptable, etc.). This issue first surfaced in terms of seeking a template with which to assess current transit service levels and locations, later in terms of transit performance, and then in regards to transit quality of service. Each of these is a separate area of potential policy guidance.

Currently the monthly CTC reports to the PTB include a number of quality of service thresholds, so this approach is being used, but the County may wish to see these combined into a single document, with explicit consideration of different guidelines.

#### *Service Availability Guidelines*

Some systems have adopted some guidelines (not necessarily requirements) that are used to make policy known regarding the level and type of service appropriate for different environments. These are useful in focusing new services in areas more likely to support them, and in directing the planning process. They are also useful in letting citizens know that they should not expect certain types of services in areas of low density. In this study we have generally followed a process to identify areas of high or moderate transit need, rather than setting a minimum density standard or other factors. However, there are some potential factors that could be included.

In May of 2002, the MTA produced the Maryland Transit Guidelines to provide guidance for all the systems in the State on these issues. It included thresholds or guidance for a number of factors that are important dimensions for transit service, when needed separated by urban, suburban, and rural standards, for both fixed-route and demand-responsive services.

The factors for fixed-route service are as follows, with the “suburban” thresholds included:

- “Consideration of service” at activity centers:
  - Business concentrations (number of employees): 300

- Shopping Centers (size in square feet): 200,000
- Hospitals (number of beds): 100
- Colleges (number of students): 1,000
- Housing developments (number of units): 200
  
- Frequency of service (Suburban):
  - Peak (6:00 a.m. to 9:00 a.m., and 3:00 p.m. to 7:00 p.m.): 30 minutes (Suburban), 60 minutes (Rural)
  - Midday (9:00 a.m. to 3:00 p.m.): 60 minutes
  - Early Morning/Evening (start to 6:00 a.m., 7:00 p.m. to end of service): 60
  - Saturday and Sunday: 60 minutes
  
- Span of service (Suburban):
  - Weekday: 5:00 a.m. to 10:00 p.m.
  - Saturday: 5:00 a.m. to 10:00 p.m.
  - Sunday: 5:00 a.m. to 10:00 p.m.
  
- Maximum load factors (Suburban):<sup>2</sup>
  - Peak: 110%
  - Off-Peak: 100%
  
- Service availability:
  - Considered to have service if within ¼ mile of a bus stop
  - Bus stop spacing (Suburban): 4 to 6 per mile, 1,000 feet apart
  
- Directness (Suburban):
  - Maximum trip length with transfers: 60 minutes
  - Maximum transit/automobile time ratio: 2 to 1
  - Maximum schedule time for a transfer: 15 minutes
  
- Dependability (Suburban):
  - Definition of “on-time”: 0 minutes early, 5 late
  - Percent on time: 85%
  - Missed Trips: Not to exceed 0.5%
  
- Financial:
  - Farebox recovery (Suburban): 20%
  - Productivity (Suburban): 10 passengers per revenue hour

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<sup>2</sup> Maximum load factor is defined as the maximum number of passengers carried on a route or schedule divided by the number of seats available on the type of vehicle used.

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The factors for demand-responsive services are also divided into ADA and non-ADA. They include:

- Advance Reservations:
  - Minimum: ADA-prior day, non-ADA-noon the day before
  - Maximum: Two weeks
- Span of Service:
  - ADA: same as fixed-route
  - Non-ADA: Weekday: 7:00 a.m. to 6:00 p.m., Saturday and Sunday based on demand
- Loading guidelines: maximum load, ADA, and non-ADA: 100%
- Availability of service:
  - ADA: within  $\frac{3}{4}$  of a mile of fixed-route routes
  - Non-ADA: within agency's operating service area, outside only for selected trip purposes (medical)
- Directness:
  - ADA and Non-ADA: 60 minute travel time if driving distance is 20 miles or less
- Dependability:
  - Acceptable window around scheduled time: 15 minutes before/15 minutes after for both ADA and non-ADA
  - Percent on-time for pickup: 90%
  - Acceptable drop-off time: up to 15 minutes late
  - Percent on-time for drop-off: 90%
- Financial:
  - Systemwide cost per trip: \$25
  - Systemwide cost per vehicle hour: \$45
- Productivity:
  - 2.5 trips per hour

These were developed by MTA, their consultants, and a committee of Maryland transit operators. They were provided to transit systems across the State as advisory guidelines, without any State commitment to provide resources to achieve these, and also no State requirement for meeting them as a condition of funding. They do

represent a useful universe of relevant factors, and a good basis for beginning consideration of appropriate measures for HT with regards to service levels.

Subsequently, another effort by MTA utilized their consultants and data from Maryland's Locally-Operated Transit Systems to develop performance measures that have now been included in the Form 2A in the annual MTA grant application. These were used to evaluate HT services in Chapter 2 of this report. They do not suggest how much service a system should provide, but focus on resource efficiency and financial recovery. They also provide for ranges, providing for a system's measure to be "Successful", "Acceptable", or in the category of "Needs Review". The financial and performance standards in this group differ somewhat from the Maryland Transit Guidelines because they were developed from the performance experienced by transit systems, rather than committee consensus or national rules of thumb. Table 4-3 presents these measures. As noted in Chapter 2, the measures involving dollar amounts are now seriously out-of date, and MTA is working on updated values.

Other regional sources of measures include the Washington Metropolitan Area Regional Bus Study, which included measures for assessing service based on span of service, frequency, productivity, load factor, and coverage. These are generally comparable to the Maryland Transit Guidelines, though with the addition of coverage guidelines. The Washington Metropolitan Area Regional Bus Study coverage guidelines address the percentage of households within ¼ mile of a bus route, with varying levels for high density, medium density, and low density areas. They impose no standard for low density areas. Montgomery County has used a similar standard of a ¼ mile walk distance in high density areas, and ½ mile in low-density areas, with an overall goal of 80% of the population and 90% of employment within ½ mile of transit service. Montgomery also calls for one peak bus and .5 off-peak buses to be provided to serve each 2,000 dwelling units or jobs. Prince George's County calls for fixed-route transit service when an area has three households per acre or four jobs per acre.

Montgomery also has a threshold for developing service, based on initiating service with peak-hour, 30-minute headway service, and then adding mid-day service when ridership in the peak exceeds 25 passengers/hour, adding Saturday when mid-day exceeds 25 per hour, adding Sunday when Saturday exceeds 25 per hour, and adding earlier or later service when service in the adjacent 30 minutes has ridership over 25 per hour. Based on the performance of the current HT routes, these levels are not feasible guidelines, but the concept of ramping up service based on increasing ridership may have merit for Howard County.

**Table 4-3**  
**MTA Performance Standards**

<b>LOTS SMALL URBAN FIXED-ROUTE SERVICE</b>	<b>Successful</b>	<b>Acceptable</b>	<b>Needs Review</b>
<b>Operating Cost per Hour</b>	< \$45	\$45-\$50	> \$50
<b>Operating Cost per Mile</b>	< \$2.50	\$2.50-\$3.50	> \$3.50
<b>Operating Cost per Passenger Trip</b>	< \$4.00	\$4.00-\$6.00	> \$6.00
<b>Local Operating Revenue Ratio</b>	> 50%	40% -50%	< 40%
<b>Farebox Recovery Ratio</b>	> 25%	20-25%	< 20%
<b>Passenger Trips per Mile</b>	> 0.75	0.65-0.75	< 0.65
<b>Passenger Trips per Hour</b>	> 12	8 - 12	< 8

<b>LOTS DEMAND- RESPONSE SERVICES/RURAL ROUTE SERVICE</b>	<b>Successful</b>	<b>Acceptable</b>	<b>Needs Review</b>
<b>Operating Cost per Hour</b>	< \$30	\$30-\$40	> \$40
<b>Operating Cost per Mile</b>	< \$1.50	\$1.50-\$2.50	> \$2.50
<b>Operating Cost per Passenger Trip</b>	< \$9.00	\$9.00-\$13.00	> \$13.00
<b>Local Operating Revenue Ratio</b>	> 40%	30% - 40%	< 30%
<b>Farebox Recovery Ratio</b>	> 15%	7%-15%	< 7%
<b>Passenger Trips per Mile</b>	> 0.25	0.15-0.25	< 0.15
<b>Passenger Trips per Hour</b>	> 4	2.5 - 4	< 2.5

Based on these examples, and the implied standards used by CTC and the PTB to measure service quality, Table 4-4 presents guidelines for consideration by Howard County.

**Table 4-4: Proposed Howard County Guidelines**

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- Service Coverage:
    - Any area of the County with 3 households per acre, 4 jobs per acre, or 2,000 persons per square mile is a candidate for fixed-route service if it does not already have service.
    - Areas of the County with population densities between 1,000 and 2,000 persons per square mile are candidates for route deviation or demand-response service.
    - Demand-Response: ADA-Within  $\frac{3}{4}$  mile of fixed-routes, non-ADA in response to client origins and destinations or in areas with high density of transit - dependent populations.
  
  - Service Frequency (Fixed-Route):
    - Thirty-minute in the peak.
    - Sixty minutes off-peak, before the morning peak, and after the evening peak.
    - Sixty minutes Saturday.
    - Level of Service (LOS) concept applied to frequency:
      - LOS A: 30-minutes headway peak and mid-day weekday
      - LOS B: 30-minutes headway peak only weekday
      - LOS C: 60-minutes headway peak and off-peak
      - LOS D: 60 minutes headway peak only, > 60 minutes off-peak
      - LOS F: > 60 minutes headway
  
  - Service Span:
    - Fixed-Route: First trip in the morning leaves no later than 6:30 a.m.
      - Last trip leaves no earlier than 7:30 p.m.
      - Level of service concept applied to span of service:
        - LOS A: 17-18 hours of service per day
        - LOS B: 14-16 hours of service per day
        - LOS C: 12-13 hours of service per day
        - LOS D: 4-11 hours of service per day
        - LOS F: Under four hours of service.

LOS D or F are candidates for assessment on increased service, if minimum productivity standards are met.

    - Demand-Response: Matching fixed-route hours for ADA, non-ADA 6:30 a.m. to 6:00 p.m.

- Travel Time:
  - Fixed-Route transit travel time should be no more than twice the auto travel time – if greater the route is a candidate for restructuring.
  - Demand-Response: Maximum 60 minutes for a trip under 20 miles in length.
- Load Factor:
  - Maximum load factor for fixed-route is 110%.
  - Maximum load factor for demand-response is 100%.
- On-Time Performance:
  - Fixed-Route: Defined as up to 2 minutes early, and up to 3 minutes late, 85% of trips within this window (current HT standard).
  - Demand-Response: Defined as no more than 15 minutes before or after scheduled pickup time, with 85% of trips within this window (current HT standard).
- Wheelchair Lift Inspection:
  - Daily lift cycling as part of pre-trip inspection. Failure calls for substitute vehicle.
  - Detailed inspection as per procedure: 100%.
- Stop Announcements (fixed-route):
  - Operators make stop announcements as required by ADA.
- Accidents/Incidents:
  - All reportable: 0.5 per 100 thousand miles maximum.
- Service Failures:
  - Fixed-Route: 10 per 100,000 vehicle miles
  - Paratransit: 3 per 100,000 vehicle miles
- Trip Completion/Missed Trips:
  - Fixed-Route: no more than 0.5% missed (no service on scheduled run)
  - Paratransit: all scheduled trips that are not cancelled should be completed.
- Productivity:
  - Fixed-Route: As per MTA guidelines for resource efficiency: trips per mile, trips per hour.
    - Passenger Trips per Mile: Successful >0.75; Acceptable 0.65-0.75; and Needs Review <0.65

- Passenger Trips per Hour: Successful >12; Acceptable 8-12; Needs Review <8
  - Demand-Response: As per MTA guidelines<sup>1</sup> for resource efficiency: trips per mile, trips per hour.
    - Passenger Trips per Mile: Successful >0.25; Acceptable 0.15-0.25; and Needs Review <0.15
    - Passenger Trips per Hour: Successful >4; Acceptable 2.5-4; Needs Review <2.5
  - Financial:
    - Fixed-Route: As per MTA guidelines for farebox and local recovery:
      - Local Operating Ratio (includes local match contribution): Successful > 50%; Acceptable 40-50%; Needs Review <40%
      - Farebox Ratio: Successful > 25%; Acceptable 20-25%; Needs Review <20%
    - Demand-Response: As per MTA guidelines for farebox and local recovery:
      - Local Operating Ratio (includes local match contribution): Successful > 40%; Acceptable 30-40%; Needs Review <30%
      - Farebox Ratio: Successful > 15%; Acceptable 7-15%; Needs Review <7%
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<sup>1</sup> Howard County will revise its guidelines to conform with future changes in the MTA Statewide Planning Guidelines.

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# Chapter 5

## Transit Plan

### INTRODUCTION

The previous chapters have provided an extensive menu of potential services and capital improvements that would address many of the unmet or underserved needs identified through the analysis and outreach aspects of this TDP process. The menu was quite extensive, and public input generally would seem to indicate a hunger for improved transit in the County generally, one that is encouraged by the rise in gasoline prices and increased public awareness of global warming and the need for alternative modes of transportation. At the same time, there was some input that this is too much of a wish list, potentially unaffordable in anything like the short range future.

In addition, it should be noted that this is not the best of times to seek additional local or state financial support as the value of real estate has fallen substantially, fuel tax revenue is down, and economic activity has slowed. For that reason there is a need to prioritize the projects, and to consider phasing them in a way that addresses the immediate needs first, with projects geared to future development and expansion into new areas placed further into the future.

In this chapter a plan is presented that selects from the alternatives and presents an overall direction for the development of transit services in Howard County. It is important to recognize that transit must operate within the limits posed by the likely available resources, and it has become apparent during the course of this study that in the near term these resources will be limited, even as ridership and environmental concerns push us to plan for more and better transit services.

### STRATEGY AND PHASING

This chapter presents a three-phase plan for service improvements, though it should be noted that these three phases are now defined not as potential years of implementation, but in broader terms that will vary with the availability of resources.

Thus the phasing now focuses on the immediate future, a period in which it is likely that both state and local transit funding will be quite constrained; a period which might be called the medium-term, in which there is more possibility of expansion; and a longer-term period which presents more of a vision of the overall development of transit services in the County. If the current economic crisis is prolonged, the short-term phase may last longer—if there is a significant turnaround in the economy, or if transit becomes the focus of unforeseen funding (if there is a fuel crisis or a major infrastructure or stimulus package including transit funding), the medium-term or longer-range visions present a set of alternatives that could be addressed.

One aspect of the transit plan that is not included in this phased plan is the vehicle capital plan for replacement vehicles. This is because the existing fleet has significant replacement needs due to over age vehicles with excessive mileage, and the need to replace these vehicles (and the opportunity) cannot wait for a future phase, but needs to be planned in the short term. The vehicle situation is so dire that the County is currently contemplating the need to lease transit vehicles to replace buses that are no longer reliable or safe until capital can be found and procurements conducted to purchase new buses. For that reason, the vehicle replacement plan is uncoupled from the phasing, and is presented as a separate annual plan element.

Another aspect of the TDP that is uncertain relates to the transit services potentially needed to address the BRAC expansion at Fort George G. Meade (FGGM). Several transit services have been proposed to connect Howard County with FGGM, and they are included in the TDP. However, they are not included as short-, mid-, or long-term proposals, but included in a separate BRAC section that could be the focus of implementation when funding is available. MDOT has removed the planned funding for BRAC transit services operated by the Locally Operated Transit Systems (LOTS) from the current Consolidated Transportation Program (CTP) because of a reduction in available state funding for transportation related to the decline in fuel tax revenue (due to increased fuel prices) and auto sales tax revenue (due to the decline in auto sales). However, the possibility exists that federal funding for these services may become available, or they may be funded in some other way, so they are now included in this plan as a separate BRAC section. This matter requires further discussion at the regional level to include a review of alternative funding opportunities.

The new or expanded services included in the three phases present the recommended service expansions, the span of service, the headways, and the estimated operating costs in current dollars. The services have been presented to the public and the PTB. These proposed service expansions also include the capital costs of vehicle fleet expansions, tied to the particular service implementation. The need for a new, enlarged transit center in the Columbia Town Center is also identified, along with the Central Maryland Transit Operations Facility. Finally, recommendations are made for planning studies and policy issues.

Given that context, the proposed structure of this plan is intended to:

- 1) **Focus first on vehicle replacement:** Focus year-by-year on providing the capital to maintain the current level of service through a realistic but timely vehicle replacement program, so as to maintain service reliability, reduce maintenance and operating costs, and maintain a positive public image.
- 2) **Allow for on-going operational changes:** Provide for limited operational improvements on existing services as an on-going role of transit management. This includes minor routing changes, adding or dropping a trip in the morning or evening, etc. This may include both trimming of services to achieve operating economies and/or limited expansion to address particular needs.
- 3) **Address growing needs for specialized services in the short-term through demand management and increased operating efficiency:** Address the increasing needs and challenges of HT Ride through demand management (changes in service policies, improved scheduling, etc.) in the near-term.
- 4) **Address growing needs for specialized services in the mid-term and beyond through service expansion:** Continue to address the increasing needs and challenges of HT Ride through service expansion once policy changes and performance improvements have been made, starting in the mid-term. The populations served by this paratransit system do not have alternatives, and this is a basic quality of life service that will require capacity expansion.
- 5) **Initiate fixed-route service expansion by improving existing routes:** Begin service improvements on existing services, starting with frequency improvements on the busiest routes first. In the near term future this will focus particularly the on Green Route, which has experienced crowding, and the Red Route, with other frequency plans awaiting a more prosperous mid-term future.
- 6) **Add new routes in later phases:** Address service coverage and routing expansions in later phases, timed to coincide with the factors potentially driving demand. This would initially include services designed to support the BRAC expansion at FGGM and Route 1 redevelopment, then other services later as Maple Lawn and the south county build out and Town Center redevelopment is implemented.
- 7) **Begin planning for capital projects:** Initiate more major capital projects with planning work to scope out the nature of the project and the likely costs and

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funding. This includes continuing work on the Central Maryland Transit Operations Facility, a feasibility and scoping study for a new Town Center Transit Center, and a Bus Stop Inventory and Assessment. With the exception of the bus stop program, these are major capital projects and the costs are really addressed in a very different way than the usual MTA LOTS capital process.

- 8) **Address the organizational structure providing transit:** Address the concerns about the visibility of the transit program, lines of authority, and management needs with a more detailed study of the alternatives, including the cost and other impacts. This study could take place in the near future.

The phasing is designed to indicate approximate timing and priority. Implementation of any one element is a function of funding availability. There is an annual budget process and MTA grant application process that both allow for public input and revisions to the anticipated project phasing based on need and funding. Acceptance of this TDP does not obligate the County or the State to fund any particular element at any time.

The costs shown in this chapter are based on current hourly operating costs and current estimates of capital costs. Depending on the timing and the final choices in any given year the costs could differ due to the effects of inflation and energy costs. For service expansions the costs shown are incremental—above the base year funding of the current system, and for service restructuring the costs are net of the current operating costs of that service. For each phase the costs of expansions or new programs become part of the base year.

## PLAN FOR VEHICLE CAPITAL REPLACEMENT

As indicated above, the first priority for transit investment is to provide for sufficient capital for replacement of the existing fleet. Transit vehicles are designed to meet particular service life requirements which vary by vehicle. With good maintenance, the vehicles can usually operate beyond their design life for a period before service quality drops (leading to missed trips, road failures and lack of air-conditioning/heat) and maintenance costs become excessive.

In practice the County had relied on MTA funding as the keystone of its vehicle replacement plans, and there was a period in which MTA did not award any new vehicles to Howard County, forcing the continued operation of many buses well beyond their intended service life. While Howard County has had an aggressive vehicle replacement program recently, even using County funding to replace vehicles,

there is still an accumulated need for vehicle replacement just to be able to maintain current service levels.

For the FY 2009 grant year, the MTA awarded Howard County two medium-sized buses (for fixed-route service), and four smaller cutaway--type buses (primarily for paratransit). The County had applied for fourteen vehicles, based on the mileage and age of the vehicles and their eligibility under state service life guidelines. In general, the FY 2009 award from MTA represents the highest level of funding likely to be available for vehicle replacement in the foreseeable future, and so the vehicle replacement plan presented below takes that level of funding as the likely realistic amount available from the state. This amount is much less than what would be required to bring the fleet up to the point that all vehicles are within their projected service life.

Howard County policy is that all new transit vehicles will be hybrids (with higher fuel economy), and that the County will pay the incremental cost of the hybrid over the conventional gas or diesel vehicles funded by MTA. So, the County local share will be the conventional local share required by MTA, plus the incremental costs for hybrids or a higher quality vehicle (a 12-year low-floor bus as opposed to a 7-year high-floor bus).

Table 5-1 presents the overall “realistic” vehicle replacement plan proposed for the next five years by year. It is based on the data included in Chapter 2 as the vehicle inventory.

There are several caveats related to this plan:

- Failure to make these replacements in any given year pushes the needed replacement into the next year, so the plan must be updated annually to reflect what actually happens in terms of funding.
- With vehicles close to the end of their service lives, delays in procurement could result in the need to lease replacement vehicles even if the funding is programmed.
- The particular vehicle noted for replacement may need to be changed depending on losses due to accidents, major component failures, etc.
- Vehicle prices are current estimates—vehicle prices have been escalating above the level of inflation in recent years, so deferral also increases the unit costs. Vehicle prices for smaller buses and cutaways are based on MTA price data; the cost for making them hybrid is based on information collected from

**Table 5-1: Howard County Vehicle Replacement Plan**

Fiscal Year	Proposed Vehicle	Replaces	Service Type	Seating Capacity (Seats/ Wheelchairs)	Estimated Total Unit Cost (Hybrid)	Estimated Cost (State) (Diesel)	Potential State Funding (at 90%)	Estimated Local Share (at 10%)	Hybrid Incremental Cost (Local)	Estimated Total Local Share
2009	LF Transit	57	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2009	Truck Bus	58	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	79	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Truck Bus	77 <sup>1</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2009	Cutaway	70	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	71	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	72	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	36	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	39	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2009	Cutaway	40	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$2,680,000	\$1,233,300	\$1,109,970	\$123,330	\$1,446,700	\$1,570,030
2010	LF Transit	80	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	82	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	84 <sup>2</sup>	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	LF Transit	86	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2010	Cutaway	35	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	38	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2010	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$2,800,000	\$1,985,871	\$1,787,284	\$198,587	\$814,129	\$1,012,716
2011	Truck Bus	85 <sup>3</sup>	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Truck Bus	81	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2011	Cutaway	33	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2011	Cutaway	32	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	34	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	30	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
2011	Cutaway	29	PT	10/2	\$200,000	\$55,550	\$49,995	\$5,555	\$144,450	\$150,005
	Subtotal				\$1,620,000	\$558,529	\$502,676	\$55,853	\$1,061,471	\$1,117,324
2012 <sup>4</sup>	Truck Bus	9512	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9513	FR	24/2	\$310,000	\$137,186	\$123,467	\$13,719	\$172,814	\$186,533
2012	Truck Bus	9516	FR	20/2 <sup>5</sup>	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9517	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9518	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Truck Bus	9519	FR	20/2	\$200,000	\$48,487	\$43,638	\$4,849	\$151,513	\$156,362
2012	Cutaway	31	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2012	Cutaway	5	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,820,000	\$592,234	\$533,011	\$59,223	\$1,227,766	\$1,286,989
2013	LF Transit	9510	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	LF Transit	9511	FR	32/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2013	Cutaway	6	PT	18/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2013	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,500,000	\$1,023,914	\$921,523	\$102,391	\$476,086	\$578,477
2014	Truck Bus	9504	FR	27/2	\$550,000	\$450,000	\$405,000	\$45,000	\$100,000	\$145,000
2014	Cutaway	7	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	28	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
2014	Cutaway	29	PT	16/2	\$200,000	\$61,957	\$55,761	\$6,196	\$138,043	\$144,239
	Subtotal				\$1,150,000	\$635,871	\$572,284	\$63,587	\$514,129	\$577,716
<b>Totals</b>					<b>\$11,570,000</b>	<b>\$6,029,719</b>	<b>\$5,426,747</b>	<b>\$602,972</b>	<b>\$5,540,281</b>	<b>\$6,143,253</b>

(1) Current Spare #63 will be sold, and #77 will become a spare.

(2) Current Spare #66 will be sold, and #84 will become a spare.

(3) Current Spare #67 will be sold, and #85 will become a spare.

(4) Vehicles 1, 2, 3, and 4: Toyota Prius Sedan (County Funded); in 2012 replacement at \$25K each.

(5) For the 20/2 seating capacity, based on MTA information, there is no vehicle price. The price of the vehicle type with similar seating capacity was used.

\*For Year 2014, "Vehicle Type" was determined based on previous year information that shows correlation between "Service Type" and "Proposed Vehicle"

FR = Fixed-Route  
PT = Paratransit  
LF = Low-Floor

vendors at the 2008 American Public Transit Association Expo. The price of the larger buses is based on recent experience of Howard County.

If the number of vehicles required to meet currently scheduled routes and the current level of paratransit service is not available, the result may be that services have to be cut. Cutting fixed-route service because of a lack of vehicles may well mean cutting entire routes, not just frequencies or hours of service. Cutting demand-responsive service because of a lack of working vehicles may mean that users must schedule trips much further in advance, and face the danger of having a scheduled trip cancelled by the transit system.

## SUMMARY BY PHASE

This plan is intended to be a multi-year plan—as a TDP its plan horizon is intended to be five years, but it is recognized that organizational changes and funding availability may well make it necessary for the program to take longer or be phased differently.

Table 5-2 summarizes the operating costs for the three phases, using FY 2009 as a base year for operating costs, and then rolling in the full implementation of the previous year phase as the base for the next phase. All figures are in constant dollars, but the fiscal analyst will know that inflation costs will add five percent or so each year—we have not assumed that these phases would occur in any particular year, and so have not incorporated year of expenditure figures. In terms of funding, it should be noted that a substantial part of the mid- and long-term expansion is funding for the paratransit program. Also, the BRAC related portions are treated separately in a BRAC section of the plan, as it may have a better chance of receiving outside funding.

**Table 5-2: Operating Expansion Plan-Summary  
(In Current Dollars)**

	<b>Base Operating Budget</b>	<b>TDP Planned Expansion</b>	<b>Total Operating Budget</b>
FY 2009	\$10,144,376		
Near-Term	\$10,144,376	\$115,000	\$10,259,376
Medium-Term	\$10,259,376	\$1,361,000	\$11,620,376
Long-Term	\$11,620,376	\$2,545,000	\$14,165,376

Table 5-3 summarizes the capital costs for expansion of each service proposed for that phase. The vehicle capital costs are current year unit cost estimates. A concern expressed in the outreach was that the replacement plan should reflect the need to replace the expansion vehicles. These expansion vehicles should all be within their useful expected life during this plan, but will start needing replacement at the beginning of the next plan. Other capital costs are estimates for computers and software for dispatch, which may not be needed depending on the results of a planned study. The bus stop improvement program is included in other capital costs as well, but it does not include shelters under the assumption that a shelter advertising contract can be arranged. It should be noted that several years ago an attempt was made to implement a shelter advertising program. A resolution to amend the County's Sign Code was defeated in the County Council. If policy remains that such a contract is not desired by the County, these capital costs could increase substantially.

**Table 5-3: Expansion Capital Plan**  
(In Current Dollars)

Phase	Expansion Vehicles	Other Capital <sup>1</sup>	Total Capital
Near-Term	\$550,000		\$550,000
Medium-Term	\$3,950,000	\$575,000	\$4,525,000
Long-Term	\$4,470,000	\$325,000	\$4,795,000
	\$8,970,000	\$900,000	\$9,870,000

1. "Other Capital" costs include: Computer and Software for dispatch (if needed) and a bus stop improvement program.

Table 5-4 combines the estimated operating and capital costs by phase, to show the overall growth in the program. The potential impact of State and federal funding is not included in these numbers, so this should not be taken to represent the cost to the County. In the past the state operating amount has varied—for FY 2009 it was \$2,716,856, or only 27% of the overall budget amount. It is not likely that the State/federal amount for operating will increase substantially over time -- it has varied somewhat with state policy, and the impact of gas cost increases and increased environmental awareness could lead to support for an increased role. But the implication is that the increase in operating costs will fall largely on the County.



**Table 5-4: Expansion Capital and Operating Plan Summary  
(In Current Dollars)**

	Operating Expenses			Total	Total
	Base	Expansion	Total	Capital	
Near-Term	\$10,144,376	\$115,000	\$10,259,376	\$550,000	\$10,809,376
Medium-Term	\$10,259,376	\$1,361,000	\$11,620,376	\$5,025,000	\$16,645,376
Long-Term	\$11,620,376	\$2,545,000	\$14,165,376	\$4,795,000	\$18,960,376
			\$36,045,128	\$10,370,000	\$46,415,128

Also estimated leasing costs have been included for expansion vehicles because state/federal funding for expansion vehicles may not be available in a timely manner, and the funding/procurement/delivery process can often take one to two years even if funding is available. Vehicle lease costs may differ substantially from the figures provided depending on the source of the leased vehicle (an operating contractor or a leasing company), the length of the lease, and the availability of that type of vehicle at any given point in time.

## EXPANSION ROUTES AND SERVICES - OPERATING

Figures 5-1 through 5-5 present the conceptual and proposed new transit services that would build on the existing services to provide basic mobility within and between the areas of identified need. They have been developed from the alternatives presented in the previous chapter, but it should be noted that the baseline network at the beginning of the near-term phase (FY10 and beyond) will include additional services to be implemented in FY 2009, including half-hour headways on the Green Route in the peak (service implemented in October 2008), and peak hour routes from Clarksville and Columbia to NSA (and later FGGM) (replacing the current Blue Route). All the additional new routes are presented as conceptual services that would need final operational planning of the exact routing, stop locations, timetables, etc. prior to final implementation. The following pages present each phase in terms of the operating expansions, the expansion vehicle capital, and other capital needs. There are two major capital projects not included on these tables. One is the Central Maryland Transit Operating Facility, which is an ongoing project that has already received partial funding while planning and environmental work continues. The cost estimates for this project are continuing to evolve with changes in the site possible, which would affect costs. The second project not shown on these pages is the recommended Town Center Transit Center. At this point this facility is completely conceptual, and planning is needed to fully identify the functions, size, layout, space requirements, and potential sites for this project.

**Legend**

- Places
- Streets
- P** Park & Ride
- Educational Facilities
- High Density Housing
- Human Service Agencies
- Major Employers
- Medical Centers
- Shopping Centers

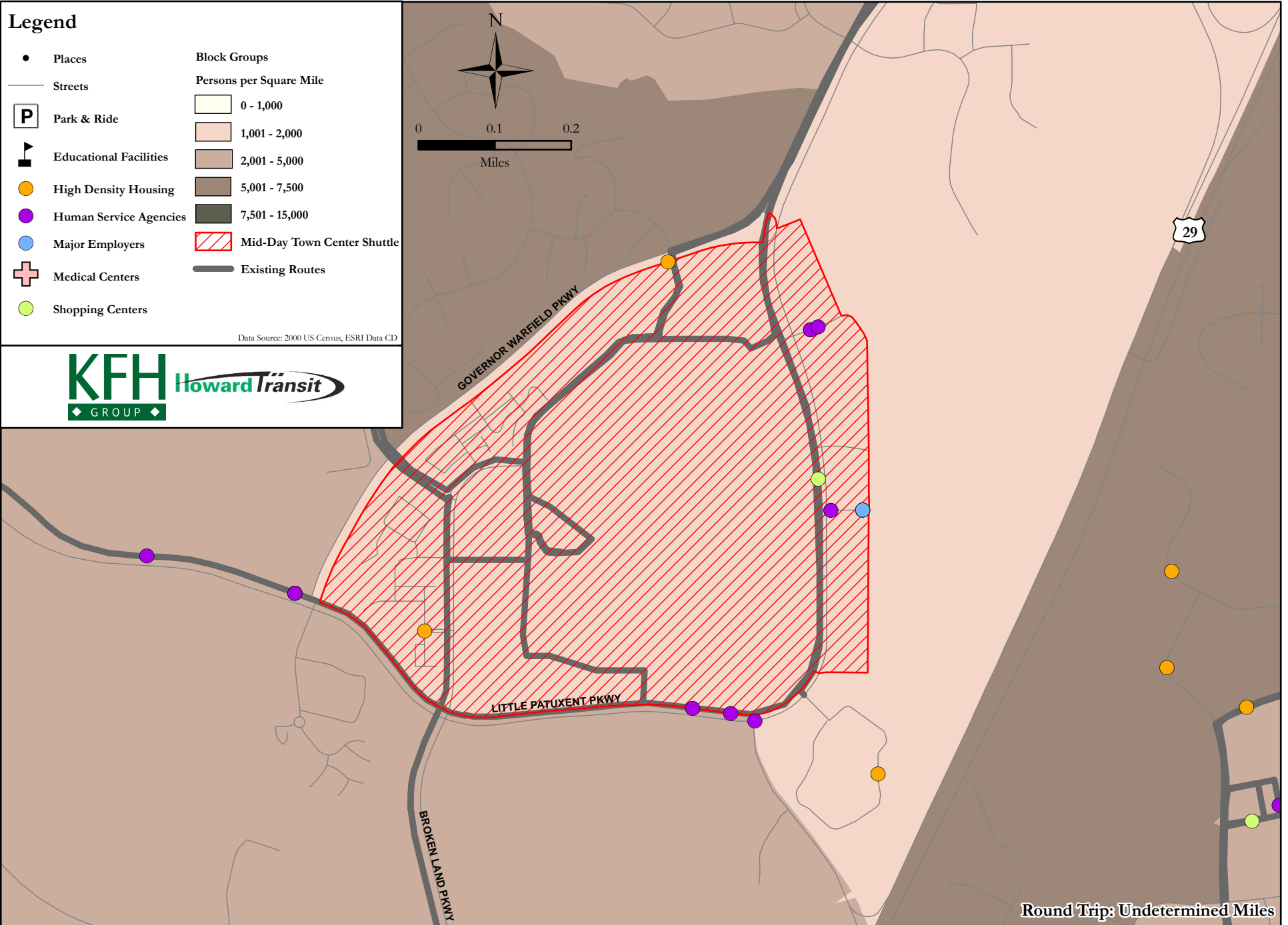
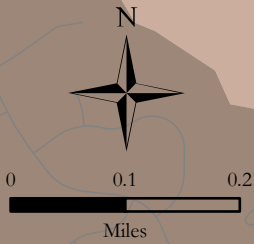
**Block Groups**

**Persons per Square Mile**

- 0 - 1,000
- 1,001 - 2,000
- 2,001 - 5,000
- 5,001 - 7,500
- 7,501 - 15,000

- Mid-Day Town Center Shuttle
- Existing Routes

Data Source: 2000 US Census, ESRI Data CD



5-10

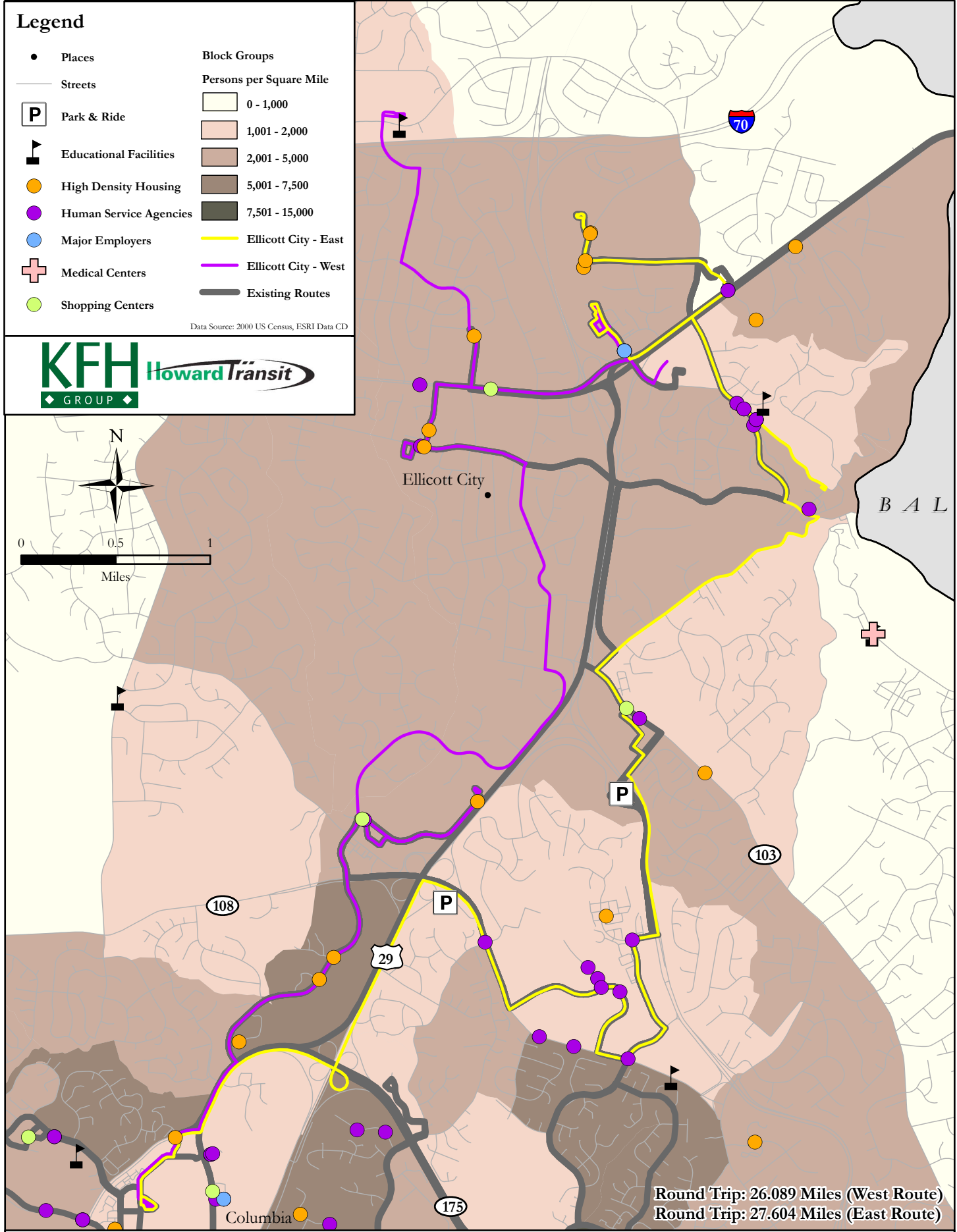
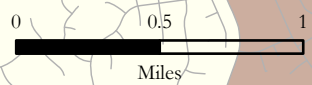
Round Trip: Undetermined Miles

**Figure 5-1: CONCEPTUAL ROUTE: MID-DAY TOWN CENTER SHUTTLE SERVICE AREA**

# Legend

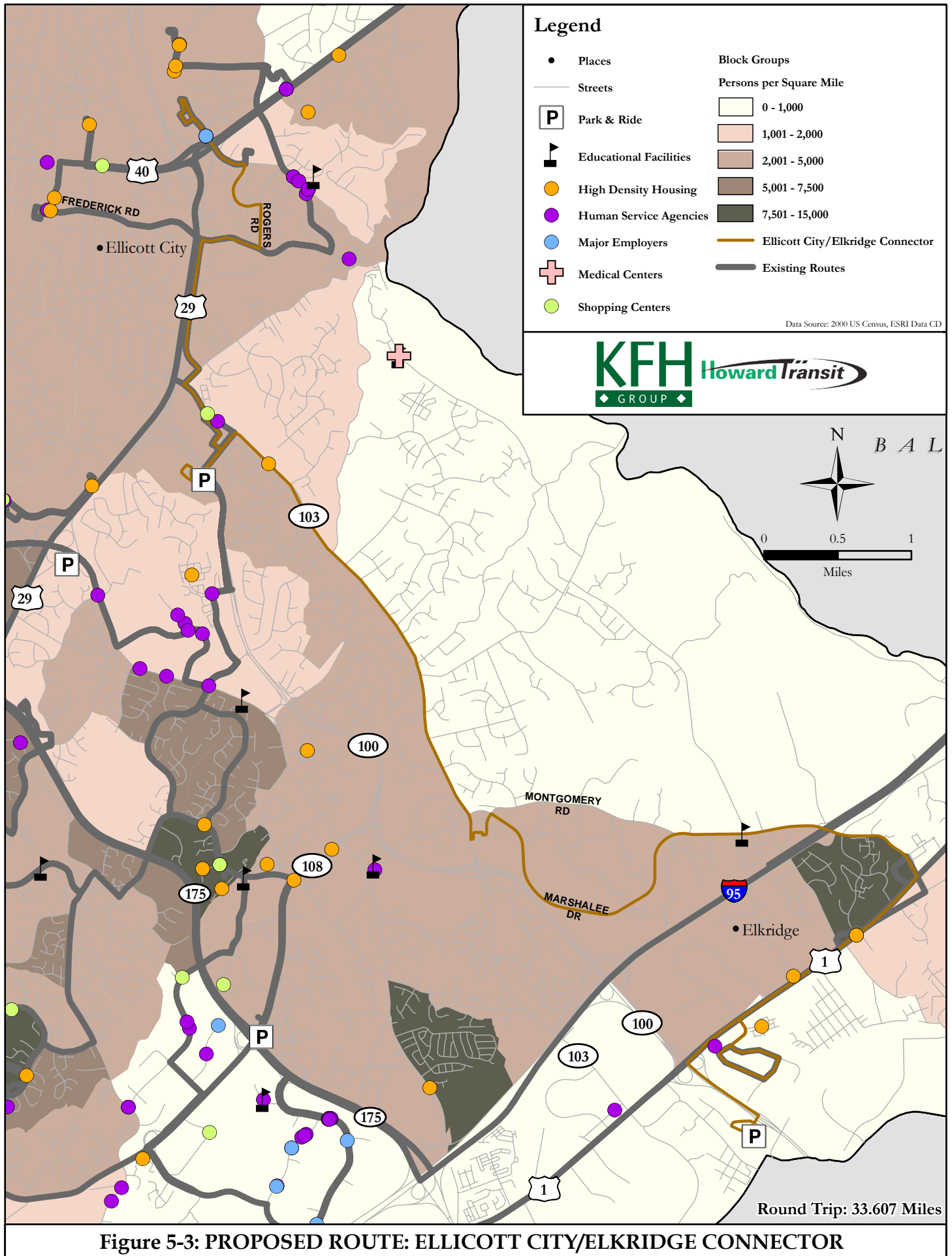
- Places
  - Streets
  - P** Park & Ride
  - Educational Facilities
  - High Density Housing
  - Human Service Agencies
  - Major Employers
  - Medical Centers
  - Shopping Centers
- | Block Groups            |                      |
|-------------------------|----------------------|
| Persons per Square Mile |                      |
|                         | 0 - 1,000            |
|                         | 1,001 - 2,000        |
|                         | 2,001 - 5,000        |
|                         | 5,001 - 7,500        |
|                         | 7,501 - 15,000       |
|                         | Ellicott City - East |
|                         | Ellicott City - West |
|                         | Existing Routes      |

Data Source: 2000 US Census, ESRI Data CD



Round Trip: 26.089 Miles (West Route)  
 Round Trip: 27.604 Miles (East Route)

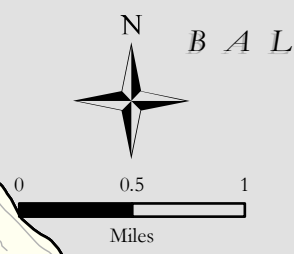
**Figure 5-2: PROPOSED ROUTE: ELLICOTT CITY - EAST & WEST**



**Legend**

- Places
  - Streets
  - P** Park & Ride
  - Educational Facilities
  - High Density Housing
  - Human Service Agencies
  - Major Employers
  - Medical Centers
  - Shopping Centers
- Block Groups**
- Persons per Square Mile
- 0 - 1,000
  - 1,001 - 2,000
  - 2,001 - 5,000
  - 5,001 - 7,500
  - 7,501 - 15,000
- Ellicott City/Elkridge Connector
  - Existing Routes

Data Source: 2000 US Census, ESRI Data CD

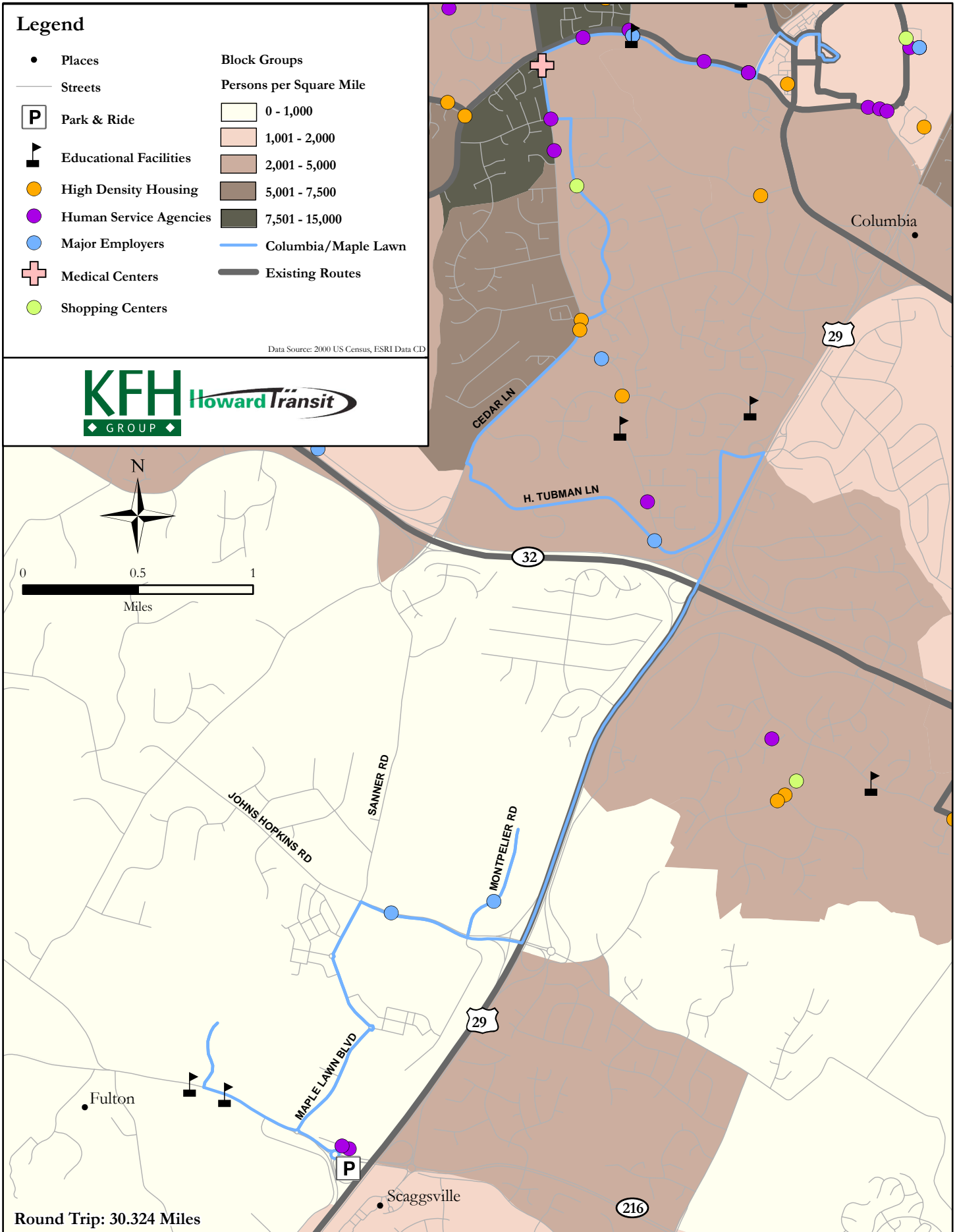
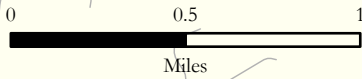


**Figure 5-3: PROPOSED ROUTE: ELLICOTT CITY/ELK RIDGE CONNECTOR**

# Legend

- Places
  - Streets
  - P** Park & Ride
  - Educational Facilities
  - High Density Housing
  - Human Service Agencies
  - Major Employers
  - Medical Centers
  - Shopping Centers
- | Block Groups            |                     |
|-------------------------|---------------------|
| Persons per Square Mile |                     |
|                         | 0 - 1,000           |
|                         | 1,001 - 2,000       |
|                         | 2,001 - 5,000       |
|                         | 5,001 - 7,500       |
|                         | 7,501 - 15,000      |
|                         | Columbia/Maple Lawn |
|                         | Existing Routes     |

Data Source: 2000 US Census, ESRI Data CD



Round Trip: 30.324 Miles

**Figure 5-4: PROPOSED ROUTE: COLUMBIA/MAPLE LAWN**

# Legend

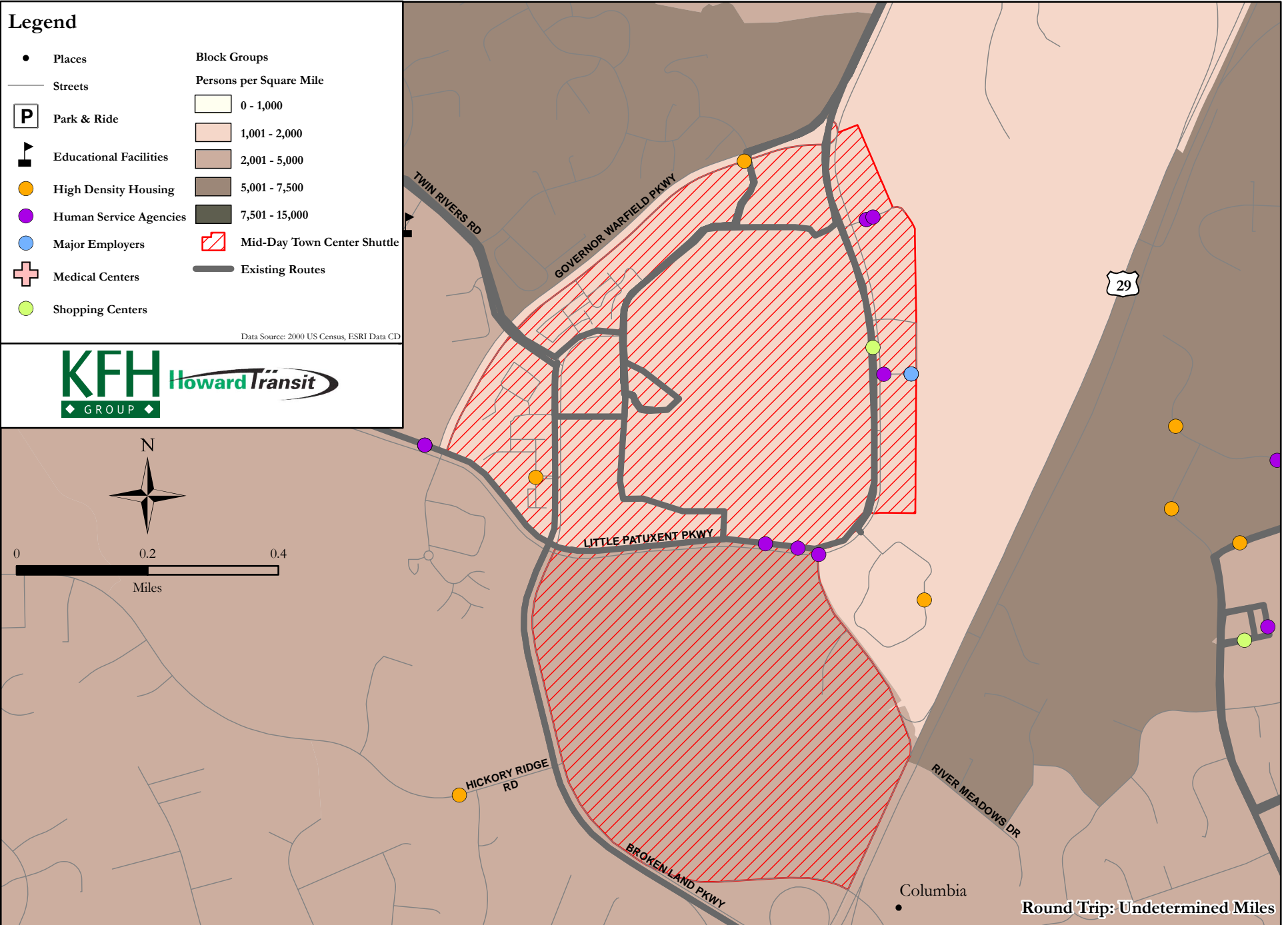
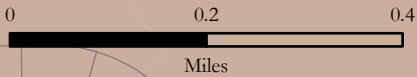
- Places
- Streets
- P** Park & Ride
- Educational Facilities
- High Density Housing
- Human Service Agencies
- Major Employers
- Medical Centers
- Shopping Centers

- Block Groups**
- Persons per Square Mile**
- 0 - 1,000
  - 1,001 - 2,000
  - 2,001 - 5,000
  - 5,001 - 7,500
  - 7,501 - 15,000
  - Mid-Day Town Center Shuttle
  - Existing Routes

Data Source: 2000 US Census, ESRI Data CD



5-14



Columbia

Round Trip: Undetermined Miles

**Figure 5-5: CONCEPTUAL ROUTE: TOWN CENTER SHUTTLE SERVICE AREA**

Funding is included for studies to begin this planning process, but as the cost and the participation of various entities in the funding is completely unknown at this point, we have not included it in the phase descriptions. It should be recognized that such a facility could easily cost \$5,000,000 in design and construction costs.

## NEAR-TERM

- Operational Improvements:
  - Yellow: Route revision to service Circuit Court: Cost Neutral
- Operating Expansion: \$115,000
  - Red: Express Trips During Peak: \$115,000<sup>1</sup>
- Capital:
  - Vehicles-Expansion:
    - Capital Purchase: \$550,000
      - One Hybrid 30' bus @ \$550,000 (Red) = \$550,000
    - Estimated Annual Lease Costs: \$24,000
      - Estimated at \$2,000/month per 30' bus.
- Planning: \$160,000
  - Transit Center Scoping Study: \$100,000
  - Paratransit Performance Review and Study of Feasibility of Taxi Voucher Program: \$30,000
  - Organizational Assessment: \$35,000

## MEDIUM-TERM

- Operating Expansion: \$1,361,000
  - Red Route: Full Half-hour headway peak: \$169,000<sup>2</sup>
  - Brown Route: 30-minute peak: \$169,000
  - Silver Route: 30-minute peak/peak express trips: \$250,000
  - Conceptual Columbia Town Center Mid-Day Shuttle: \$96,000 (Figure 5-1)
  - Initiate Taxi Program for seniors and persons with disabilities: \$200,000 (if feasible based on study)
  - HTRide Expansion: \$477,000 (Operate three additional paratransit vehicles)

<sup>1</sup> Incremental cost of an additional bus during peak hours, providing 1,752 hours of service at \$65.83 per hour.

<sup>2</sup> All frequency improvement costs based on incremental service hours for a six-hour peak period, at \$65.83 per service hour, times the number of additional buses required.

- Capital:
  - Vehicles-Expansion:
    - Capital Purchase: \$4,450,000
      - Three Hybrid 35' transit buses @ \$550,000 (Silver) = \$1,650,000
      - One Hybrid 35' Bus or Trolley (Town Center Shuttle)=\$550,000
      - Two Hybrid 35' Buses @ \$550,000 (Brown) =\$1,100,000
      - One Hybrid 35' Transit Bus (Maintain Service Level) = \$550,000,
      - Three Hybrid Paratransit Vehicles @ \$200,000=\$600,000, or
    - Estimated Annual Lease Costs: \$196,800
      - Estimated at \$2,000/month per 35' bus, \$1,500 per/month per small bus, and \$800/month per paratransit vehicle:
  - Computers/Software for Paratransit Dispatch (if required): \$250,000
  - Bus Stop Improvements: \$325,000
  - Transit Travel Training Contract (if required):
- Planning: \$200,000
  - [Columbia Town Center]Transit Station (CTCTS) Environmental Studies: \$150,000
  - Bus Stop Assessment: \$50,000

## LONG-TERM

- Operating Expansion: \$2,545,000
  - Yellow: Restructure: \$299,000 (Figure 5-2)
  - Ellicott City/Elkridge Connector: \$524,000 (Figure 5-3)
  - Columbia/Maple Lawn/South County: \$524,000 (Figure 5-4)
  - Conceptual Town Center Shuttle: \$721,000 (Figure 5-5) (Cost is \$817,000, replaces Mid-Day Shuttle cost \$96,000, net is \$687,000)
  - HTRide Expansion: \$477,000 (Operate three additional paratransit vehicles)
- Capital:
  - Vehicles--Expansion:
    - Capital Purchase: \$4,820,000
      - Two Hybrid Cutaway Small Buses @ \$310,000 (Yellow Expanded Service) = \$620,000
      - Two Hybrid Cutaway Small Buses @ \$310,000 (Ellicott City/Elkridge Connector) = \$620,000
      - Two Hybrid Cutaway Small Buses @ \$310,000 (Maple Lawn/South County) = \$620,000



- Two Hybrid 35' buses or Trolleys @ \$550,000 (Town Center) = \$1,100,000
- Three Hybrid Paratransit Vehicles @ \$200,000 (HT Ride) = \$600,000
- One Hybrid Cutaway Small Bus @ \$310,000 (Maintain Service Levels) = \$310,000
- Three Hybrid Paratransit Vehicles @ \$200,000 (Maintain Service Levels) = \$600,000, or
  - Estimated Annual Lease Costs: \$231,600
    - Estimated at \$2,000/month per 35' bus, \$1,500 per/month per small bus, and \$800/month per paratransit vehicle:
    - Bus Stop Improvements: \$325,000 per year, ongoing program
    - Columbia Town Center Transit Station Site Acquisition: \$1,000,000
    - Columbia Town Center Transit Station Construction: \$3,000,000

## PROPOSED BRAC SERVICES

The TDPs for Anne Arundel County and Howard County include several route concepts for services to Fort Meade in an effort to plan local transit alternatives to accommodate the expected growth in each County due to BRAC over the next several years. The routes described here comprise the proposed initial network that has been recommended by KFH Group and has yet to be approved by the Counties. The routes were developed in part based on the Baltimore Metropolitan Council's Regional Travel Demand Model forecast of 2015 Morning Peak Trips to Fort Meade and on stakeholder input, which included requests for service to Fort Meade and Odenton MARC, Savage MARC, Dorsey MARC, Arundel Mills, and BWI Airport.

See Figures 5-6 and 5-7 for maps of the route concepts in the proposed initial network. The routes are currently designed to serve NSA and/or the EUL sites before entering the Fort and serving several stops on base, the conceptual routing for which is shown in the maps as a loop that begins and ends at the Visitor Control Center at the Reece Road gate. The routes have been designed to end at Fort Meade due to security concerns; only DoD I.D. card holders can get on base, so members of the public cannot ride a public bus that travels onto the Fort. Thus, these routes will end at Fort Meade based on the assumption that only authorized employees and visitors will still be on the public bus by the time it reaches the Fort. Similar security concerns potentially exist for public transit service to NSA, but the current route concepts are designed to stop at the NSA Visitor Control Center at the Canine Road gate and would not enter NSA.

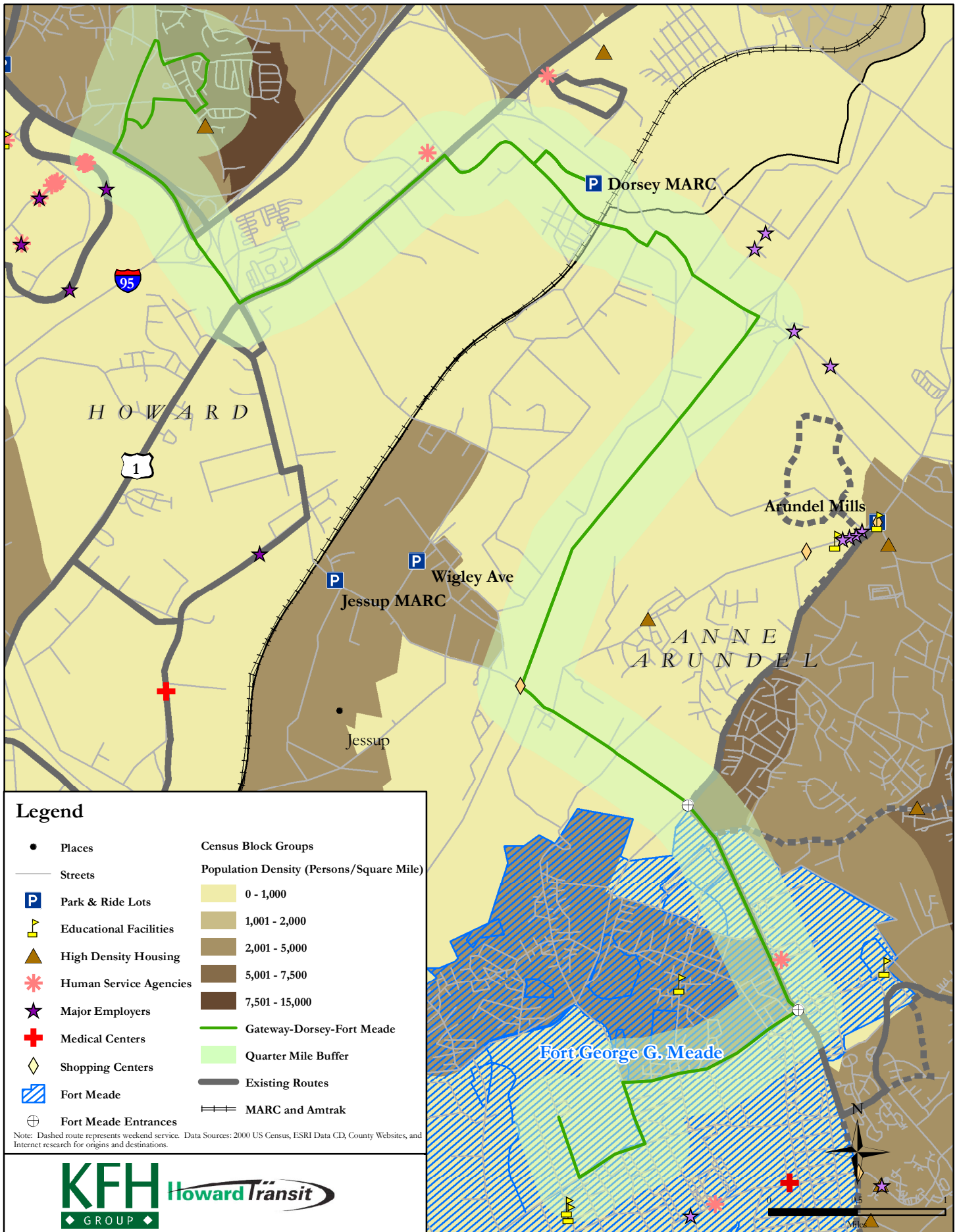


Figure 5-6: COLUMBIA GATEWAY - DORSEY MARC - FORT MEADE

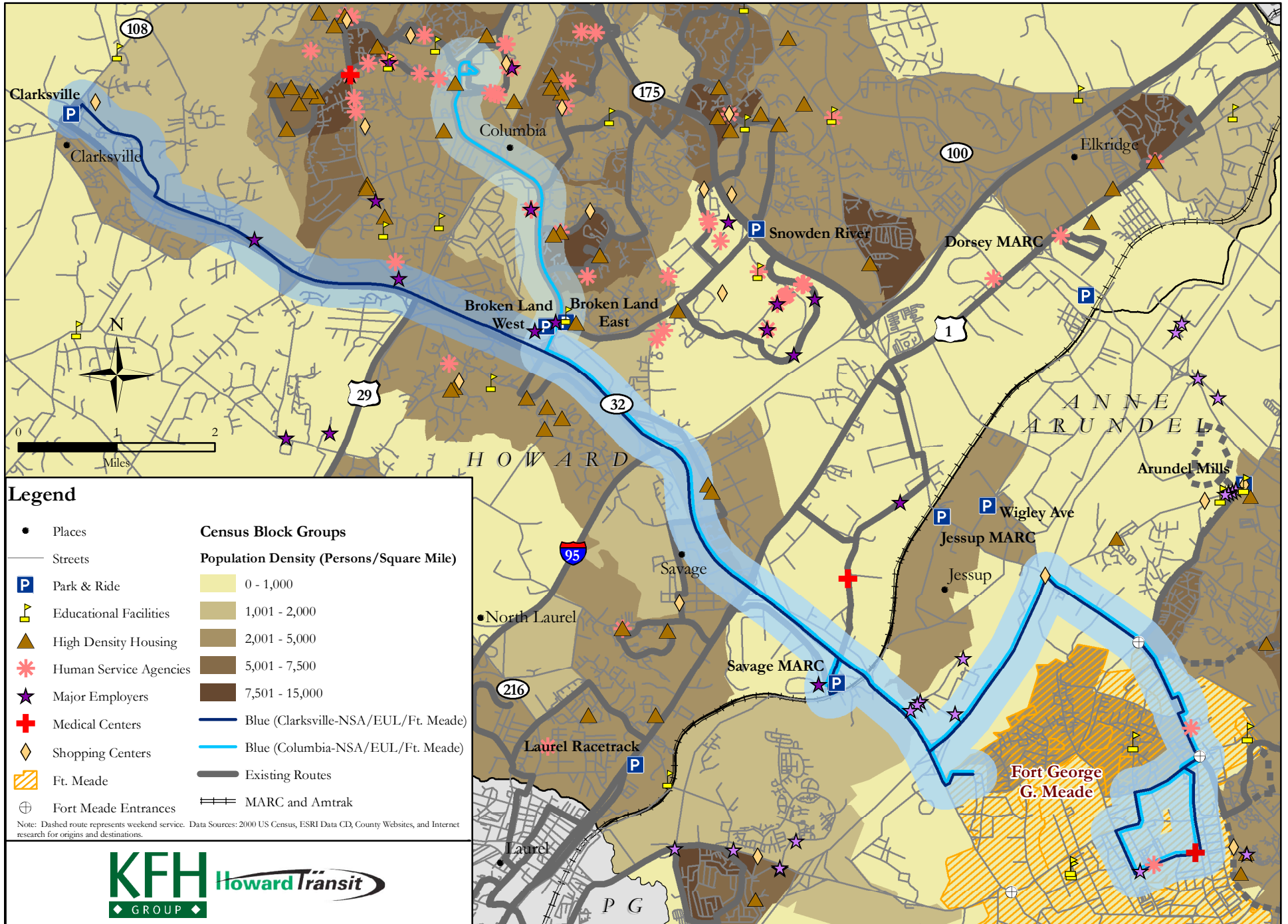


Figure 5-7: COLUMBIA TOWN CENTER AND CLARKSVILLE - NSA/EUL/FORT MEADE

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Services to NSA/FGGM which have been proposed in this plan include:

**Columbia Gateway - Dorsey MARC - Fort Meade.** Figure 5-6 depicts this route, which serves a dense residential area at Columbia Gateway, the Dorsey MARC Station, and Fort Meade. This service connects to the MARC train and could potentially connect to Howard Transit's Red, Gold, Purple, and Grey Routes and Connect-A-Ride Route K. It could be combined with a Red Express which would operate express from Columbia Town Center to the Gateway area, then local to Dorsey MARC, and on to NSA and FGGM.

**Revised Blue Route: Columbia Town Center and Clarksville - NSA/EUL/Fort Meade.** Portrayed in Figure 5-7, these two routes would operate during peak morning and evening hours as express commuter services.. The dark blue route serves residential areas in Clarksville, the Clarksville Park and Ride Lot, the Savage MARC Station, NSA, the EUL, and Fort Meade. The lighter blue route serves Columbia Town Center, the Broken Land East and West Park and Ride Lots, the Savage MARC Station, NSA, the EUL, and Fort Meade. These routes connect to the MARC train and could potentially connect with Howard Transit's Orange, Silver, Brown, and Purple Routes and Connect-A-Ride Route K. Howard County has been discussing the possibility of obtaining some funding for this service from NSA.

Table 5-5 provides a summary of the estimated annual operating costs and capital costs associated with the services in the proposed initial network. The operating costs are based on the current CTC rate with First Transit, plus the CTC management fee; all proposed routes are designed to operate Monday through Friday. The TDPs also contain other route concepts, including services from Anne Arundel County. These other route concepts are described in the Anne Arundel TDP and may be considered for implementation beyond the proposed initial network.

## OTHER RECOMMENDATIONS

The proposed plan includes several additional studies to address issues identified in this study in more detail. These include the following:

- **Organizational Assessment:** This study would build upon the TDP and the current MTA Task Order on CTC Sustainability to assess the current transit management structure for Howard County, develop alternatives, assess the costs and benefits of each, and present recommendations for any needed changes. It is estimated to cost \$30-50,000 dollars, and may be largely funded by MTA. It should follow the TDP in the near future.

**Table 5-5: Proposed BRAC Network Elements for Howard County**

Route	Estimated Annual Operating Cost	Estimated Capital Cost
<b>HOWARD COUNTY</b>		
Columbia Gateway - Dorsey MARC - Fort Meade	\$200,650	\$620,000
Blue (Columbia Town Center - NSA/EUL/Fort Meade)	\$100,325	\$620,000
Blue (Clarksville - NSA/EUL/Fort Meade)	\$100,325	\$620,000
<b>Total</b>	<b>\$401,300</b>	<b>\$1,860,000</b>

## Notes:

1) Cost per hour is current contract rate of \$65.83 per hour. Assumes operation of County-owned vehicles and no incremental increase in management costs.

2) Howard County is interested in purchasing Hybrid medium duty, low floor 30', 10-year/350,000 miles bus, cubic/GFI Odyssey farebox, air-ride suspension, bike rack, misc. options - FY 2010 = \$310,000/vehicle.

- Paratransit Performance Review and Taxi Voucher Feasibility Study:** This study would bring in expertise on paratransit performance, scheduling, and dispatching to review the current paratransit program, including user policies, the contract terms, performance assessment, scheduling and dispatching, and service quality issues. It would include possible recommendations to improve service and reduce costs. These could include enhanced travel training for persons needing mobility options to the private vehicle (which might be addressed by Citizen's Services programs), or more specifically, transit travel training to assist paratransit users in shifting trips to fixed-route transit. Another element would address the feasibility of the proposed taxi voucher program, including the capabilities of the taxi industry in Howard County and the administrative requirements. It should take place in the near term. \$30,000 has been included for this study.
- Bus Stop Assessment:** This study would build upon the existing bus stop inventory and shelter plan to perform an assessment and updated inventory of all the County's bus stops, using the assessment guidelines developed for the Washington region. It would form the basis for a prioritized annual bus stop improvement program that could be implemented on an on-going basis over subsequent years. The timing could wait somewhat. \$50,000 has been included for this study.

- **CTCTS Scoping Study:** The Town Center redevelopment activity calls for this study to determine the size, functions, amenities, locations, and access requirements for a new, attractive, long-term transit transfer center at the Town Center. It should also address potential site locations, funding and roles of the County, MTA, and property owners in the construction and operation of this facility. This project could involve a number of parties, and so \$100,000 has been allocated for this project.

## POLICY GUIDELINES

The previous chapter included a discussion of alternatives regarding transit service policies. A proposed policy list was included. The PTB, CTC, First Transit, the County and other stakeholders should participate in a review of these policies, with revisions made and a final policy adopted through an appropriate process to indicate that this is the County policy. Appendix 1 presents the recommended policies and guidelines.

## REGIONAL CONNECTIONS

As noted in Chapter 2 there is a substantial amount of transit service provided in Howard County by other entities to provide regional services linking County residents with jobs and services in other jurisdictions. The MTA provides transit services linking the County with Baltimore through its Regional Express (Route 150) and Commuter Bus programs (Routes 310, 311, and 320), and with Silver Spring and Washington through the Commuter Bus program (Routes 915, 929, and 995). CTC provides service in Howard County on the C and E routes linking areas of the County with Laurel, in Prince George's County.

Howard County makes a contribution toward the local share of the CTC routes, but the MTA services are operated by the state. However, in the course of the TDP, the outreach effort did attract some comments about the regional services. The major comment, which is included here for consideration by the MTA, is that the services to and from Baltimore need improvement. Low frequencies, a need for more reverse commute orientation (more outbound morning/inbound evening trips) and long overall travel times were mentioned in public meetings and submitted as comments. A related issue is the expressed need for some kind of transportation service for third shift employees, both within the County and regionally.

Subsequently, a loss of funding led MTA to propose eliminating the 310, 311, and 320 routes, based on its assessment that there are a limited number of daily riders who would be affected. Following vehement opposition from the County Delegation and County Council, County Executive's Office, representatives of numerous organizations and individuals, Howard County and the MTA have reached an agreement that will result in the continuation of these routes but with reduced service levels.

Beyond the immediate concerns of preserving these services, other issues remain in terms of future development. One issue for the 310/311 routes is the focus on park and ride services. A potential rider with a vehicle (needed to access the park and ride service) may well find that once they are in the car it is faster to drive to downtown Baltimore, and so they continue in the personal vehicle because the disincentives to drive into Baltimore are not as great as is the case in Washington. Also, with regard to the Route 150, employers in the US-40 corridor have noted that reverse commute trips are not very feasible without local operation along US-40, as outbound morning workers will not have a car waiting for them at the park and ride lots, and making the connection to the Yellow Route is not always possible and it adds a great deal to the overall travel time.

Another regional route of concern is the Route 320 service between Laurel and Baltimore via US-1 and I-95. The Route 320 coverage on Route 1 is very similar to the Howard Transit Purple Line, though the schedules only overlap for about half of the peak due to the fact that the 320 is peak only, and the Purple Line runs all day, into the early evening. It is possible that more detailed study of ridership patterns on both the HT Purple and the 320 could result in services that would meet rider needs while reducing costs, with State support to the extent that regional connections are addressed by a combined service.

Some public comment suggested that both the US-40 corridor and US-1 toward Baltimore should have local service all the way into Baltimore, perhaps more comparable to the WMATA services on US-1 south from Laurel, or on Route 29 south from Laurel and Burtonsville. However, one significant difference is that the Baltimore services would be bus all the way into downtown (rather than connecting to a Metrorail line), with long travel times that would not be very attractive to Howard County residents. Another cost factor is that MTA's Howard County services are all "commuter" services (peak-hour, peak-direction with limited stops) under the Americans with Disabilities Act, which means that MTA does not have to provide Mobility ADA complementary paratransit in Howard County.

Howard County appreciates having the regional connections, and the point here is to suggest that there are County residents who have requested an additional review

to see if transit options to Baltimore can be made more attractive in terms of travel time and frequency. They did not request that the services be eliminated, but rather seek improvements which would hopefully increase ridership.

## LAND USE AND TRANSIT PLANNING

The assessment of transit performance and the stakeholder input have both revealed that Howard County is a difficult environment in which to provide efficient and attractive transit. The low-densities, the spread of activity centers, and the road and street layout developed in the 1960's around auto use lead to transit services that are circuitous, long routes, higher costs, and a system that will always have lower productivity measures. Much of this cannot be changed, or not within the near term. At the same time, there is a lot of land that will accommodate growth, and that growth should be more supportive of transit. Also, developers should be encouraged, and where appropriate, required to provide support for transit facilities or services as they accommodate the population growth. There are several recommendations that could be supportive of transit.

The County currently reviews development applications for their transit impacts, and makes recommendations on site changes that may be needed to improve transit access, including shelter/stop needs, etc. This activity focuses on the site plans of individual projects, and it has the County's Pedestrian Master plan and its guidelines as a major focus. This TDP calls for a Bus Stop Assessment that would complement the Pedestrian Master Plan with specific guidelines for transit stops and their linkage with the pedestrian system. Planning and Zoning should continue with the project review process, providing comment on project plans to seek better transit and pedestrian linkages, project by project.

Another area of consideration to support transit would be a change in County policy (which might require state legislation) to allow the excise taxes on new development to fund transit improvements as well as highway improvements. Work on this policy change could well be significant in the context of the Columbia Town Center redevelopment, in which the proposed plans of the both the County and the developer call for a more transit-supportive design.

Although Howard County does not have a proffer system in which developers offer public improvements as part of the approval process, there have been voluntary efforts to include transit in the development conditions. In Maple Lawn, the developer included a Transit Management district in the overall plan, providing for a yearly fee to be collected from each residential unit and from commercial property (on a square footage basis) to support transit services and activities. The County should consider



amending zoning definitions and regulations to require Transit Management Districts or similar mechanisms (including public-private partnerships) for certain types of developments, where needed, to support provision of public transit services.

Finally, an issue raised during the course of the study is the lack of due consideration of the current or planned availability of transit in the location of housing for persons 55 and above (older adults). While the current project review process would allow Planning and Zoning to note that a particular project is not, or will not, be served, there is no legal mechanism that would allow the County to require that such housing be built on transit routes. The concern is that even if current residents of such developments do not need transit, at some future time there will be a call for expanded transit service that may not otherwise be cost-effective, and that the County will be under pressure to provide this service to address the needs of a concentration of older adults. One positive factor is that most such developments are at higher densities, and the higher density zoning tends to be in areas with transit service.

Additional policy consideration is needed to help develop the policies and procedures that would help in guiding appropriate development to the available services, supporting transit use through transit- and pedestrian-friendly site design, and seeking support for transit access (as well as road and street improvements) from the development community.

## RESULTS

Implementation of this TDP would result in a significant improvement in the quality and coverage of transit services in the County, including the following key changes:

- **Frequency Improvements:**
  - Thirty-minute peak hour headways on the Green, Red, Brown and Silver Routes.
  - Thirty-minute mid-day service on the Green Route (linking the Town Center with Howard County General Hospital and Howard Community College).
- **Expanded Coverage:**
  - BRAC commuter service will link Columbia, Clarksville, and the Gateway/Jessup area to NSA and FGGM,
  - Ellicott City served by three routes linking it to Columbia and to Elkridge/Dorsey MARC,

- Maple Lawn/APL/Montpelier Research Park and Cedar Lane will be connected to Columbia Town Center.
  
- **Town Center:**
  - New higher-frequency transit services linking the Town Center to much of Columbia.
  - New high-frequency shuttle services in the Town Center.
  - Planning (and hopefully construction) of a new Transit Center in the Town Center, linking all routes and services.
  
- **Paratransit:**
  - Capacity increased to address the growth in the population using this service.
  - Taxi subsidy program, transit travel training, and policy and management changes to manage demand, improve service, and better utilize these resources.

The program laid out in this study was developed to a great extent as the result of the substantial community input throughout the process. With the continuing support of the community this program can be achieved, even if it stretches beyond the five-year horizon of a TDP.