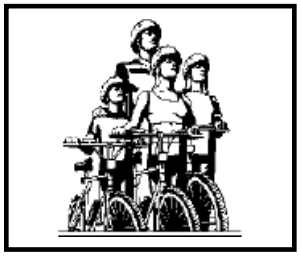
Frederick County
Master Transportation Plan

Transit

Highways



Pedestrians & Bicycle

Airport

Adopted December 2001

Prepared by

Department of Planning and Zoning
Division of Public Works

Frederick County

Master Transportation Plan

Adopted December 18, 2001

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Chapter 1

Introduction

The history of transportation planning in Frederick County dates back to 1959 when the County adopted its first Land Use and Master Highway Plan. The Master Highway Plan consisted of a map depicting what would for today be considered an aggressive plan for new highways throughout the County. As has been the case in jurisdictions throughout the metropolitan area, subsequent updates of the highway plan have resulted in many of the proposed highways being deleted for a variety of reasons including environmental impacts and property impacts among others.

Beginning in 1984 the County established a land use planning process based on planning regions that provided the basis for the detailed land use plans and highway plans. This regional approach has diminished somewhat the countywide perspective for transportation planning particularly with regards to the highway plans.

Purpose of the Plan

An obvious and perhaps the primary purpose of the this plan is to provide for a countywide focus for transportation planning. Aside from the countywide focus of the plan are a number of other goals that this plan will address.

- Compile into one document the goals, objectives, policies, and projects of individual transportation plans, reports, and studies.
- Improve the implementation of multi-modal planning in the County and ensure coordination efforts with county and state agencies.
- Provide guidance to County officials with regards to transportation policy, funding decisions, and strategic planning efforts.
- Identify a comprehensive list of short-term and long-term transportation projects.
- Establish a basis for identification and analysis of additional transportation needs including the prioritization of projects in the short-term programs.
- Address the transportation needs of the public and businesses.

Context with County Plans and Programs

The Countywide Comprehensive Plan, last adopted in 1998, has provided for the general guidance regarding the various transportation elements including highways, transit, and bikeways. The Countywide Plan identifies a number of policies for the highway and non-highway transportation systems that are implemented through the regional plans and through plans and studies specifically addressing transportation needs. Existing policy and goal statements from current plans and studies are included in this plan as well.

This Plan will supplement the current Countywide Comprehensive Plan and will provide a countywide context for the regional plans as well as for plans and studies addressing other transportation modes such as transit and bikeways.

In 2000 the County initiated a strategic planning process that has identified specific goals and objectives related to long range financial planning, providing adequate funding for the County's infrastructure needs, and assuring orderly growth.

Update Process

The Plan update process will be divided into an annual review for the short-term projects/priorities and a five-year update cycle that will address the long-term projects and the overall policy direction.

Annual Transportation Priorities Review

- Review would identify priorities that would be addressed in upcoming CIP preparations for highway, transit, bikeway/pedestrian facilities, and the airport.
- The following groups would be part of the review process: County Planning Commission, Roads Board, Transportation Services Advisory Council, Frederick COG, State Delegation and the Board of Commissioners. Public input would be allowed via the individual meetings of these boards and commissions.
- Identify revisions to the short-term projects based on current CIP programs from the County and the State.
- Assess implementation of the action recommendations.

Master Transportation Plan Update

- Update would focus on the general policy direction and revisions to the long-term projects. The update would occur either as part of the Countywide Comprehensive Plan update that occurs every 7-8 years, or on a five-year update cycle on its own.
- Assess implementation of the actions recommendations and identify new or revised recommendations.
- Conduct countywide traffic modeling/travel forecasting study. Alternatively, this could be conducted as part of the individual region plan updates.

Multi-Modal Approach to Transportation Planning

An important purpose of this plan is the consideration of all modes of transportation in addressing the mobility needs of the County. This is a significant departure from the early

County plans that focused solely on highways. While this plan recognizes that automobiles will remain as the most prevalent means of transportation it also emphasizes the need to provide for a more balanced transportation system. This becomes more apparent when one looks at the proportion of the population that cannot make use of an automobile due to: age, too young and the elderly; having a physical or mental disability; or not being able to afford an automobile. Based on the 1990 Census approximately 35-40 % of the County's population fit into one of these categories. For 2000 we would expect this proportion to be higher based on increases in the minimum driving age and continued increase in the elderly population.

The focus of a balanced, multi-modal transportation system needs to be on providing mobility for people and not just automobiles. In many communities that have focused primarily on building additional road capacity this can be a significant departure in the mindset for addressing the increasing level of congestion. Many people, including planners, elected officials, and the public will agree that we will not be able to build enough road capacity to ever provide a significant relief to congestion. In many areas, and Maryland fits this category as well, the increase in vehicle miles traveled (VMT) is far outpacing the rate of population growth and the ability of communities to increase road capacity. In Frederick County VMT on all roads, state and county, has increased by 145% since 1980 while the County's population has increased by 70%. The difference is even more dramatic when travel only on County maintained roads is considered. The VMT on the County maintained road system increased by 214% since 1980, over 3 times the rate of population growth in the same period. This situation requires communities to improve transportation choices such as transit and bicycle facilities in an effort to address the shortfall in road capacity.

To provide a balanced transportation system, that meets the needs of the transportation disadvantaged and others that are able to use an automobile, will require the County to focus on two basic approaches to transportation or mobility planning: travel demand management and support of alternative transportation modes.

Travel Demand Management (TDM)

Travel Demand Management (TDM) takes the approach that rather than continually looking to expand road capacity in an attempt to meet the travel demand, that strategies be implemented to reduce the demand for automobile use in the first place. It is important to note, however, that while the focus for TDM strategies have been on the typical work trip during the morning and evening peak hours, many communities are finding that non-work trips related to shopping, running errands etc. during the mid-day and on weekends represents a greater proportion of the total traffic.

Some of the TDM strategies used by communities are listed below and are almost exclusively oriented to work related trips.

- Employer sponsored carpool and vanpool matching
- Stagger work schedules and flextime
- Telecommuting
- Subsidize transit fares
- Provide bicycle racks and shower facilities for bicyclists
- Provide preferential parking for carpools
- Have solo commuters pay for parking

While many of these strategies can be implemented through local government programs some jurisdictions have required new businesses to either set up or join existing transportation management associations (TMAs) that are responsible for funding and administering various TDM strategies for a single business or in some cases for an entire office park.

Supporting Alternative Transportation

For a TDM program to be successful there must be alternatives available that meet the needs of workers and others looking to reduce their dependence on the automobile. Transit service would be the primary alternative though bicycle and pedestrian facilities can also provide opportunities to reduce automobile use.

For transit to be considered a viable alternative to the automobile it must be accessible, convenient, and affordable. The County's Transit Development Plan (TDP) prepared by the KFH Group in 1998 cited several factors that must be addressed to make a community transit friendly.

- Location in relation to transit service area – New development, particularly those that may generate transit dependant population should be located within existing or proposed transit service areas.
- Land uses and the density of development – The most critical of these is density where there is a very strong, direct relationship between the densities of residential and commercial/office development and generation of transit ridership.
- Quality of surrounding pedestrian environment – Anyone accessing transit will need to walk some distance to access either a bus stop or their destination. Providing pedestrian access that is safe, direct, and comfortable is another critical factor to encourage people to use transit.
- Overall site design/orientation to major roads – This addresses the concept called transit oriented development whereby buildings, particularly commercial and office buildings, are located closer to the street which makes them more accessible to centrally located bus stops and also reduces the walking distance between a bus stop and front door of the business.

Pedestrian and Bicycle facilities can also be a viable alternative especially for short trips related to shopping, running errands, and some work trips. As with transit there are a number of factors that can influence and encourage more people to walk or ride a bike for certain trips.

- Develop an interconnected street pattern that provides for convient and direct pedestrian access through neighborhoods.
- Integrate residential, commercial, and office uses to allow for greater opportunities to walk to the store from home or walk to lunch from the office.
- Construct sidewalks along all roads and especially provide for more pedestrian friendly street intersections.
- Transit oriented development concepts are also pedestrian friendly by creating more interesting streetscapes and by reducing the distance between the street and the businesses.

Chapter 2

Transportation Plan Elements

In keeping with the multi-modal approach this plan includes a comprehensive and diverse list of transportation elements. It is important to note that the projects associated with each of these elements are already identified in existing plans, programs, or studies. This plan represents the first phase of a multiphase process to identify and assess transportation projects that are currently planned followed by an assessment of additional transportation needs. The following transportation plan elements are discussed.

- Transportation and Land Use
- Historic Transportation Facilities and Resources
- Highways
- Transit
- Bicycle and Pedestrian
- Airport

For each of the elements, goals, objectives, and policies from current plans will be identified. This will provide an opportunity to assess the consistency between the various elements to provide for a balanced transportation system.

The projects identified for each element are divided into short-term projects and long-term projects.

Short-term projects - These projects are included in current capital improvement programs or similar documents and are expected to have construction begin by 2007.

Long-term projects - These projects are expected to be constructed beyond 2007 during a 20+-year time frame. These projects are identified in long range planning documents and in the County's regional plans.

All of the short-term and long-term projects are described in individual tables within each of the plan element descriptions. The scopes of the projects are described along with the cost estimates that include design/engineering, right-of-way, and construction.

Transportation and Land Use Coordination

To support a balanced transportation system including opportunities for walking, bicycling, or using transit attention must be focused on the relationship between land use development and transportation. The predominance of the automobile during the past 50 years has itself resulted in land use patterns that are characterized by low density, sprawling development.

The role of land use relates to the ability to reduce the dependence on the automobile and create a more balanced transportation system. How land use can affect the mode of travel in a community can be addressed at two different levels, at the community/ regional level and at the individual site level.

Community/Regional Land Use Planning

The greatest opportunity to affect transportation and accessibility occurs when planning at the regional level. Many communities are now realizing that you can't pave your way out of congestion by only building new roads or widening existing roads. This dilemma has shifted the focus to the demand management side and specifically the role that land use planning can play. Reid Ewing in *Transportation and Land Use Innovations* identifies two types of accessibility that can be addressed through better land use planning.

Residential Accessibility - This describes the proximity between one's residence and activities such as work, shopping, recreation, entertainment, school etc. The relationship between one's home and these activities "affects the length, mode, and arguably, even the frequency of home-base trips" (Ewing).

Destination Accessibility – Ewing describes this as the proximity of various activities, such as shopping, school etc., to one another which affects a persons ability to access several different activities in a single trip, what is also referred to as a linked trip. Shopping centers by their design can accommodate several different activities in one location that helps to reduce the number of trips a person must make. One example of an opportunity to improve destination accessibility involves mixing commercial uses within office parks to allow workers to go out to lunch or deal with errands without having to drive at all or at least significantly reducing the trip length.

Perhaps the greatest opportunity for land use to affect automobile trips lies with the non-work trips that now account for a significant portion of daily trips. Addressing the concept of residential accessibility whereby residential areas are integrated with activities such as shopping, schools, libraries, parks etc. can encourage people to walk or ride a bike. At the very least this integration could reduce the number and length of automobile trips that are necessary. The goal of having mixed uses in a community is to internalize (Ewing) as many trips as possible to keep them off of the regional road network.

Jobs/Housing Ratio - In addition to having relatively compact and mixed communities is the need to have a balance between jobs and housing within a region or community. This balance when combined with compact development pattern has been judged to provide the greatest affect on improving travel speeds and reducing vehicle miles traveled (VMT). The Countywide Comprehensive Plan includes a policy to have a job to housing ratio of 1.2 : 1. While this ratio is for the County as a whole, this or a similar ratio can also be applied on a

regional level to ensure that individual communities have a balance between the number of jobs and housing.

Site Development

At this level the design of individual sites can be modified to facilitate alternative modes of travel including transit, walking, and bicycling. The most important design feature to accomplish this involves orienting the buildings to the street and locating them closer to the sidewalk rather than setting them back behind a huge parking lot. This type of design is consistent with transit oriented development guidelines that seek to improve the efficiency and use of transit by encouraging development to be concentrated within a ¼ mile of a transit stop. The orientation of commercial uses closer to the street may also improve its compatibility with adjoining residential uses and thereby encourage more walking.

For residential development a key design feature involves the use of interconnected street patterns similar to what is found in older communities and in newer neo-traditional developments. An interconnected street network provides for more direct pedestrian access both within a neighborhood and between the neighborhood and adjoining uses. This type of street network also helps automobile trips by providing alternatives for local trips without having to travel on nearby arterial roads.

Smart Growth

The State's Smart Growth initiatives, adopted in 1997, seeks to strengthen the land use and transportation connection by targeting funding only in the County's Priority Funding Areas (PFA"s) which mostly correspond to the growth areas identified on the local comprehensive plans.

Historic Transportation Facilities and Resources

Frederick County has a long history of transportation projects that have played a significant role in shaping the County. These projects include bridges, highways, railroads, and the C&O Canal. Many of these facilities are still in use today and serve as an integral part of the County's transportation system while some facilities have either been abandoned or are sitting vacant. In one form or another they still represent a part of Frederick's culture and history that warrants their identification, protection, and where feasible adaptive reuse.

Highways and Bridges

In 1805, the Baltimore-Fredericktown Turnpike Company was franchised by the state to construct a road from Baltimore to Boonsboro as part of the link with the first turnpike authorized by the U.S. Congress - the National Road, which started in Cumberland, Maryland, and extended to the Ohio River Valley and the West. The turnpike section in Frederick County was completed by about 1820, mostly following routes already in use. The route is currently traced by MD Route 144 and U.S. Route 40A (now referred to as Old National Pike). In the eastern part of the County, the Pike followed the valley of Bush Creek to ease the passage through the Piedmont Uplands. In the Frederick and Middletown Valleys, the turnpike was relatively straight across the lower rolling topography and crossed the ridges of Catoctin Mountain and South Mountain at Braddock Spring and Turner's Gap. Along its route were erected taverns, stables, inns, wheelwright and blacksmith shops, and

tollhouses, often near bridges or crossings with other existing roads. Subsequently, other turnpike companies were formed to improve the existing routes from Frederick to Harper's Ferry, Woodsboro to Taneytown, and Libertytown to Reisterstown.

The Federal government's highway construction program during the 1930's, one of many restorative measures to provide work as well as to improve the road networks, caused the relocation of a section of the Old National Pike between Frederick City's western edge and the Washington County boundary. The original turnpike road became an alternate of the straighter, two-lane road which ran northwestward across the Middletown Valley without passing through the center of the old towns and villages, taking advantage of the greater speeds possible with new cars. The old stone, iron, and steel bridges were replaced or left abandoned, and new poured concrete bridges or ashlar stone bridges were built on the new route.

Frederick County is home to a number of historic bridges. These include three covered wooden bridges located in Utica, Loy's Station, and near Thurmont on Roddy Rd. All of these date to the 1860's and are listed in the National Register of Historic Places. In 1991 the County had 42 bridges of iron or steel truss design that were built during the late 19th and early 20th century. Approximately 20 of these bridges are in active use, with many of them having been rehabilitated and maintained as part of the County's road network. The County has been able to preserve several of the truss bridges for use in local parks or in some cases relocated to roads that are less traveled. The most impressive bridge is the Legore Stone Arch Bridge that spans the Monocacy River north of Woodsboro. This bridge was constructed in 1900 and is listed on the National Register of Historic Places.

Railroads

Further advances in the transportation of goods to market came to Frederick County in the early 1830's. Construction of the world's first railroad, the Baltimore and Ohio Railroad (B&O), began in 1828 starting from Baltimore in its route west to the Ohio Valley. The B&O reached Frederick in 1831 and was extended through the County to Harper's Ferry by 1834. It is interesting to note that the first few years of operation involved using horses and mules to pull the rail cars until the steam locomotives were sufficiently refined to be put into service.

Along its length, coal and water stops became important to farmers and rural industries as shipping and delivery points of mail stops. On the Bush Creek section east of the Monocacy River, the railroad linked some previously existing mills such as those at Monrovia and Ijamsville, stimulating the development of villages where there were previously only small stores and shops related to the mills. Slate deposits near Ijamsville were mined as early as 1800, but the B&O railroad access was responsible for its greatest period of operation from 1831 to about the 1920's. Frederick Junction was the point at which a spur from the town of Frederick met the main line and, consequently, was of great strategic importance in the economic development of the Frederick vicinity and, later, in military movements during the Civil War. The route to Point of Rocks ran through the lucrative agricultural land of Carrollton Manor. The towns of Lime Kiln, Adamstown, and Doubs developed as a direct result of the railroad, and Point of Rocks became important as the junction of the main line and the Metropolitan Branch of the B&O, which was built in 1870-1873.

There are three remaining passenger stations associated with the B&O in Frederick, Point of Rocks, and Brunswick. Only the Frederick station has gone through an adaptive reuse as a

community center for the City while the other two stations are currently used as MARC commuter rail stations though the buildings themselves are vacant.

In the northern part of Frederick County, the Western Maryland (WM) Railroad extended its line from Baltimore to Hagerstown over several years, from 1853 to the 1880's. In Frederick County, its line passed from Union Bridge at the Carroll County border through Rocky Ridge and Mechanicstown (Thurmont) by 1871. The Emmitsburg Railroad, an 8-mile run, linked the town of Emmitsburg to the WM line at Rocky Ridge by 1875. The Pennsylvania Railroad built a branch from York, Pennsylvania, to Frederick, opening in 1873 and linking Georgetown (Walkersville), Woodsboro, New Midway, and Ladiesburg. The western part of Frederick County remained somewhat isolated, especially north of Middletown where the roads were still often impassable. The Middletown Valley was not affected by railroad technology during the Agricultural-Industrial Transition period except at the southern end where farmers could reach the B&O Railroad line along the Potomac River.

Electricity was first provided as a subsidiary service by the Hagerstown & Frederick (H&F) Railway, the interurban electric trolley system founded in 1896 to aid Middletown Valley farmers in transporting their farm produce to the railroad junctions in the Frederick area. Braddock Heights Park and the summer colony of Braddock Heights on Catoctin Mountain were both direct outgrowths of the H&F Company's efforts to attract subscribers and ridership to supplement the freight hauling revenues, which grew slowly. At its peak the H&F had a total of 80+ miles of track connecting Thurmont, Frederick, Jefferson, Middletown and Myersville with Hagerstown and other parts of Washington County. As the automobile became more common ridership on the H&F declined during the late 1920's and through the 1930's resulting in portions of the railroad to be closed and abandoned. After a resurgence of ridership during World War II the H&F was slowly abandoned with the last portion between Thurmont and Frederick finally closing in 1958.

The right-of-way from the H&F and other railroads provides an opportunity for converting the old rail alignments to hiker/biker trails. These rail-to-trail conversions could assist in documenting the County's railroading history and also provide a valuable recreational and transportation resource.

Much of the right-of-way from the H&F is intact since the electric lines are still located within the right-of-way though the ownership has likely been split among the adjoining properties.

C&O Canal

Construction of the Canal in Georgetown started the same day in 1828 that work began on the B&O Railroad in Baltimore. The Canal reached Frederick in the early 1830's and ultimately only made it to Cumberland, short of its goal to extend to the Ohio Valley. Despite having the B&O running parallel to the Canal, the Canal was able to maintain a fairly steady flow of business though periodic floods of the Potomac River ultimately ended its use in the 1920's.

The Canal towpath corridor was eventually turned over to the National Park Service and remains as a significant historical and recreational resource for Frederick County and the Washington region.

US 15 Civil War Battlefields Scenic Byway

Frederick County and the State Highway Administration seek funds to prepare a Corridor Management Plan (CMP) for the 40 miles of the historic U.S. Route 15 corridor, which traverses the County from the Potomac River on the south to the Maryland/Pennsylvania border on the north. This Corridor Management Plan project will include:

- Create an inventory and analysis of the intrinsic qualities which form the Byway's story
- Develop public outreach, involvement, and participation
- The preparation and production of a series of maps
- The investigation of various management strategies and options which could be implemented to preserve the long-term integrity of the Byway
- The preparation and printing of the Corridor Management Plan document.

This project will meet the Corridor Management Plan requirements of the National Scenic Byways Program. The State of Maryland plans to explore National Scenic Byway designation for this significant heritage corridor.

Maryland's Historic National Road Scenic Byway

Under the Federal Highway Administration's Scenic Byways Program the State of Maryland has initiated work on a corridor partnership plan for Maryland's Historic National Scenic Byway. This plan is part of a multi-state effort to gain an All-American Road designation for the National Road.

In Frederick County, the route follows MD 144/Old National Pike from Mt. Airy to Frederick City and then follows US 40 and US 40 Alternate westward to the Washington County line. The National Road has played a significant role in the development of several Frederick County town's including Mt. Airy, New Market, Frederick, and Middletown, and Braddock Heights. The National Road also relates to numerous Civil War sites in Frederick, the Middletown Valley, and on South Mountain.

The Corridor Partnership Plan will address the following:

- Preserve the historic, scenic, and natural resources along the route
- Develop and enhance the route to attract visitors and increase tourism
- Celebrate the heritage of the corridor and tell its stories
- Maintain the high quality of life found along the National Road

Highway Element

The highway element is divided into the County Highway Program and the State Highway Program. Each program is further divided into short-term and long-term projects. Short-term projects are defined as those projects programmed to have construction started by 2007. It should be noted that there are a number of County projects that are included in the current FY 2002-2007 Capital Improvements Program (CIP) but do not have construction funding programmed by 2007. Long-term projects are those expected to be constructed beyond 2007 and out 20 years or longer.

Countywide Comprehensive Plan Policies

The Countywide Comprehensive Plan was last updated in 1998 and identifies a number of highway system policies to provide guidance to the County.

- The planned improvements to the highway network shall correspond to and support the overall land use plan.

- The County will limit transportation improvements in Resource Conservation and Agricultural areas to maintenance and upgrading of nonstandard roads and under-capacity bridges except where necessary to provide regional traffic movements. This objective will provide for a safe and functional road system while limiting development in these rural areas.

- The County will assign a high priority to the maintenance and enhancement of the existing County road system. Particular emphasis will be given to upgrading roads which do not meet their functional classification as found on the *Highway Plan*.

- The County will establish a transportation systems management program to ensure that transportation planning and traffic operations are coordinated at the State, County, and Municipal level. This system shall address efforts to coordinate traffic counts, site-specific traffic impact analysis, traffic modeling, construction and maintenance, as well as traffic signs, signalization, and pavement markings.

- The design of roadway improvements will take into account possible future use of the facility by public transportation, van pools, and car pools, including the provision of appropriate commuter park and ride lots and transit stops.

- New transportation improvements shall be designed to produce the least disruption to farms, existing land uses, historical sites and buildings, as well as important natural, environmental, and scenic features.

- The location and alignment of new roads shall be identified in advance of future need to coordinate establishment of right-of-way requirements and access control. Transportation Demand Management (TDMs) options such, as ridesharing will be employed to reduce the need for major highway improvements.

- The design of new roads and upgrading of existing roads should incorporate safe and comfortable pedestrian and bicycle facilities

- The design of local and collector streets in new development should incorporate sidewalks and/or pedestrian pathways to encourage walking and bicycle use.

- Priorities for highway improvements in the County's Capital Improvements Program as well as in the review of other agencies' programs will consider the roadway's existing and projected traffic volumes, level-of-service, and planned land use patterns.

Travel Forecasting and Needs Assessment

Identifying future highway needs whether it be expanding existing roads or constructing new roads can be aided by using travel forecasting analysis to project future traffic volumes. The projected traffic volumes can then be used to determine the level of congestion on road segments and at intersections. The MINUTP computer model used for travel forecasting

allows the testing of new road alignments or different land use scenarios to determine their affect on traffic levels. This analysis can be conducted for existing conditions and projected conditions at five-year increments out to the year 2025. The MINUTP model is composed of traffic analysis zones (TAZs) that include land use data for households, population, and employment at five-year increments. The model also includes the highway network with various physical and operating characteristics for each highway segment. The travel forecasting process uses the land use and highway network data to determine how much traffic is generated in a TAZ and how that traffic is distributed on the highway network. The traffic volumes generated by the model are then used to develop Level of Service (LOS) data. The LOS gives an indication of the relative levels of traffic congestion for various segments of the roadways.

Countywide Traffic Study

The Maryland Department of Transportation and the Maryland Office of Planning sponsored a Transportation Planning Assistance Grant, which was used by Frederick County to conduct a Countywide Traffic Study that was completed in 1997. A consultant was retained to perform the study that used the MINUTP computer model. A major task involved providing more detail with the TAZs compared to the zone structure set up by the Washington Council of Governments. The new zone structure divides the County into 166 TAZ's. A base year of 1995 was used with projections developed for the year 2020. Due to time and funding constraints only one model run for 2020 was conducted.
The existing road network was used for the 2020 projection to establish a baseline and identify where the congestion problems are likely to occur if no road improvements are made. Future model runs could include new road connections or improvements to existing roads to determine the effect on projected levels of congestion.

The study identified those highway segments that were experiencing LOS of D or worse in the base year for 1995 and for the forecast year of 2020. The specific results are included in the study report.

Sub-Regional Traffic Analysis Studies

In 2000 the County's Division of Public Works initiated a program for conducting sub-regional traffic studies to assist in identifying priority road improvements for inclusion in the County's six-year Capital Improvements Program (CIP). The County is divided into 13 sub-regions for the purposes of this analysis. While the primary focus is identifying traffic projections for the year 2005 projections are also developed for 2020.

County Highway Program

The County is responsible for maintaining approximately 1,215 miles of road that accounts for 67% of the total roadway mileage in the County. The County is also responsible for maintaining 210 bridge structures with a span length of 20 ft or more.

Even though the County maintains a road network three times larger than the State's network, it carries significantly less traffic. In 2000 the County's network handled 403,000,000 Vehicle Miles Traveled (VMT) while the State's 356-mile network had a VMT of 2,087,000,000. The source of this data is the State Highway Administration.

The County's highway program includes two primary components: highway operations/maintenance and the capital program. The capital program can be further divided into three categories that are described below.

- Roads – This category includes major projects involving reconstruction or widening of existing roads and the construction of new roads.

- Bridges – This category addresses the rehabilitation and replacement of bridge structures primarily to address weight restrictions that exist on many of the County's older bridges.

- Highway Maintenance – This category includes several maintenance related items involving road overlay or repaving, stabilization of gravel roads, and traffic signal installation.

The County's highway operations encompass items such as general administration/staffing, equipment purchases, snow removal, minor repairs of roads and bridges, and safety/spot improvements.

The short-term projects described in Table 1 are included in the County's FY 2002-2007 CIP and are expected to have construction initiated by 2007 (not all are funded). Those CIP projects that are not expected to be under construction by 2007 are considered long-term projects that are described in Table 2. Most of the long-term projects have been identified in the County's 20 year Infrastructure Needs Assessment. Many of the long-term projects reflect new road alignments identified on the County's regional plans.

How a County Road Project Gets Built

Step 1 The Region Plan

The County's eight region plans identify new road alignments as well as providing some indication on the need to upgrade or widen existing County roads. The region plans are looking at needs over a 20-year time frame and are updated every 7-8 years. The public has an opportunity during the updates to comment on needed improvements to County roads.

Step 2 20-year Infrastructure Needs Assessment

This needs assessment was first developed by the County in 2001. The road projects are taken from the County's region plans. The Needs Assessment does include very conceptual costs for the improvement though it does not establish any kind of priority for funding the projects. This document includes both short-term and long-term projects and is updated on an annual basis.

Step 3 Capital Improvements Program (CIP)

The CIP identifies projects that will be funded during the next six-year period and is revised on an annual basis. The County staff identifies the recommended projects to be included and when within the six-year time frame they would be funded. The public does have an opportunity to comment on the projects and their schedule as part of the review process that takes place during the late winter and spring. The Board of Commissioners approves the CIP by the end of June each year.

Step 4 Planning, Design, and Construction

Once a project is included in the CIP it must go through several phases that may take 4-6 years.

Phase 1 – Planning – Identifies the scope of the road improvements that may include several alternatives. Comments are solicited from the public and a final recommendation is presented to the County Commissioners for approval.

Phase 2 – Design – Typically a consultant is brought in to prepare the design and engineering drawings. In the later part of this phase the County would begin purchasing the necessary right-of-way for the project.
Phase 3 – Construction – Once the design and engineering work is completed then bids are solicited from contractors to build the project.

Glossary of Improvement Types

Construct – build a new facility that did not previously exist
Widen – increase the number of lanes on an existing facility
Upgrade – improve the design standards of an existing roadway w/ same number of lanes
Relocate – construct an existing facility on a new right-of-way
Reconstruct – modify an existing facility, i.e. shoulder paving, geometric improvements, with no capacity increase
Replace – construct a new bridge to replace an existing bridge structure
Rehabilitate – repair an existing bridge structure to increase the weight capacity
Study – review alternative transportation improvements as part of a project planning or preliminary engineering phase

Table 1

County Highway Program – Short Term

Source: Frederick County Capital Improvements Program FY 2002-2007

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
F-7	Br-07-10	Covell Rd. Bridge over Little Bennet Crk.	Reconstruct Bridge	UR	$499.30	2002
C-3	Br-16-15	E. Church Hill Rd. Bridge over Middle Crk.	Reconstruct Bridge	MD	$127.37	2002
H-4	Br-19-04	Unionville Road Bridge over the North Fork of Linganore Creek	Reconstruct Bridge	WA	$202.61	2002
I-1	Br-19-05	Unionville Road Bridge over Weldon Creek	Reconstruct Bridge	WA	$202.61	2002
F-4	Br-26-12	Water Street Road Bridge over Israel Creek	Upgrade to a two-lane bridge and approaches	WA	$1,752.72	2002
F-6	Br-07-24	Big Woods Road Bridge over Bennett Creek	Replace Existing Arrow Panel Bridge	UR	$1,273.19	2005
B-5	Br-22-16	Gapland Road Bridge over Broad Run	Upgrade to a two-lane bridge and improve approaches	BR	$1996.58	2007

C-5	Br-03-10	Bidle Road Bridge over Catoctin Creek	Upgrade to a two-lane Bidle Road Bridge	MD	$1,144.81	2007
C-5	Br-22-03	Poffenberger Road Bridge over Catoctin Creek	Rehabilitate Existing Bridge	BR	$663.36	2007

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
B-6	Br-12-02	St. Marks Road Bridge over Broad Run	Rehabilitate existing Bridge	BR	$262.13	2007
F-6	Br-07-22P	Ball Road Bridge over Peter Pan Run	Replace multi-culvert pipe Bridge	UR	$631.26	2007
D-6	Br-01-02	Ballenger Creek Pike Bridge over Tuscarora Creek	Upgrade to a two-lane Bridge	AD	$706.20	2007
G-2	Br-05-11	Sixes Road Bridge over Toms Creek	Upgrade bridge	TH	$1,379.11	2007
C-5	Br-03-08	Bennies Hill Road Bridge over Catoctin Creek	Rehabilitate Bridge	BR	$588.41	2007
F-2	Br-04-05	Old Mill Road Bridge over Owens Creek	Rehabilitate One lane Bridge	TH	$485.73	2007
F-6	Br-09-09	Reels Mill Road Bridge over Bush Creek	Upgrade to a Two-lane Bridge	UR	$1,323.00	After 2007
F-3	Br-04-10	Legore Bridge Road Bridge over Monocacy River	Rehabilitate One lane stone arch Bridge	WA	$463.00	After 2007
G-5	Br-09-21P	Gas House Pike Bridge over Linganore Creek	Upgrade to a Two- lane Bridge	NM	$686.50	2007
E-3	Br-15-01	Hessong Bridge Road Bridge over Hunting Creek	Upgrade to a Two-lane Bridge	TH	$850.00	After 2007
C-4	Br-03-13	Pete Wiles Road Bridge over Little Catoctin Creek	Upgrade Bridge	MD	$1105.00	After 2007
B-3	Myer Sat-Facil	Satellite Facilities	Improvements to the Myersville Facility	MD		2003
D-6	Jefferson	Satellite Facilities	Purchase and improvement	BR		2004

		to the Jefferson Facility		
Lower	Satellite Facilities	Lower Yard	N/A	2004

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
		Roads Overlay	County Wide		$6,259.00 Varies	Annual
		Infrastructure Maintenance	County Wide		$7,815.00	Annual
		Roads Stabilization	County Wide		$290.00 Varies	Annual
C-5	Fnt Sub	Fountaindale Subdivision	Reconstruction and/or overlay of the entire subdivision	MD	N/A	2006
	Main. Exp	Maintenance Shop Expansion			N/A	2007
		Road Signalization	County Wide		$844.60	Annual
E-5	Rd-1137	Crestwood Boulevard	Rehabilitate from New Design Road to Burning Bush Drive			2006
G-5	Rd-365	Mussetter Road	Upgrade existing road from Royal Saint Andrews Place to Hyatt Road East	NM	$85.00	2006
G-5	Rd-412	Boyers Mill Road	Upgrade existing road from Gas House Pike to Old National Pike	NM	$7,240.08	2005
F-5	Rd-323	Quinn Road	Upgrade and relocate MD. Rte 144 to Hall Road	NM	$2,503.74	2003
C-6	Rd-1056	Livingston Drive	Rehabilitate existing road from Roundtree Road to Horine Road	BR	$1,080.56	2006
F-5	Rd-363 Ph 1	Reichs Ford Road Phase I	Upgrade from Reels Mill Road to the County Landfill	NM	$2,573.25	2005
H-6	Rd-396	Lynn Burke Road	Drainage improvements and overlay project from MD. 80 to Old Bartholows Road	UR/NM	$710.34	2006

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
E-6	Rd-882	English Muffin Way	Upgrade from MD 85 to New Design Road	AD	$1,027.11	2004
I-5	Rd-421 &425	Buffalo Road/Harrisville Road	Intersection improvements	NM	$214.95	2004
F-6	Rd-363 Ph II	Reichs Ford Road Phase II	Upgrade from the County landfill to Ijamsville Road	NM	$4,279.81	2009
G-5	Rd-580	Old National Pike (MD 144 to New Market)	Upgrade from Meadow Road to Boyers Mill Road	NM	$656.78	2008
-	-	-			-	-
F-6	Rd-368 Ph I	Ijamsville Road Corridor Phase I	Upgrade from MD 80 to the Railroad track	UR	$3,345.00	2005
F-5	Rd-368 Ph II	Ijamsville Road Corridor Phase II	Upgrade from railroad tracks to MD 144	NM	$1,518.00	2007
F-5	Rd-368 Ph III	Ijamsville Road Corridor Phase III	Construct new road from Meadow Road to Boyers Mill Road	NM	$3820.00	2010
E-4	Rd-1389	Christophers Crossing	Widen from Yellowsprings Road to Poole Jones Road	FR	$712.00	2008
D-5	Rd-227	Butterfly Lane	Upgrade from MD 180 to Mt. Phillip Road	FR	$1,447.00	2011
E-5	Rd-1239	Spectrum Drive	Widen from MD 85 to The Cul-de-sac	FR	$1,260.00	2004
E-5	Rd-569	Grove Road	Upgrade from MD 85 to MD 355	FR	$336.00	2003
E-4	Rd-97	Yellow Springs Road	Widening from the City Limits to Christopher's Crossing	FR	$2150.00	2010
D-5	Rd-207/206	Braddock Heights	Upgrade Md. Ave. & Jefferson St.	MD	$300.00	2004

Table 2

County Highway Program – Long Term

Source: Frederick County 20-Year Infrastructure Needs Assessment Study, 2001.

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
F-5	Rd-413	Gas House Pike	Widen Road from the city limits to New London Road	NM	$5,245.00	
E-5	Rd-1048	Loews Lane	Upgrade existing road from Spectrum Drive to Md. 355	FR	$216.00	
D-5	Rd-226	Mount Phillip Road	Upgrade existing road from US Rt. 40A to Mt. Zion Road	FR	$3,220.00	
D-5	Rd-146	Bowers Road	Upgrade of existing road from US Rt 40 to Shookstown Road	FR	$969.00	
C-5	Rd-208	Holter Road	Upgrade existing road from Middletown Town Limits to MD Rt 180	BR/MD	$3,948.00	
D-5	Rd-229	Mount Zion Road	Upgrade existing road from Mt. Phillip Road to MD Rt 180	FR	$465.00	
E-4	Rd-183	Poole Jones Road	Widen existing road from Walter Martz Road to Opossumtown Pike	FR	$807.00	
H-6	Rd-397	Bartholows Road	Widening existing road from Old National Pike to MD Rt 80	NM/UR	$1,876.00	
E-4	Rd-461	Devilbiss Bridge Road	Upgrade of existing road from US Rt 15 to Glade Road	FR/WA	$1,343.00	
E-5	Rd-1138	Industry Lane	Upgrade the existing road from Guilford Lane to Grove Road	FR	N/A	
C-6	Rd-287	Mountville Road	Upgrade existing road from Lander Road to Ballenger Creek Pike	BR/AD	$2,740.00	

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
H-6	Rd-402	Penn Shop Road	Upgrade existing road from MD Rt 80 to MD Rt 27	NM	$2,181.00	
F-4	Rd-482	Fountain Road	Upgrade existing road from Biggs Ford Road to MD Rt 194	WA	$966.00	
E-5	Rd-1047	Holiday Road	Upgrade existing road from Spectrum Drive to MD Rt 355	FR	$641.00	
H-5	Rd-580	Old National Pike	Upgrade existing road from MD Rt 75 to Mt. Airy town limits	NM	$3,334.00	
F-3	Rd-64	Old Frederick Road	Upgrade existing road from US Rt 15 to MD Rt 550	FR/TH	$4,260.00	
C-5	Rd-209	Old Middletown Road	Upgrade existing road from MD Rt 180 to MD Rt 17	BR/MD	$3,586.00	
I-5	Rd-1093	Prospect Road	Upgrade existing road from Old Annapolis Road to Mt. Airy town limits	NM	$430.00	
H-6	Rd-400	Clarksburg Road	Relocate road from MD Rt 80 to Montgomery County Line	UR	$374.00	
F-6	Rd-365	Mussetter Road	Upgrade existing road from Old National Pike to Ijamsville Road	NM	$1,749.00	
D-6	Rd-882	English Muffin Way	New construction from Wellington Trace to US Rt 340	AD	$2,107.00	
D-6	Rd-308	Manor Woods Road	Construct/relocate road from Cap Stine Road to US Rt 15	AD	$5,350.00	
F-4	Rd-475	Biggs Ford Road	Reconstruction and new construction from Retreat Road to Devilbiss Bridge Road	WA	$3,550.00	

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Complete Date
E-4	Rd-1389	Christopher's Crossing	Construct new road from Opossumtown Pike to US Rt 15	FR	$2,975.00	
G-5	Rd-413	Gas House Pike	Relocate from Old Annapolis Road to Linganore Crk.	NM	$3,880.00	
G-5	Rd-373	McKaig Road	Upgrade of existing road from Old Annapolis Road to Gas House Pike	WA	$1,228.00	
E-2	Rd-556	Moser Road	Relocate from MD Rt 806 to West of the Golf Course	TH	$1,390.00	
E-4	Rd-176/ Rd-475	Opossumtown Pike/ Biggs Ford Road	Construct new road from Biggs Ford Road/ US Rt 15 to Willowbrook Road	FR	$2,460.00	
E-5	Rd-363	Genstar Drive	Construct new road from Reich's Ford Road to Railroad tracks	FR NM	$1,630.00	
F-4	Rd-457	Water Street Road	Reconstruction of existing road from MD Rt 26 to MD Rt 194	WA	$5,360.00	
G-5	Rd-368	Ijamsville Road	Construct new road from Boyers Mill Road to MD Rt 75	NM	N/A	
G-4	Rd-405	Old Annapolis Road	Upgrade existing road from MD Rt 26 to McKaig Road	WA	N/A	
H-5	Rd-405	Old Annapolis Road	Upgrade existing road from Woodville Road to Jacobs Road	WA	N/A	
F-5	Br-09-21P	Gas House Pike	Upgrade bridge over Linganore Creek	NM	$725.00	
E-3	Br-15-01	Hessong Bridge Road Bridge	Upgrade bridge over Little Hunting Creek	TH/FR	$850.00	
G-3	Br-11-10P	Cash Smith Road	Upgrade bridge over Israel Creek	WA	$470.00	

Map Ref.	Project Number	Facility	Project Description	Planning Region	Estimated Cost (000)	Comp Date
F-3	Br-04-10	Legore Bridge Road Bridge	Rehabilitate bridge over Monocacy River	TH/WA	$475.00	
D-5	Br-24-01P	Mt. Phillip Road Bridge	Upgrade bridge over Ballenger Creek	FR	$350.00	
D-5	Br-24-02	Mt. Phillip Road Bridge	Upgrade bridge over Branch of Rock Creek	FR	$350.00	
E-4	Br-21-12P	Opossumtown Pike Bridge	Upgrade bridge over Tuscarora Creek	FR	$450.00	
F-4	Br-26-11P	Daysville Road Bridge	Upgrade bridge over Laurel Branch	WA	$510.00	
B-5	Br-22-15P	Picnic Woods Road Bridge	Upgrade bridge over Broad Run	BR	$365.00	
D-6	Br-01-15P	Cap Stine Road Bridge	Upgrade bridge over a branch of Tuscarora Creek	AD	$350.00	
C-3	Br-16-06X	Highland School Road Bridge	Upgrade bridge over Little Catoctin Creek	MD	$310.00	
B-5	Br-22-12P	Picnic Woods Road Bridge	Upgrade bridge over Middle Creek	BR/MD	$356.00	
B-5	Br-22-13P	Marker Road Bridge	Upgrade bridge over Broad Run	BR	$310.00	
D-3	Br-20-20	Mountaindale Road Bridge	Upgrade bridge over Little Fishing Creek	FR	$375.00	
C-4	Br-16-08	Hollow Road Bridge	Upgrade bridge over Little Catoctin Creek	MD	$375.00	
E-3	Br-20-05	Lenhart Road Bridge	Upgrade bridge over Fishing Creek	FR	$350.00	
E-3	Br-20-06	Lenhart Road Bridge	Upgrade bridge over Fishing Creek	FR	$565.00	

State Highway Program

The State Highway Administration (SHA) maintains approximately 356 miles of highway in Frederick County. While the States' system is only about 1/3 the size of what the County maintains it carries significantly more traffic. In 2000 the State highways in Frederick County accommodated 2,087,000,000 of vehicle miles traveled (VMT) while the County highway network had a VMT of "only" 403,000,000.

The State's Consolidated Transportation Program (CTP), which is a capital program document that covers a six-year time frame, separates the various projects into three different programs as described below.

- Development and Evaluation Program – Major highway projects are first identified in this program where alternatives are developed and assessed. A public participation process is also conducted. This process is also referred to as project planning. Upon completion of this process a preferred alternative is selected and approved by the State and Federal agencies.

- Construction Program – When the project planning process is completed a project is eligible to be placed in the construction program when funding is allocated. This program involves completion of the design and engineering work, right-of-way acquisition, and construction. The construction program can be further broken down into interstate, primary, and secondary projects.

- System Preservation and Minor Projects Program – This program includes maintenance related projects such as resurfacing, bridge replacement/rehabilitation, and safety/spot improvements. Also included are neighborhood conservation projects, streetscapes and minor reconstruction, and enhancement projects.

Glossary of Improvements

Construct – build a new facility that did not previously exist
Widen – increase the number lf lanes on an existing facility
Upgrade – improve the design standards of an existing roadway
Relocate – construct an existing facility on a new right-of-way
Reconstruct – modify an existing facility, i.e. shoulder paving, geometric improvements, with no capacity increase
Replace – construct a new bridge to replace an existing bridge structure
Rehabilitate – repair an existing bridge structure to increase the weight capacity
Study – review alternative transportation improvements as part of a project planning or preliminary engineering phase

How a State Highway Project Gets Built

Step 1 Starting with a Plan

The County's regional plans identify new road alignments as well as providing some indication on the need to upgrade or widen existing state highways. Some of the more recently adopted regional plans may also include specific recommendations for improvements to state highways. The region plans are looking at needs over a 20-year time frame and are updated every 7-8 years.

Step 2 State Highway Needs Inventory

The Highway Needs Inventory (HNI) is the State's long-range planning document that identifies major highway improvements that will be needed during the next 20 years or more. The projects are divided into the secondary system that includes highways such as MD 85 and MD 355 and the primary system that includes I-70, I-270, US 15, and US 340. The HNI identifies widening or reconstruction projects that address either safety or capacity problems. **Projects must be listed in the HNI in order to be eligible for State funding**.

Step 3 Establishing Priorities by the County

Each year the County is given the opportunity to identify its priority State highway projects for the State to consider placing in the Consolidated Transportation Program (CTP). The County has been identifying secondary highway priorities for some time and has recently begun identifying primary highway priorities. A consensus of these priorities is developed with the Board of County Commissioners and the County's State Delegation and submitted to the State for consideration in the upcoming CTP that is prepared on an annual basis.

Step 4 SHA Review

Once the County's priority projects are submitted to the State the State must compare Frederick's priorities against all of the other priorities statewide. There is certainly no guarantee that a County would get a new project included in the CTP every year.

Step 5 Consolidated Transportation Program (CTP)

Once a project is in the CTP it must go through several phases culminating in the construction of the improvement. A project is first shown in the Development and Evaluation Program that includes the planning of the improvement which may include identifying several different alternatives for review by a project team. The review of alternatives includes a public process to solicit comments prior to the State deciding on a preferred alternative. This process is following by the design and engineering. The entire Development and Evaluation process takes an average of 5-6 years to complete.

Once the design work is completed the project is eligible to move into the Construction Program. This phase includes the purchase of right-of-way and the actual construction of the project that may take an average of 3-5 years to complete.

It is important to note that progression from the Development and Evaluation phase to the Construction phase is dependant on the availability of funding. If construction funding is not immediately available a project could just sit there for perhaps several years after the development and evaluation phase is completed.

Table 3

State Highway Program – Short Term

Source: Maryland Dept. of Transportation, Consolidated Transportation Program FY 2001-2006.

Map Ref.	Project/Facility	Project Description	Plan Region	Est. Cost (000)	Complete Date
E-5	I-70/I-270 Interchange Phase 1A	Add missing movements to the existing interchange	FR	$32,279	Fall 2001 Complete
E-5	I-70/MD355 Interchange	Interim improvement pending Walser Dr. project	FR	$19,287	Summer 2002 Const. Start
F-4	Israel Creek Bridge MD 26	Replace bridge and resurface MD26 to MD 194	WA	$2,745	Completed
F-2	MD-Mid RR Bridge MD 76	Replace bridge over Maryland-Midland RR	TH	$802	Completed
F-6	MD 80/MD 355 Relocated	Reconstruct MD 355 & MD 80 in the Urbana Area	UR	Developer Funded	MD80 Complete
E-5	MD 475 East Street Extended	Construct 4-lane facility from E. Patrick to South St.	FR	$3,925	Completed
E-5	I-70 Upgrade	Upgrade I-70 from Mt. Phillip to MD 144	FR	$210,000	Ongoing RofW Acquisition

Table 4

State Highway Program – Long Term

Source: MDOT, State Highway Administration, Highway Needs Inventory – Frederick Co., 2002.

Map Ref.	Facility/Project	Project Description	Planning Region	Estimated Cost (000)
C-4	I-70	Eisenhower Memorial Highway Wash. Co. Line to Mt. Phillip Road Freeway Reconstruct 11.6 Miles	FR/MD	$170,300
D-4	I-70	Eisenhower Memorial Highway At Hollow Road Interchange Construct 0.5 Miles	MD	$28,200

Map Ref.	Facility/Project	Project Description	Planning Region	Estimated Cost (000)
	I-70	At Mt. Phillip Road Interchange Construct 0.5 Miles	FR	$28,200
E-5	I-70	Baltimore National Pike Mt. Phillip Road to MD 144 Freeway Reconstruct 5.3 Miles	FR	$166,700
F-5	I-70	Baltimore National Pike At Meadow Road/Ijamsville Road Interchange Reconstruct 0.5 Miles	NM	$28,200
E-6	I-270	Eisenhower Highway Montgomery County Line to I-70 Freeway Reconstruct (Includes HOV Lanes) 10.1 Miles	FR & UR	$727,900
F-7	I-270	Eisenhower Highway At MD 75 (Includes MD 75 From I-270 to MD 355) Interchange Construct 0.6 Miles	UR	$34,000
E-5	US 15	Frederick Freeway US 40 to North of Biggs Ford Road Freeway Reconstruct 6.1 Miles	FR	$288,600
E-3	US 15	Catoctin Mountain Highway North of Biggs Ford Road to Pennsylvania State Line Freeway Reconstruct 19.8 Miles	FR & TH	$203,700
G-4	US 40	Frederick Freeway US 15 to I-270 Multi-Lane Reconstruct 0.6 Miles	FR	$137,300
C-7	MD 17	East Potomac Street At Commuter Rail Station Access Road in Brunswick Intersection Reconstruction 0.5	BR	$3,250
G-6	MD 26	Liberty Road Artie Kemp Road to MD 31 2 Lanes Reconstruct 1.8 Miles	WA	$11,600
G-6	MD 28 Relocated	Tuscarora Road Relocated East of US 15 to 0.5 Miles East of Rock Hall Road 2 Lane Reconstruct 1.3 Miles	AD	$6,950
H-4	MD 75	Green Valley Road MD 355 to North of Weller Road 2 Lanes Reconstruct 6.0 Miles	UR	$27,800

Map Grid	Facility/Project	Project Description	Planning Region	Estimated Cost (000)
E-6	MD 75 Relocated	Green Valley Road North of Weller Rd. to I-70 2 Lane Reconstruct 1.8 Miles	NM/UR	$9,300
F-1	MD 75	Walnut Street Jones Road to MD 26 Reconstruct 2-lane 0.5 Miles	WA	$2,250
E-5	MD 85	Buckeystown Pike English Muffin Way to North of Grove Road Multi-Lane Divided Reconstruct 2.1 Miles	AD & FR	$65,000
E-5	MD 140	Main Street Harney Road to Tract Road 2 Lane Reconstruct 1.8 Miles	TH	$7,700
F-4	MD144	West Patrick Street Bentz Street to Jefferson Street Urban Street Reconstruction 0.3 Miles	FR	$1,270
E-5	MD 180	Jefferson Pike I-70 to Solarex Court Multilane Reconstruct 0.6 Miles	FR	N/A
F-6	MD 194	Woodsboro Pike 0.1 Mile North of MD 26 to South of Walkersville Divided Highway Reconstruct	WA	$8,000
F-6	MD 351	Ballenger Creek Pike North of Crestwood Blvd. to Solarex Court Multi-lane Reconstruct 0.6 Miles	FR	$37,950
F-6	MD 355	Urbana Pike MD 75 to MD 80 Multi-lane Reconstruct 3.3 Miles	UR	$14,300
B-6	MD 355	Urbana Pike South of MD 80 N. of Urbana Multi-lane Reconstruct 0.6 Miles	UR	$6,100
E-5	MD 355	Urbana Pike North of Urbana to MD 85 Multi-lane Reconstruct 5.7 Miles	UR & FR	$55,400

Map Grid	Facility/Project	Project Description	Planning Region	Estimated Cost (000)
B-6	MD 464	MD 79 at MD 17 to Lander Road 2 Lane Reconstruct 4.8 Miles	BR	$19,600
B-4	MD 475	East Street Extended South Street to Proposed Walser Drive Multi-Lane Construct 0.8 Miles	FR	$9,270
C-5	US 15	Catoctin Mountain Highway Potomac River to US 340 Freeway Reconstruct 6.8 Miles	AD	$67,200
D-5	US 40 A	Old National Pike Washington County Line to West of Middletown 2 Lane Reconstruct 4.5 Miles	MD	$21,300
C-5	US 40 A	West/East Main Street West of Middletown to West of Hollow Road 2 Lane Reconstruct 2.2 Miles	MD	$15,600
D-5	US 40 A	Old National Pike West of Hollow Road to US 40 Multi-Lane Reconstruct 3.7 Miles	MD	$32,300

Regional Highway Facilities

Frederick County is the junction for several regional highway facilities, I-270, I-70, and US 15, that provide both a benefit to the community and also create challenges and issues. These facilities provide Frederick with access to the Washington and Baltimore areas and specifically their employment opportunities. The convergence of these highways also benefit businesses by providing them easy access to their markets in Pennsylvania, West Virginia, and Virginia. The challenge created by this convergence of highways is how to deal with the increasing level of through traffic that originates outside of the County that is mixed with increasing amounts of local traffic.

I-270

Of the three regional highways, I-270 has been the most visible and has experienced the greatest amount congestion during the past 10-15 years. The State Highway Administration (SHA) and the Maryland Transit Administration (MTA) have been working on a planning study to address the I-270 corridor from the Shady Grove Metro station to Frederick including a portion of US 15 to Biggs Ford Rd. This study is looking at both highway improvements including HOV lanes as well as transit improvements.

The following issues related to I-270 need to be addressed:

- Prioritize improvements to I-270 to determine the most effective use of the available funding.
- Support the protection of right-of-way for a parallel transitway.

I-70

As the primary east-west route I-70 is also experiencing increasing levels of traffic though at a somewhat slower rate than I-270. The greatest level of congestion occurs on the western portion while the eastern portion, which is 6 lanes, does not experience significant congestion even during the peak periods. The portion of I-70 through Frederick City is being improved with new and reconstructed interchanges and will be widened to 6 lanes between E. Patrick St. and Mt. Phillip Rd. All of this work is expected to be completed within the next five to ten years.

The following issues need to be addressed:

- Address the need to improve existing interchanges with missing movements.
- Identify and prioritize the need for new interchange locations.

US 15

The character of US 15 is quite varied as it traverses the County. It ranges from a 2-lane roadway with at-grade intersections between the Potomac River and its junction with US 340 to a 4-lane divided highway. The portion of US 15 from MD 26 north to the Pennsylvania line has a mix of interchanges and at-grade intersections.

Traffic levels are also variable ranging from about 15,000 vehicles/day at the north and south ends to approximately 98,000 vehicles/day between US 40 and Jefferson St. in Frederick City. This wide range likely indicates that the portion through the City is carrying a significant amount of local traffic that may only be traveling on US 15 between two or three interchanges in the City because in most cases it is still faster to travel between the north and south sides of the City on US 15 versus using the local street network.

The issues facing US 15 are as follows:

- Address safety concerns with the remaining at-grade intersections.
- Use the location of proposed interchanges to promote and be consistent with land use plans for adjoining properties and communities.
- Address the need to provide better local access within Frederick City to alleviate pressure on US 15.
- Promote improvements to US 15 that are consistent with its recent designation as a State Scenic Byway.

Transit Element

Transit service in some form has been available in the County since the late 1890's when the electric trolley system was first established between Middletown and Frederick. Even while what eventually became known as the Hagerstown and Frederick (H&F) Railroad continued to operate in the County, private bus service was also established in the early 1920's. When the H&F operated its last trolley in 1953 the private bus operation provided the only service within the County. In 1977 the City of Frederick purchased the privately operated bus system and established Frederick City Transit that provided two routes within the City with a third route added in 1988.

In 1987 the County created TRANSERV to provide County-wide para-transit service for Medical Assistance clients and to serve the general transportation needs of the elderly under a newly created state grant program. Several years later TRANSERV initiated commuter shuttles on fixed routes to serve the MARC station in Point of Rocks and to the communities of Emmitsburg, Thurmont, Jefferson, and Brunswick.

With both the County and the City operating their own systems talk began regarding the consolidation of the two systems. In 1993 the consolidation of the two systems under the County, with the new name of TransIT Services of Frederick County, was completed.

TransIT currently provides the following types of services:

Public Transit

- Includes the Red, White, and Blue fixed routes that operate within the City of Frederick and some outlying County areas. Three "Flex" routes also operate within the City that allows for deviations from a fixed route to accommodate passengers who are unable to reach a bus stop due to a disability.
- Provides five commuter shuttle routes connecting Frederick City with the MD 85 employment corridor, Emmitsburg and Thurmont, Walkersville and Woodsboro, Brunswick and Jefferson, and the Point of Rocks MARC station (Meet the MARC Shuttle). These shuttles only provide peak hour service in the morning and evening.

Paratransit

- Operates the TransIT – plus which is a demand responsive service for senior citizens, persons with disabilities, and for medical appointments. TransIT – plus service is available county-wide.

Commuter Assistance

- Rideshare – Frederick County is a member of the Washington metropolitan Council of Governments Commuter Connections program that provides computerized car and vanpool matching for Frederick County residents.
- Commuter Information – TransIT provides information and conducts out reach efforts about the various transit service available in the County and for regional services such as Metro, Ride-On, and MARC.

Countywide Comprehensive Plan Policies

- The County shall continue to support public transit services within the City and the Regional Communities throughout the County.

- The County Shall accommodate transit, pedestrian, and bicycle access into the design of new development and in the highway planning process.

- Frederick County shall encourage transit oriented development adjacent to MARC stations and around the proposed stations along the I-270 transitway.

- The County shall support expansion and improvement of multi-modal commuter services including rail, bus, and ridesharing services.

- Coordination between the County's Transportation Services Department with the private, nonprofit agencies and other County agencies will continue. This coordination relates primarily to specialized transportation for the elderly and handicapped.

- The County shall support the development of a transitway along the I-270 corridor that would connect the Shady Grove Metro with downtown Frederick.

- The County shall support efforts to pursue state and federal funding for non-highway transportation improvements.

Frederick County Transit Development Plan

The primary planning document that addresses local transit service is the Transit Development Plan (TDP) that is updated every five years. The most recent update occurred in 1998. The TDP provides an outline for the development of local transit services, including fixed route service and paratransit service, for the County for the next five years. In addition to recommendations regarding service improvements and expansion is the identification of a capital and operating funding program that would be needed to implement the service improvements. This program is used as the basis for grant applications requesting capital and operating funding. Described below are a series of goal statements include in the TDP that address the various aspects of transit service in the County.

Goals for Urbanized Area Transit

- Extend planned transit service to points both within and outside the City limits to serve new higher density residential developments, particularly rental apartments, condominiums, and townhouses that are more likely to generate ridership for fixed-route services. Serve major new employment areas, such as the new State Farm complex. Serve major concentrations of medical offices, health facilities, nursing homes, and similar destinations.

- Improve transit services to make them more convenient for work and school-related trips by providing frequent services, and minimizing on-board and wait times to the greatest extent possible.

- Improve transit service quality by making sure that passenger shelters are available at key transfer points and that signage is in place to show where bus services operate.

- Provide a high-quality service and market the service so that it is an attractive alternative to persons with the choice of a private auto as well as those dependent on public transit.

- Support the use of the downtown Frederick MARC station site as a transportation center to facilitate transfers between the urbanized area transit routes, the non-urbanized area routes, and the MARC commuter trains. Consideration should be given to incorporating intercity buses and taxis into the transportation center as well.

- Encourage transit-friendly design for residential, commercial, and employment developments that provide convenient access to transit for pedestrians, and persons with disabilities.

- Establish design standards and site plan review criteria for the County and the City to ensure that new developments with transit service areas will accommodate transit vehicles.

Goals for Non-Urbanized Area Transportation

- The consolidated transportation system should be improved to provide demand-responsive services, subscription services, fixed-route services, and shuttle services throughout the County in the most efficient manner.

- Provide shuttle service to the County's designated Regional Communities including Urbana, Mt. Airy, and Middletown. The expansion of service should be consistent with the Priority Funding Areas identified under the State's Smart Growth initiatives.

Goals for Commuter Services

- Provide transit service to existing and proposed employment areas to support economic development opportunities in the County.

- Provide convenient transfers to existing and proposed regional commuter services including MTA Commuter Bus Service, MARC Commuter Rail, and Montgomery County Ride-On that link the County with Baltimore and Washington metropolitan regions.

- Maintain the Ridesharing program as an integral part of the County's transportation program, providing information and matching services to facilitate car and vanpooling.

- Information is a key component in encouraging the use of shared-ride modes, including public transportation. The transit system in the County should continue to be the central point of information about all regional transit options.

Goals for Coordination with Human Service Agency Transportation

- Human service agency clients should be encouraged to use the scheduled public transportation system to the maximum extent feasible.

- Improve the efficiency and effectiveness of human services and public transportation services by coordinated provision for transportation services where feasible. The transportation agency could act as a broker to provide services under contract to agencies, to assist them in ride-sharing, vehicle time-sharing, training, and possible vehicle maintenance, or other arrangements to reduce the transportation cost.

Goals for Paratransit Services

- Secure adequate resources to provide demand-response paratransit to meet the requirements of ADA and the growing senior population in Frederick County to maintain the quality of life for citizens who are unable to drive due to age or disability.

Goals for Administration and Management

- Adequate staffing and support services to provide safe, effective, and efficient services. This includes County support to maintain vehicles, snow removal, sign and shelter installation, and maintenance.

- Advanced computer technology and soft ware (for dispatching, record keeping, accounting, and invoicing) and other technology for scheduling and routing should be procured as necessary.

- Continued development of the transportation agency as an advocate for shared-ride and other non-auto transportation modes.

- Encourage participation by the private sector for funding operation and capital needs.

Maryland Comprehensive Transit Plan

The Maryland Transit Administration (MTA) completed its first statewide transit plan – Getting On Board: The Maryland Comprehensive Transit Plan in December 2000. The Plan addresses services operated by the MTA, Washington Metropolitan Area Transit Authority (WMATA operates Metro), and 24 Locally Operated Transit Systems (LOTS) across the State.

The Plan is presented in five volumes: Volume I that is an executive report that presents the themes of the Plan and a summary of the recommendations; and four other volumes that provide details for specific regions of the State.

The goal of the Plan is to attain one million transit riders statewide per day by 2020. This would require doubling ridership from current levels and tripling ridership in the rural areas. The Plan identifies short-term and long-term recommendations under the following themes

- System Preservation

- Transit Quality
- Existing Bus and Rail Service
- Level-of-Service
- Integrated and Coordinated Service
- Land Use and Transit
- Information, Marketing, and Advocacy
- New Bus Service
- New Rail Lines

Commuter Services/Rail Lines

There are a number of commuter services provided by both the County's TransIT Services and the MTA. TransIT provides ridesharing services primarily to residents commuting out of the County. Assistance is also provided to local employers to address the transportation needs of their employees. MTA provides commuter bus service and commuter rail service in Frederick County. The commuter bus service is called the 991 Express Service and operates between Hagerstown and the Shady Grove Metro station with a stop in Frederick at the FSK Mall. The 991 service provides five buses in the morning and evening peak periods.

MARC Commuter Rail

The MTA also operates the MARC commuter rail service on the Brunswick Line that includes stations at Point of Rocks and Brunswick. There are seven trains in the morning and nine trains in the evening serving these stations.

The MARC Extension to Frederick was opened on December 17, 2001. This service will use the existing Old Main Line tracks between Point of Rocks and Frederick Junction and the Frederick Branch line into downtown Frederick. Two stations have opened one in downtown adjacent to East St. and the second, called the Monocacy station, off of Genstar Dr. behind the Riverview shopping center. The downtown station will not have any parking but will be served by TransIT while the Monocacy station will have approximately 750 parking spaces. Service includes three trains in the morning and evening.

I-270 Transitway

In addition to the MARC commuter rail service, a transitway is proposed along the I-270 corridor connecting Frederick with the Shady Grove Metro station. The alignment for the transitway was developed in the I-270 Corridor Cities Transit Easement – Frederick County Extension Study prepared for Montgomery and Frederick Counties in 1991. This study identified several alternative alignments for a transitway between Clarksburg and Frederick. A similar study completed in 1990 addressed the section between the Shady Grove Metro station and Clarksburg.

The Frederick Extension study concluded that the light rail or busway modes would be the most feasible in the corridor versus either heavy rail (Metro) or commuter rail. The preferred alignment follows along the east side of I-270 with an optional route through the Urbana PUD. This alignment would continue into downtown Frederick and terminate at the MARC station.

Subsequent to the completion of this study the preferred alignment was placed on the Frederick Region Plan, adopted in 1992, and the Urbana Region Plan, adopted in 1993. This would allow the County to protect the right-of-way as development occurs within the corridor. Both region plans also identify station locations along the alignment. The recommended right-of-way would be 70 ft as a stand-alone alignment and 50 ft if incorporated into a road right-of-way.

The right-of-way for the transitway will be identified and protected as properties go through the subdivision or site plan review process. At a minimum the appropriate right-of-way could be reserved until more detailed engineering studies could be conducted to identify a specific alignment.

The I-270/US 15 Multi-Modal study is recommending construction of the transitway for either light rail transit (LRT) or for bus rapid transit (BRT) up to Comsat by 2020. The study recommends protection of right-of-way north of Comsat to Frederick for eventual extension of the transitway beyond 2020. Construction of the transitway from the Shady Grove Metro station will be completed in stages through the corridor.

The following issues related to the MARC service and the I-270 transitway include the following:

- Support adequate local bus service to serve the downtown MARC station and if necessary the Monocacy station as well.
- Conduct a detailed design/engineering and environmental review of the master plan alignment. This study should also address specific station/stop locations and identify a location for a yard and shop facility.
- Support preservation of the transitway right-of-way.

Table 5

Transit Program – Short Term

Source: Frederick County Transit Development Plan, 1999

Facility/Project	Description	Estimated Cost (000)
Walkersville Shuttle Phase II or III	Increase frequency of existing shuttle that currently provides one morning trip and one evening trip. Add one vehicle to provide two morning and two evening trips with a 45-60 minute headway.	$25/yr
New Market/Mt. Airy Shuttle Phase II or III	Establish new shuttle service between Frederick and Mt. Airy via New Market with one morning trip and one evening trip.	$27/yr

Urbana Shuttle Phase IV	Establish new service between Frederick and Urbana with one morning trip and one evening trip.	$15/yr
Urbanized Area Service Expansion Phase I	Initiate shift from three loop routes to six radial routes with a central transfer at the downtown MARC station. These routes would operate on 60- minute headways. - Rosemont/7th St. - Patrick St. - FCC/FSK Mall - Ballenger Creek - Inner Loop - West End Circulator	$1,481/yr
Urbanized Area Service Expansion Phase II	Add service to provide 30-min. headways during peak hours on three routes: - Rosemont/7th St. - Patrick St. - FCC/FSK Mall	$1,785/yr
Urbanized Area Service Expansion Phase III	Add three routes for a total of nine radial routes. The Jefferson Street route would operated with 30-min. headways during the peak hour. - Jefferson St. - FCC/Fredericktowne Mall - Waterside/Wal-Mart	$2,306/yr
Urbanized Area Service Expansion Phase IV	Include the Walkersville Shuttle route as part of the urbanized area system with service provided all day on 60-min. headways.	$2,532/yr
Urbanized Area Service Expansion Phase V	Add service to provide 30-min. headways during peak hours for all nine routes. The Walkersville route would still operate on 60-min. headways.	$2,807/yr
Point of Rocks MARC Station Parking	Expand Existing 276 space lot with additional 170-275 spaces.	$2,985
Paratransit Service	Provide county-wide service for the elderly, disabled, and for medical transportation	$2,920 (FY 01-06)
Capital Progam	Vehicle replacement and expansion	$4,247 (FY 01-06)
Urbanized Area Routes	Existing service including the Red, White, and Blue routes, and the three flex routes.	$1,411/yr

Table 6

Transit Program – Long Term

Source: Frederick County Transit Development Plan, 1999

Facility/Project	Description	Estimated Cost (000)
Middletown/Myersville Shuttle	Establish new service between Frederick and Myersville via Middletown. Provide one morning and one evening trip.	$24/yr
Buckeystown Shuttle	Establish new service between Frederick and the Buckingham's Choice Retirement Center. Provide one morning trip and one evening trip as a stand alone route or service could be provided as an extension of the MD 85 commuter shuttle.	$16/yr
Urbanized Area Service	Provide fixed route service to areas in and around the City of Frederick and the Town of Walkersville that are expected to be developed during the next 20+ years.	N/A
Saturday Service	Increase Saturday Service	N/A
I-270 Transitway	Construction of either a Light Rail Transit (LRT) or Bus Rapid Transit (BRT) between Shady Grove Metro Station and downtown Frederick.	$1,000,000 to $1,500,000

Note: N/A = Not Available

Bicycle and Pedestrian Element

In 1999 Frederick County adopted its first Bikeways and Trails Plan. This plan identifies a county-wide network of on-street bikeways and off-street trail corridors. These facilities would address both recreational and transportation uses in the community and would accommodate walkers, hikers, bicyclists, and equestrians.

On-Street Bikeways

The Bikeways and Trails Plan proposes an on-street bikeway network on 334 miles of roadways including county, municipal, and state roads that would be targeted for improvements such as shoulder widening and bike lanes to safely accommodate bicyclists. Also identified are recommended design standards for on-street bicycle facilities. The individual roads designated as a bikeway are not listed in this Plan. Reference should be made to the Bikeways and Trails Plan itself. Implementation of bikeway facilities would likely occur as part of road improvement projects.

Off-Street Trails

The off-street trail corridors follow stream valleys, the Monocacy River, and several abandoned railroad alignments. A total of 174 miles of trails are identified in 18 corridors. Off-street trails are divided into two types of trails: multi-use and natural surface. The multi-use trails would have a finished surface of crushed stone or asphalt to accommodate walkers/hikers, bicyclists, in-line skaters and equestrians. Many of the multi-use trail corridors will be able to serve both recreational needs in the adjoining communities but also provide for transportation needs by providing access between residential areas and nearby schools, shopping, or employment uses.

The natural surface trails would not have an improved surface and would be designed to accommodate primarily hikers though the trails could also serve mountain bikers and equestrians.

The Bikeways and Trails Plan includes the following vision statement and goals to guide the development of an integrated bikeway and trail system.

Vision

> *Frederick County will be a place where bicycling and walking are viable modes of travel for recreation and transportation purposes. A network of bikeways and multiuse trails will provide safe and convenient connections between the County's municipalities and would provide access to recreational, historical/cultural, commercial, and employment areas.*

Goals

- Provide recreational bikeway or trail connections that are accessible to all ages and abilities of users, to existing and planned park and recreation facilities, schools, cultural/historic sites, and natural features.

- Provide transportation connections between residential and commercial, employment, and educational uses that is accessible to all ages and abilities of users.

- Develop corridors/facilities that meet the needs of cyclists, walkers/hikers, equestrians, and other leisure activities

- Incorporate on -street or off- street bikeway facilities as part of new road construction, reconstruction project, and maintenance projects.
- Provide bikeway facilities that offer safe riding for basic cyclists.

- The County shall accommodate pedestrian and bicycle access into the design of new development and existing communities impacted by development.

- Develop bikeway and trail corridors that connect with existing and planned inter-county and interstate facilities.

- Provide pedestrian and bikeway access along with bicycle parking to major transportation/commuter facilities such as MARC stations, bus stations, and park and ride lots.

- Provide bikeway and trail connections between the County's population centers (growth areas) for recreational and transportation purposes.

- Develop local law enforcement programs coordinated with educational efforts to promote safe and courteous bicycle use on trails and roadways.

- Evaluate the opportunity for bikeways and trails in existing and proposed utility lines, existing and abandoned railroad lines, and along waterways.

- Encourage public/private partnerships and volunteerism for trail construction maintenance, and safety patrols.

- The County in cooperation with the municipalities and private organizations should seek alternative sources of funding for bikeways and trail projects.

The Bikeways and Trails Plan did not include cost figures for the trail projects. For this plan a cost assumption has been made based on the estimated cost prepared for the Ballenger Creek Trail Master Plan. For multi-use trails a figure of $325,000 per mile is assumed for construction costs. For natural surface trails a figure of $15,000 per mile is assumed. These figures do not include right-of-way costs.

Pedestrian Facilities

Until very recently an often overlooked component of a balance transportation system was pedestrian facilities. Pedestrian access is an integral part to every other transportation mode. At. Some point during the day everyone is a pedestrian, whether one is walking to and from a bus stop or walking from a parking lot to an office or shop. Providing better pedestrian facilities can improve the use of other modes, particularly transit, in addition to becoming viable mode itself.

Walking as viable transportation mode is dependant on a number of design related elements that contribute to a pedestrian friendly environment.

- Mix land uses – integrate residential, commercial, and employment developments to provide more opportunity for people to walk for shopping, work, or social trips. With the typical walk distance being ¼ to ½ mile it is important that the mix of uses be in a relatively compact area.
- Interconnected street network – Minimize the use of curvilinear streets and cul-de-sacs. Provide short blocks and straight street alignments that are interconnected to provide short and direct pedestrian routes. Walking is very distance sensitive where ½ mile is the upper limit for most trips and the percentage of walk trips drops significantly beyond ½ mile.
- Locate buildings close to the street – Locating buildings at or at least closer to the sidewalk helps to shorten the walking distance between the street and the building entrances. Buildings close to the street with parking to the side and rear of the site also presents a more visually attractive streetscape that helps to encourage pedestrian activity.
- Provide sidewalks – All new developments and road improvement projects within growth areas should provide sidewalks on both sides of all streets. Current standards recommend 5 ft wide sidewalks versus 4 ft that is commonly used today.
- Safe intersections – Intersections are a critical link in providing safe pedestrian access in the community. Accommodations such as short crossing distance, median refuges, and pedestrian signals should be provided to ensure safe pedestrian crossings at intersections.
- Pedestrian comfort – Provide a comfortable pedestrian environment, particularly along heavily traveled streets. Provide grass planting strips between the sidewalk and the street to buffer pedestrians from the street. Plant street trees along sidewalks to provide shade and to further buffer the sidewalk from the street.

Table 7

Bikeways Program

Source: Frederick County Bikeways and Trails Plan, 1999.

Facility/Project	Location	Length	Type of Trail	Jurisdiction	Estimated Cost (000)	Remarks
H&F Trolley Trail	Thurmont to Frederick	14 Miles	Multi-Use	Frederick County, City of Frederick, Town of Thurmont	$4,550	First Phase Opened in 1998
Ballenger Creek Trail	Ballenger Creek Park to the Monocacy River	4 Miles	Multi-Use	Frederick County	$1,300	CIP - 2004
Rock Creek Trail	Stonegate Park to US Rte. 15	2 Miles	Multi-Use	City of Frederick	$650	segments are under construction
Carroll Creek Trail	Rocky Springs Rd. to the Monocacy River	4.5 Miles	Multi-Use	City of Frederick	$1,463	Undergoing Planning Phase (?)
Tuscarora Creek Trail	Yellow SpringsPike to Monocacy River	4.5 Miles	Multi-Use	Frederick County, City of Frederick	$1,463	

Facility/Project	Location	Length	Type of Trail	Jurisdiction	Estimated Cost (000)	Remarks
Monocacy River Greenway	Glade Creek to the Potomac River	25 Miles	Multi-Use	Frederick County, City of Frederick, National Park Service, Maryland DNR	$8,125	
Sugarloaf – Little Bennett Trail	Little Bennett Regional Park to the Monocacy River	5.5 Miles	Natural Surface	Frederick County, Montgomery County, Maryland DNR	$375	Would connect with a Montgomery County Facility
I-270 Transitway	Along the I-270 Corridor	10 Miles	Multi-Use	Frederick County, Montgomery County	$3,250	MARC Station to County Line
Bush Creek Trail	From the Monocacy River to the Montgomery County Line	13 Miles	Natural Surface	Frederick County, Montgomery County	$195	Would connect with a proposed Montgomery County Facility
Linganore Creek Trail	From the Monocacy River to the Carroll County Line	17 Miles	Natural Surface	Frederick County	$255	No Carroll County connection currently proposed
B&O Trail	Mt. Airy	1 Mile	Multi-Use	Town of Mt. Airy, Carroll County	$325	Could connect with the Patapsco R. Greenway
Walkersville – Woodsboro Corridor I	From the Monocacy River to Woodsboro – Israel Creek	3.5 Miles	Multi-Use	Frederick County, Town of Woodsboro, MDOT	$1,138	
Walkersville – Woodsboro Corridor II	From the Monocacy River to Woodsboro – Glade Creek	1 Mile	Multi-Use	Frederick County, Town of Woodsboro, MDOT	$325	
Walkersville – Woodsboro Corridor III	From the Monocacy River to Woodsboro - Railroad	11 Miles	Multi-Use	Frederick County, Town of Woodsboro, MDOT	$3,575	From North Market St. to the County Line
Middletown – Myersville Trolley Trail	Frederick to Myersville	9.5 Miles	Multi-Use	Frederick County, Town of Middletown, Town of Myersville	$3,088	
Middletown Greenway	Middletown	6 Miles	Multi-Use	Frederick County, Town of Middletown	$1,950	
Catoctin Creek Trail I	Potomac River to Myersville	19 Miles	Natural Surface	Frederick County	$285	
Catoctin Creek Trail II	Extension to Catoctin Trail	3.5 Miles	Natural Surface	Frederick County	$53	
Catoction Creek Trail III	Extension to Appalachian Trail	3 Miles	Natural Surface	Frederick County	$45	
Catoction Trail Extensions I	At the South End of the Catoctin Trail to the H&F Trolley Trail	2.5 Miles	Natural Surface	Frederick County, Maryland DNR, Washington County, National Park Service	$38	Connect to existing Catoctin Trail
Catoctin Trail Extensions II	North End of Catoctin Trail to Appalachian Trail	3 Miles	Natural Surface	Frederick County, Maryland DNR, Washington County, National Park Service	$45	Connect to existing Catoctin Trail
Emmitsburg Railroad Trail	Rocky Ridge to Emmitsburg	6.5 Miles	Multi-Use	Frederick County, Town of Emmitsburg	$2,113	
Emmitsburg Greenway Trail	Emmitsburg	5 Miles	Combination	Town of Emmitsburg	$850	

Airport Element

The Frederick Municipal Airport was opened by the City of Frederick in 1949 with a single grass runway and an administration building. The grass runway was eventually paved and a second paved runway was constructed. This configuration remained until the early 1990's when runway 12-30 was constructed while one of the older runways was converted to a taxiway. Currently, there are two paved runways, runway 5-23 (5,220 feet in length), and runway 12-30 (3,600 feet in length). There is also a grass runway, 2,800 feet in length, to accommodate gliders and tail wheel aircraft.

The Federal Aviation Administration classifies Frederick Municipal Airport as a reliever airport that is a general aviation facility designed to reduce congestion at airports that have substantial scheduled commercial passenger service.

The Countywide Comprehensive Plan does identify some policies related to the airport. The primary issue is the control of land use around the airport that may compromise the operations of the airport.

- The County shall support improvements to the Frederick Municipal Airport in accordance with the Airport Master Plan by planning non-residential land use development in the airport vicinity.

- Noise sensitive land uses shall not be permitted within the area defined by the projected 65 DNL and greater noise contours for the Frederick Municipal Airport.

The most recent airport master plan was completed in 1999 and addresses the following elements:

- Forecasts
- Demand and capacity analysis
- Facility requirements
- Development alternatives
- Environmental overview
- Airport plans
- Financial plan

Table 8

Airport Program

Source: Airport 104, Fund 307, CIP Funding Request, November 2000

Facility/Project	Estimated Cost (000)	Remarks
Land Acquisition to remove Obstacles	$1,500	
Obstruction Alys. R/W 5/23, 12/30 (Des.)	$126	
R/W 5 Safety Project	$10,936	
R/W 23 Obstacle Removal ILS	$300	
Lower Poles Part 77	$500	
Great Eastern & Bartgis Part 77	$1,100	
Tulip Hill Part 77	$400	
R/W 23-50:1 Approach	$1,500	
R/W 12-30 Part 77	$100	
Construct Maintenance Building.	$300	
Drainage Study & Safety	$50	
Rehabilitate R/W 5/23 Design	$350	
Rehabilitate R/W 5/23	$2,000	
T/W “A” Extension (Middle)	$1,000	
Construct Hold Pad R/W 5	$160	
Construct Hold Pad R/W 30	$160	
Terminal Building	$1,800	
Acquire 45 acres – Bowman Farm	$2,850	
Construct T/W to East Side Development	$2,000	

Facility/Project	Estimated Cost (000)	Remarks
Install Perimeter Fencing	$230	
Comprehensive Environmental Assessment	$312	
Extend Airport Drive – East Side	$525	Non-FAA Funding
Fuel Farm	$75	Non-FAA Funding
T-Hangar Construction – 80 Units	$2,800	Non-FAA Funding
Extend R/W 5/23 and TW “A” 900 feet	$2,200	Non-FAA Funding
50 Automobile Parking – West	$60	
Install MALSR	$650	
Upgrade Signage (Install)	$200	
Install Lighting T/W “A”, “B”, “C”	$300	
Environmental Assessment – ATCT	$75	
Rehabilitate/Expand West Apron	$1,500	
Conduct Master Plan Update	$50	
Construct East Side Apron	$2,000	
Construct 50 T-Hangars	$1,750	Non-FAA Funding
Update Airport Layout Plan	$100	
Update Exhibit “A”	$150	
Rehabilitate West Apron	$500	

Chapter 3

Funding

This chapter will describe funding processes and sources for each of the plan elements. Potential funding sources not currently used will also be identified. A summary of the short-term and long-term project costs for each of the elements will be provided.

Highway Element

County Program

The County prepares a Capital Improvements Program (CIP) each year that identifies funding for capital projects for the following six years. For highway related projects the County has three program categories in the CIP as follows.

- Roads – This category includes major projects involving reconstruction of existing roads or the construction of new roads.

- Bridges – This category addresses the rehabilitation and replacement of bridge structures primarily to address weight restrictions that exist on many of the County's older bridges.

- Highway Maintenance – This category includes several maintenance related items involving road overlay, stabilization of gravel roads, signalization, and miscellaneous safety projects.

The primary source of funding for the County's program is the general fund that is supported by local property tax revenue. General obligation bonds also provide a significant source of funding. Other sources include federal aid funding that are used exclusively for bridge projects and developer contributions. The developer contributions typically involve the construction of various improvements to the roadways that adjoin a development project. The scope of the improvements are determined through the development review process where the County's Adequate Public Facilities Ordinance (APFO) is applied. The APFO also allows a developer to make a cash contribution to an escrow account where contributions are pooled from other developers in a specific area and used to fund an improvement project at a later time.

The County has received the authority to establish a building excise tax to assist the County with financing public road improvements. The excise tax, which takes effect on February 4, 2002, will be applied to new residential, commercial, and office/industrial development. This tax will provide a dedicated source of revenue for County highway projects and/or provide revenue that can be contributed to State highway projects. The use of these funds will

require the County to match them with general funds for County projects. Any contribution to State projects will require an equal match from the State.

State Program

State projects are identified in the Consolidated Transportation Program (CTP) that covers a six-year period. Revenues from sources such as taxes, fees, federal aid, operating revenue, and bonds are placed in the Transportation Trust Fund that is separate from the State's General Fund. The Trust Fund supports the capital and operating expenses for all of the transportation agencies with the State Highway Administration (SHA) receiving 51% of the total funding for the 6-year CTP with the Maryland Transit Administration (MTA) receiving just under 16%.

The primary sources of revenue for the State's Trust Fund are federal aid (24%), motor fuel taxes (21%), vehicle titling taxes (19%), and operating revenue (16%).

Funding for state projects are divided into the following steps. It is important to note that the funding is typically provided on a step-by-step basis with the exception of the right-of-way and construction that are usually funded concurrently.

- Planning – Once a proposal is funded for project planning, detailed studies and analyses are conducted to establish the scope and location of proposed transportation facilities. Also, the need for the project is evaluated.

- Engineering – The next phase for funding is the engineering phase. These projects undergo planning and environmental studies and preliminary design. These projects, having been more thoroughly evaluated than those in Project Planning, are candidates for future addition to the Construction Program and are more likely to be built.

- Right-of-Way – This funding approved at different points during the project, to provide the necessary land for the project or to protect corridors for future projects.

- Construction – This last stage includes the cost of actually building the designed facility. Construction does not begin until a project receives necessary environmental permits, the State meets air quality requirements, and contracts are bid.

County Funding for State Projects

In FY 2001 the County made its first significant contribution to a State highway project with the allocation of $600,000 towards the project planning study for the MD 85 project. For FY 2002 the County has allocated $200,000 towards the project planning for the MD 26/US 15 interchange project. The County's FY 2002-2007 CIP also includes $500,000 for each year starting in FY 2003 for participation in State highway projects.

Transit Element

The funding for TransIT is different from the other modes in that most of the costs are associated with operating the various services rather than having one-time capital costs that

is typical of highway projects. TransIT provides three types of service in the County as described below.

- Public Transit – This service includes the Red, White, and Blue routes that operate within the City of Frederick in addition to the three Flex routes. Also included are the five commuter shuttle routes that operate between Frederick and several towns including the Meet the MARC service.

- Paratransit – Operates under the name TransIT – plus and is a demand-response service for senior citizens, persons with disabilities, and for medical appointments. This service is available to other transit dependant persons on a space available basis. TransIT-plus operates on a countywide basis.

- Commuter Services – Coordinates carpool and vanpool matching services and general marketing for TransIT.

Most of the funding for TransIT for both capital and operating comes from state and federal sources some of which is formula based and some is allocated on a discretionary basis. Noted below are the revenue sources for TransIT's FY 2001 operating budget.

Medical Assistance contract	$106,344 (5%)
Fares/Ads	$284,792 (13%)
Federal	$541,496 (25%)
Local	$427,266 (20%)
State	$785,266 (37%)
Total	$2,145,081

The County provided beginning in FY 2001 the entire local share. Prior to that year the City of Frederick had provided a portion of the local share, of approximately $120,000, based upon the amount of service provided within the City.

For FY 2003 TransIT is requesting a total of $2,302,000 for its capital program and $2,609,599 for operating. For the capital program 90% of this amount covered by state and federal funding and the remaining 10% being local funding. The local share of the operating will increase to 24%.

The Transit Development Plan (TDP) that was completed in 1999 identified a number of alternative funding sources that the County could consider. These sources could be used to reduce the County's share of providing and/or increase the amount of local funding to leverage more state and federal funds.

- Special Taxing District – Would involve an additional property tax assessment for properties within a designated transit zone.

- Transit Impact Fee – A fee would be assessed for new development to off set the cost of providing transit service to the development. This would be of particular use for projects, such as nursing homes/retirement developments that may be located outside of the growth areas.

- Private Partnership – As new businesses locate in Frederick they could be asked to contribute towards the operational or capital costs associated with providing transit service for their employees. This could be in the form of a cash contribution or perhaps providing a bus shelter or other amenities that encourage the use of transit. Retail businesses could sponsor shuttles to serve their shopping center or downtown business district during the mid day or on weekends.

  A more formal arrangement with the private sector would involve the establishment of a transportation management association (TMA). These organizations are typically organized by a single employer or perhaps through an entire office park or business association. The purpose of a TMA is to promote transit use and other alternatives such as ridesharing with the employees of a business or group of businesses. TMA's are most effective in areas that are experiencing significant traffic congestion and/or have parking supply issues.

- Fare Policy – Currently, TransIT does not base its fares on the distance of the trip. An alternative to provide a more equitable fare structure would involve charging fares based on distance rather than having a flat fare for any trip.

Bikeways and Pedestrian Element

The adoption of the County's Bikeways and Trails Plan in 1999 was the County's first step in identifying specific projects for bikeway facilities. The Plan identified off-street trail corridors and an on-street bikeway network each of which will follow a different process for implementation and funding.

Off-Street Trails

The implementation of these projects will be the responsibility of the Parks and Recreation Department. Projects would be recommended for inclusion in the County's CIP for design and construction. The design and right-of-way costs will need to be borne by the County while grant funding can be used for a portion of the construction costs.

The two primary grants available for trail construction are the Recreational Trails Program and the Enhancement Program both of which provide federal funding and are administered through the State. Both programs provide for funding of up to 50% of the construction costs with the remaining 50% provided by local or private sources as a match. The required match can include a limited amount of in-kind work versus cash. Any funding used for the recent purchase of right-of-way can also be used as part of the local cash match.

With the identification of trail corridors this gives the County the opportunity to require developers to provide some level of contribution to the construction of a trail through their projects. This contribution may range from requiring the total construction of a trail to at least providing the necessary right-of-way and a cash contribution that the County could then use as the local match for any grant funding.

On-Street Bikeways

These facilities would include providing shoulders for use as bike lanes along those roads designated as a bikeway. The designated roads include County, State, and municipal

facilities. Improvements to accommodate bikeways would be implemented as part of road projects that involve reconstruction or widening of existing roads. These improvements would also be included as part of any new road construction projects. The SHA does include bicycle and pedestrian facilities for all of its road projects.

From a funding point of view the bikeway improvements are absorbed into the total cost of a road project and are not funded separately from the road improvements.

Pedestrian Facilities

The State Highway Administration (SHA) has established a sidewalk retrofit program that provides funding to local governments to construct new sidewalks along state highways. SHA provides 50% of the construction cost with the local government being responsible for getting any additional right-of-way, any design work, and remaining construction cost.

Airport Element

The Frederick Municipal Airport is owned and operated by the City of Frederick. Revenues are received from fuel fees, tie down fees, ground leases, and hangar rentals, in addition to federal and state grants, local funding, and private sector contributions.

Aviation funding is different from other transportation modes. The vast majority of funding for improvements comes through the distribution of grants-in-aid administered by the Federal Aviation Administration (FAA). Much of this funding is directly tied to the Airport Improvement Program (AIP) legislation. Under the AIP program, projects such as aprons, runways, and access roads are eligible for 90% federal funding with a 10% local match. Improvements such as vehicular parking, fuel farms, utilities, and hangars are generally not eligible. Fund distribution is discretionary, and competitive on a regional basis.

State funds are also available. Maryland provides improvement monies through the Maryland Aviation Administration (MAA). These grants are typically under $50,000 per annum. Local funding is also utilized. A goal is to eventually have the airport self-sufficient through various user fees. The private sector contributes to needed improvements such as Fixed Base Operator (FBO) facilities, corporate aviation development, utility extensions, vehicle parking, and access improvements.

County Funding

Since FY 1999 the County has contributed an average of $169,500 annually to the City for the operation of the airport. For FY 2002 the County will be contributing $164,000 towards the airport.

Table 9

Cost Summary
(000's)

Transportation Elements	Short Term	Long Term	Total
County Highway	66,811	75,816	142,627
State Highway	261,566 (1)	2,235,240	2,496,806
Transit	84,486 (2)	1,500,040 (3)	1,584,526
Bikeways/Trails	3,413 (4)	32,043	35,456
Airport		40,609	40,609
Total	$416,276	$3,883,748	$4,300,024

Notes:

1. Does not include three projects listed in Table 3 that were completed in 2001.

2. Includes operating and capital costs for the entire six-year period of FY 2001-2006.

3. Includes $1,500,000,000 for the entire I-270 Transitway from Shady Grove Metro to Frederick.

4. Includes the Ballenger Creek, Rock Creek, and Carroll Creek trails.

Chapter 4

Next Steps

This Plan represents Phase 1 of a multi-phase program to identify and address transportation needs for the County. The remaining phases are described in the Recommended Work Program that also identifies a general schedule for when the individual phases would be conducted.

Action Recommendations

In addition to the follow-up phases related to the Transportation Plan itself are a number of action recommendations that should be addressed through additional study or policy development. Many of these action recommendations are taken from the Countywide Comprehensive Plan and other adopted plans related to the transportation elements. The implementation of these recommendations would be assessed during the annual transportation priorities review and the five-year update cycle for the Master Transportation Plan.

Highway Element

- Conduct a countywide travel forecasting/modeling of the existing highway plan

- Establish a policy regarding the County's financial participation in state and municipal highway projects.
- Prepare building excise tax ordinance
- Establish a long-range planning/travel forecasting process to assist with identifying and assessing highway needs.
- Consider the establishment of a highway noise overlay zone that could be included in the County's zoning ordinance.

Transit Element

- Conduct a detailed design/engineering study of the I-270 transitway master plan alignment. This study should address specific station/stop locations, parking location (s) for a yard and shop facility.
- Explore private funding contributions/partnerships to support transit service in developing employment areas.

- Incorporate Transit Oriented Development design guidelines as prepared by TransIT into the County's zoning ordinance.

Bicycle and Pedestrian Element

- Develop pedestrian facility design standards for inclusion in the County's Design Manual. These standards should also address traffic calming design as well.
- Incorporate on-street bicycle facility standards in the County's Design Manual.
- Develop policy regarding the inclusion of pedestrian and bicycle facilities as part of County highway improvement projects.
- Address how on-street bicycle improvements can be retro-fitted to existing roads

Airport

- Develop an airport noise overlay zone that could be included in the County's zoning ordinance.

Plan Update Process

The Plan update process addresses the need to look at the short-term projects and priorities on an annual basis with a five-year update cycle to address the long-term priorities and policy direction for the County to follow.

Annual Transportation Priorities Review

- Review would identify priorities that would be addressed in upcoming CIP preparations for highway, transit, bikeway/pedestrian facilities, and the airport.
- The following groups would be part of the review process: County Planning Commission, Roads Board, Transportation Services Advisory Council, Frederick COG, State Delegation and the Board of Commissioners. Public input would be allowed via the individual meetings of these boards and commissions.
- Identify revisions to the short-term projects based on current CIP programs from the County and the State.
- Assess implementation of the action recommendations.

Master Transportation Plan Update

- Update would focus on the general policy direction and revisions to the long-term projects. The update would occur either as part of the Countywide Comprehensive Plan update that occurs every 7-8 years, or on a five-year update cycle on its own.
- Assess implementation of the actions recommendations and identify new or revised recommendations.
- Conduct countywide traffic modeling/travel forecasting study. Alternatively, this could be conducted as part of the individual region plan updates.

References & Resources

Frederick County Comprehensive Plan Volume I, Frederick County Planning Department, 1998

Frederick County Bikeways and Trail Plan, Frederick County Planning Department, 1999

Maryland Transit Plan, Maryland Transit Administration, 2000

Transit Development Plan for Frederick County, KFH Group,1999

Countywide Traffic Study, Frederick County, BMI, 1997.

I-270 Corridor Cities Transit Easement, Frederick County Extension Study, De Leuw, Cather & Co. and Daniel Consultants, 1991

Airport Master Plan, Final Report, Frederick Municipal Airport, URS Greiner, 1999

Frederick County Capital Improvement Program FY 2002-2007

Frederick County 20-Year Infrastructure Needs Study, 2000.

Highway Needs Inventory, Maryland State Highway Administration, 2002 Revision

Consolidated Transportation Program, Maryland Department of Transportation, FY 2001-2006.

Transportation & Land Use Innovations, Reid Ewing, Planners Press, American Planning Association, 1997.

Frederick Municipal Airport CIP Funding Request, 2002-2007, November 2000.