

2001 BALTIMORE REGIONAL TRANSPORTATION PLAN



THE 2001 BALTIMORE REGIONAL TRANSPORTATION PLAN

J. Craig Forrest
Chairman
Baltimore Regional Transportation Board

Harvey S. Bloom
Director
Transportation Planning
Baltimore Metropolitan Council

October 2001

The preparation of this document has been financed through funds provided by the Maryland Department of Transportation and the Baltimore Metropolitan Council as matching shares for funds from the Federal Highway Administration and the Federal Transit Administration of the United States Department of Transportation

Paul Farragut, Executive Director
Baltimore Metropolitan Council
2700 Lighthouse Point East, Suite 310, Baltimore, Maryland 21224

Baltimore Regional Transportation Board

Member

Empowered Designee

The Honorable Dean L. Johnson
Mayor, City of Annapolis

Jon L. Arason

The Honorable Janet S. Owens
Anne Arundel County Executive

Harvey Gold

The Honorable Martin J. O'Malley
Mayor, City of Baltimore

Jeff Drinkwater

The Honorable C. A. Dutch Ruppertsberger, Chair
Baltimore County Executive

J. Craig Forrest

The Honorable Julia W. Gouge
President, Carroll County Board of Commissioners

Jeanne Joiner

The Honorable James M. Harkins, Vice Chair
Harford County Executive

Pete Gutwald

The Honorable James N. Robey
Howard County Executive

Carl Balser

The Honorable John D. Porcari
Secretary, Maryland Department of Transportation

Marsha J. Kaiser

The Honorable Jane T. Nishida
Secretary, Maryland Department of the Environment

Ann Marie DeBiase

The Honorable Roy Kienitz
Secretary, Maryland Department of Planning

David Whitaker

EXECUTIVE SUMMARY

Overview

The 2001 Baltimore Regional Transportation Plan (BRTP) is a long-range plan guiding transportation system improvements for the Baltimore metropolitan region. The 2001 BRTP will serve as a “blueprint” for the next quarter-century of long-and short-range strategies and actions for developing an integrated intermodal transportation system to facilitate the efficient movement of people and goods. The 2001 BRTP incorporates as a basic assumption the adopted land use plans of its member jurisdictions: the cities of Annapolis and Baltimore, and the counties of Anne Arundel, Baltimore, Carroll, Harford and Howard. The 2001 BRTP addresses the transportation-related infrastructure of the Baltimore region, and identifies regional goals, strategies, and proposed capital improvements through the year 2025.

The 2001 BRTP covers the transportation systems of the jurisdictions comprising the Baltimore metropolitan planning area, along with those components of the state system geographically situated within this area. The 2001 BRTP gives consideration to the multimodal, interdependent nature of the region’s transportation system. The process addresses the region’s highway, transit, bicycle, and pedestrian modes, as well as access to airports and the Port of Baltimore.

The development of the 2001 BRTP is authorized by the Baltimore Regional Transportation Board (BRTB), a 10-member policy board responsible for decisions related to transportation issues in the Baltimore region. The BRTB consists of the chief elected officials from the City of Annapolis, Baltimore City, and Anne Arundel, Baltimore, Carroll, Harford and Howard counties, and the Secretaries from the Maryland Departments of Transportation, Planning, and the Environment. The BRTB is the designated Metropolitan Planning Organization (MPO) for the Baltimore region and, therefore, is charged with implementing federal policies relating to transportation planning.

The Baltimore Metropolitan Council (BMC) is an organization of the region's elected executives. The BMC was established to identify regional interests and to develop collaborative strategies, plans and programs that will improve the quality of life and economic vitality of the Baltimore region. To this end, the Council employs a professional planning staff that serves as staff to the BRTB. The staff provides information to the BRTB, to support BRTB decisions and actions on behalf of the citizens of the Baltimore region.

Legislative Mandates – Federal and State

The 2001 BRTP has been prepared under the federally mandated regulations of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Clean Air Act Amendments of 1990 (CAAA) and the Transportation Equity Act for the 21st Century (TEA-21).

In large measure, TEA-21 is an affirmation of the direction established under ISTEA. Both federal initiatives require long-range metropolitan transportation plans to include only those projects that can be delivered with funds expected to be available during the timeframe of the planning period. Under the provisions of TEA-21, metropolitan transportation planning must be examined in a broad context and the system’s performance judged by reasonable responses to community concerns about land use, environmental protection, economic competitiveness, energy efficiency and congestion reduction, in addition to overall regional mobility. Environmental provisions of TEA-21 are prime

drivers in the update cycle for the BRTP. Since the Baltimore region is designated a “severe” non-attainment area with regard to its air quality, it is required that the BRTP be updated every three years. TEA-21’s policy goals emphasize the movement of people and goods rather than vehicles and transfer some decision-making authority from states to local governments.

The BRTP was developed in a manner consistent with the spirit and intent of Maryland’s Smart Growth Initiative and the tenets of the Maryland Economic Growth, Resource Protection and Planning Act of 1992. Local plans are designed with an eye to meeting the requirements of these legislative initiatives.

Changes from the Current BRTP

The 2001 BRTP functions as an update to the 1998 BRTP, and further builds on many of the actions begun under the 1998 BRTP. Nonetheless, the 1998 and 2001 BRTPs differ in significant ways. The following table illustrates some of the major changes in focus and direction between the two documents.

	Expanded Activity	New Activity
TECHNICAL ANALYSIS – A new mode choice model was used to more accurately determine transit usage. The model provides more detail related to access to transit and includes policy-type variables related to travel time and costs.		✓
SMART GROWTH – The Maryland Department of Planning reviewed each capacity project for its relationship to Priority Funding Areas (PFAs). Points were deducted in the prioritization process if a project was outside of a PFA.		✓
PUBLIC INVOLVEMENT/OUTREACH – Work scope meetings included public input, additional informational meetings held in the jurisdictions, and detailed material available on the website.	✓	
LAND DEVELOPMENT PATTERNS - Forecasts included changes in land use due to more compact development in areas with infrastructure such as Digital Harbor and Owings Mills.		✓
TRANSIT PROJECTS – Recent planning and legislative initiatives resulted in greatly increased scopes for fixed guideway, bus service and related transit amenities.	✓	
TRANSPORTATION DEMAND MANAGEMENT – New areas were included, such as Commuter Choice, and greater funding levels were dedicated due to legislative and committee initiatives.	✓	
SAFETY ISSUES – A refined analysis was used in the technical assessment of the prioritization process, and general consideration was given to broader regional safety trends.	✓	
ENVIRONMENTAL JUSTICE ANALYSIS – Benefits and burdens of proposed projects on low-income and minority populations were considered and analyzed.		✓
WATER QUALITY – Macro-scale consideration was given to the impacts of projects to watersheds and reservoirs.		✓

Goals and Guiding Principles

The goals endorsed for the 2001 BRTP are a further refinement of goals from the 1998 BRTP, embodying three major pieces of legislation — TEA-21, CAAA, and Maryland’s Growth Act — combined with the goals of the various master and strategic plans of the BRTB jurisdictions and agencies. These principles and goals serve as a framework for consideration and evaluation of projects included in the approved 2001 BRTP.

Public Involvement

For the 2001 BRTP, the BRTB conducted a number of public outreach efforts in conjunction with the preparation of the BRTP. These outreach efforts were designed to promote awareness of the transportation planning process and solicit public opinion with regard to the regional transportation system and quality of life issues. Public outreach activities that helped guide development of the 2001 BRTP and inform the public include a newsletter, “Looking Ahead to 2025,” which was issued specifically to keep the public abreast of development of the 2001 BRTP.

Three public forums were held at the BMC’s offices. In addition, from June 18 to June 27, 2001, a series of Public Informational meetings were held at locations throughout the Baltimore region. At least one event was held in each of the BRTB’s member jurisdictions. For those unable to attend public meetings, the BRTB devoted great effort to enhancing and expanding the Internet site. Particular effort has been applied to the sections of the site dealing with the 2001 BRTP, with documents, maps, meeting announcements and related items posted. The website enables the public to access elements of the long-range plan on a 24-hour timeframe; meaning that the BRTB’s public involvement process never really stops. Even those who do not own a computer could go to their local library branch and keep abreast of the BRTP’s development using this medium.

An additional forum for public input is the Citizen’s Advisory Committee (CAC). The CAC is a voluntary advisory group that met monthly throughout the development of the 2001 BRTP. The Committee provides independent, regionally-oriented citizen input regarding transportation plans, programs, and issues. The CAC was established by the BRTB to foster ongoing public participation in the metropolitan planning process.

Methodology

The methodology for the development of the 2001 BRTP included both technical and non-technical (policy) research and analysis. In general, the technical work was an outgrowth of policy-related questions initiated in the early stages of the process. The principal activities of the process included: updating the goals and guiding principles of the 2001 BRTP, fiscal capacity analysis, socio-economic forecasting, project prioritization, determination of a preferred alternative, and air quality conformity analysis.

Prioritization

The project components of the 2001 BRTP are the result of a technical and policy prioritization evaluation. These assessments considered the multimodal nature of the transportation system, along with factors such as safety, congestion, cost, mobility, economic development, and connectivity. This process was developed to categorize, evaluate, and prioritize projects for consideration in the financially constrained long-range transportation plan.

Once a Preferred Alternative was identified, the key activity was to determine the cost of individual investments and reconcile these with identified financial resources. The financial element of the 2001 BRTP realistically details the funding required to implement the Preferred Alternative.

The Preferred Alternative: A Blueprint for the Future

The Preferred Alternative represents the strategy selected to address travel needs in the Baltimore region. Included in the Preferred Alternative are infrastructure-related projects directly impacting the various components of the Baltimore region's transportation system, including highways, interchanges, rail and bus transit, bicycle, and pedestrian facilities. The Preferred Alternative also contains projects and activities that support the physical infrastructure. These projects and activities are termed Transportation Demand Management (TDM) strategies, including: a transit intensification package, commuter assistance activities, park-and-ride facilities, bicycle and pedestrian facilities, intelligent transportation systems (ITS), alternative fuels/clean technology vehicles, and land use/growth management strategies.

The infrastructure-related projects were submitted by the local jurisdictions and the Maryland Department of Transportation (MDOT) while the TDM projects and activities resulted from recommendations by two BRTB committees — the Interagency Consultation Group (ICG) and the Emissions Mitigation Strategies Subcommittee — as well as from public comment.

The infrastructure-related projects and supporting activities were included as part of the Preferred Alternative after being reviewed for their ability to advance the region's guiding principles and goals. The infrastructure related projects in the Preferred Alternative also were the product of a policy and technical process called prioritization.

The components of the Preferred Alternative collectively address the TEA-21 goals of system preservation, attainment of clean air requirements, fostering multimodal and intermodal initiatives, and enhancing economic development. The BRTB has agreed through a Resolution that the Preferred Alternative meets the intent and spirit of TEA-21. In addition, the 2001 BRTP reflects the growing support for transit and increased interest in TDM strategies by significantly increasing their scope and funding. The Preferred Alternative projects are listed in Table VII-2 on pages 86-91.

Next Steps

The immediate next step is submission of the 2001 BRTP to federal transportation agencies for acceptance and to the U.S. Environmental Protection Agency (EPA) for air quality approval. Completion of the BRTP and sign-off by federal agencies ensures the continued flow of federal transportation funding to the region. Federal approval, however, does not constitute a final commitment of federal funds. Federal approval of funds for individual projects comes after more detailed engineering, environmental, right-of-way and other studies are completed and the projects have been included in the Metropolitan Transportation Improvement Program (TIP). The TIP documents the anticipated timing, cost, and rationale for federally-funded transportation projects in the Baltimore region over the next five-year period.

The Preferred Alternative addresses TEA-21 goals:

- System preservation
- Attainment of clean air goals
- Multi- and Inter-modal initiatives
- Enhanced economic development

2001 Baltimore Regional Transportation Plan

The BRTB has determined that a long-range transportation plan, structured with locally-approved land-use plans as its base, is limited. A document of this type is not intended to foster “clean sheet” regional planning, the type of theoretical, idea-driven process that has the potential to move the entire region into new, unexplored areas of land use and transportation policy.

To address this limitation, the BRTB has authorized a new initiative. Termed “Vision 2030,” this effort will target two major objectives: developing strategic initiatives that will enhance the livability, productivity, and economic competitiveness of the Baltimore region, and establishing a framework for crafting a future transportation system to enhance the region’s ability to achieve its full potential. The Vision 2030 effort is expected to be completed in Fall 2002.

Acknowledgements

This document could not have been completed without the assistance and input of numerous organizations, committees and individuals. Members of the Baltimore Regional Transportation Board and staff of the Baltimore Metropolitan Council are key contributors.

Other groups include the Citizens Advisory Committee, Technical Committee, Interagency Consultation Group, Freight Movement Task Force, Bicycle and Pedestrian Advisory Group, Travel Analysis Advisory Group, and the Management and Operations Partnership. Various citizen groups and individuals provided valuable review and comments on the projects submitted for inclusion in the 2001 BRTP. Other partners included representatives from the Federal Highway Administration, Federal Transit Administration, and Environmental Protection Agency.

Table of Contents

EXECUTIVE SUMMARY

I. TRANSPORTATION PLANNING PROCESS

An Overview of the 2001 Baltimore Regional Transportation Plan	17
The Need for a Regional Transportation Plan	17
How the 2001 Baltimore Regional Transportation Plan Was Developed	19

II. DEVELOPMENT OF OUR TRANSPORTATION SYSTEM

Highway Transportation	21
Public Transportation	23
Water Transportation.....	26
Air Transportation.....	26
Railroad Transportation.....	28
Bicycle And Pedestrian Transportation.....	28
Specialized Transportation.....	29

III. FACTORS THAT IMPACT TRAVEL BEHAVIOR/PATTERNS

Demographic and Socio-Economic Factors.....	31
Commuting Choices	31
Land Development Patterns	33

IV. GROWTH MANAGEMENT AND LOCAL LAND USE PLANNING

Maryland's Smart Growth Initiatives	35
Local General Development Plans	37
Local Land-Use Zoning/Growth Management Techniques	41

V. EVALUATING OUR CURRENT TRANSPORTATION SYSTEM

Performance Measures 45
Current System Deficiencies..... 48
The Committed Transportation Network: 2001-2006 48

VI. MANAGING THE SYSTEM FOR MAXIMUM SAFETY & EFFICIENCY

System Preservation 53
Congestion Management..... 56
Freight/Services Movement 56

VII. MOVING INTO THE 21ST CENTURY

Development of a Preferred Alternative..... 71
Preferred Alternative Investments..... 87

VIII. PROJECTED EFFECTS OF THE 2001 BRTP

Support of Regional Transportation Goals 113
System Performance..... 114

IX. PROJECTS FOR ILLUSTRATIVE PURPOSES..... 145

X. FUTURE AGENDA FOR THE PLANNING PROCESS

Monitoring the Regional Transportation System..... 147
Key Challenges for Consideration in Future Long-Range Plans 148

Figures

Figure I-1	Baltimore Metropolitan Planning Area
Figure II-1	Existing Highway System
II-2	Existing Transit Rail and Bus Routes
II-3	Existing Airport Facilities
Figure III-1	Commuting Patterns – 1970, 1980, & 1990
III-2	Distribution of Work Travel Modes – 1970, 1980, & 1990
Figure IV-1	Priority Funding Areas
Figure V-1	Congested Roadways – 1996
V-2	Committed Highway Improvements to 2006
V-3	Congested Roadways – Existing & Committed
Figure VI-1	MD VMT & Traffic Fatality Rate Trends for State and Local Highways
VI-2	Congestion Management Corridors
VI-3	Existing Intermodal Freight Facilities
VI-4	Existing Major Truck Routes
VI-5	Existing Freight Rail Lines
VI-6	Port of Baltimore – Existing Access Routes and Terminal Facilities
Figure VII-1	Overall Prioritization Process
VII-2	Distribution of Transportation Funds through 2025
VII-3	System Expansion Components
VII-4	Baltimore Region Population
VII-5	Baltimore Region Households
VII-6	Baltimore Region Employment
VII-7	Key Indicators of Travel Demand
VII-8	Proportion of Total Simulated Person Trips Produced in the Region
VII-9	Preferred Alternative Highway Projects
VII-10	Preferred Alternative Interchange Projects
VII-11	Preferred Alternative HOV and Rail Transit Projects
VII-12	Preferred Alternative Bicycle & Pedestrian Projects
VII-13	Preferred Alternative Suburban Bus Routes
Figure VIII-1	Congested Roadways – Preferred Alternative
VIII-2	Population by Race and TAZ – Black
VIII-3	Population by Ethnicity and TAZ – Hispanic
VIII-4	Population by Race and TAZ – White
VIII-5	Population by Race and TAZ – Other
VIII-6	Population by Income and TAZ – 1996 Round 5-C
VIII-7	Accessibility Analysis Charts
VIII-8	Transit Access from Zone 100 Programmed Network A.M. Peak
VIII-9	Transit Access from Zone 100 Preferred Alternative Network A.M. Peak

Figure VIII-10	Transit Access from Zone 310 Programmed Network A.M. Peak
VIII-11	Transit Access from Zone 310 Preferred Alternative Network A.M. Peak
VIII-12	Transit Access from Zone 691 Programmed Network A.M. Peak
VIII-13	Transit Access from Zone 691 Preferred Alternative Network A.M. Peak
VIII-14	Drinking Water Watersheds
VIII-15	Drinking Water Watersheds – Preferred Alternative

Tables

Table II-1	Passenger Market Share at BWI Airport: 1998 - 2000
II-2	Public Use General Aviation Facilities
Table IV-1	Application of Land Use/Growth Management Techniques
Table V-1	Baltimore Region’s Placement in TTI Traffic Congestion Ranking
V-2	Regional A.M. Peak and 24-Hour Measures: 1996
V-3	Level of Service Ranges from the 1994 Highway Capacity Manual
Table VI-1	Truck Percentages at Regional Toll Facilities: 1998-2000
VI-2	Originating Rail Traffic by Commodity Type, 1999
VI-3	Terminating Rail Traffic by Commodity Type, 1999
VI-4	Mail and Freight Activity at BWI, 1998-2000
VI-5	Regional Air Mail and Freight Activity, 2000
VI-6	Activity at Port Terminals: 1998 – 2000
VI-7	Programmatic Actions Supporting Long-Range Planning
Table VII-1	Regional A.M. Peak and 24 Hour Measures: 1996 and 2025 E&C
VII-2	Capital Projects
VII-3	Preferred Alternative Highway Projects
VII-4	Preferred Alternative Interchange Projects
VII-5	Preferred Alternative HOV and Rail Transit Projects
VII-6	Preferred Alternative Bicycle & Pedestrian Projects
VII-7	Preferred Alternative Suburban Bus Routes
Table VIII-1	Regional A.M. Peak Measures: 1996, 2025 E&C and 2025 Preferred Alternative
VIII-2	Regional 24-Hour Measures: 1996, 2025 E&C and 2025 Preferred Alternative
VIII-3	Demographics of Selected Zones
VIII-4	Highway Runoff Constituents and their Primary Sources
VIII-5	Final Emissions Results

Appendices

Appendix A	Existing & Committed Projects
Appendix B	Prioritization Methodology & Results
Appendix C	Round 5-C Socio-economic Forecasts
Appendix D	Public Participation
Appendix E	Resolution

Acronyms

Please find below the list of major acronyms used in this report.

ADA	Americans with Disabilities Act
AFV	Alternative Fuel Vehicle
BMC	Baltimore Metropolitan Council
BMP	Best Management Practices
BPG	Bicycle/ Pedestrian/ Greenways Transportation Plan
BRTB	Baltimore Regional Transportation Board
BRTPL	Baltimore Regional Transportation Plan
BWI	Baltimore Washington International Airport
CAAA	Clean Air Act Amendments of 1990
CAC	Citizens Advisory Committee
CAP	Clean Air Partners
C&D	Chesapeake & Delaware Canal
CHART	Coordinated Highways Action Response Team
CLRT	Central Light Rail Transit
CMAQ	Congestion Mitigation/ Air Quality
CMS	Congestion Management System
CO	Carbon Monoxide
CTP	Consolidated Transportation Program
DCA	Reagan Washington National Airport
DOT	United States Department of Transportation
E&C	Existing & Committed
EPA	United States Environmental Protection Agency
ERS	Emission Reduction Strategy
EJ	Environmental Justice
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GA	General Aviation
GIS	Geographic Information Systems
GPS	Global Positioning Satellite
HBW	Home-Based Work
HBNW	Home-Based Non-work
HCM	Highway Capacity Manual
HCTS	Harford County Transportation Services
HOV	High Occupancy Vehicle
HPMS	Highway Performance Monitoring System
IAD	Dulles International Airport
ICG	Interagency Consultation Group
ICTF	Intermodal Container Transfer Facility
I&M	Inspection & Maintenance
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation Systems
JARC	Job Access and Reverse Commute

JFX	Jones Falls Expressway
LGSS	Land Growth & Stewardship Subcommittee
LOS	Level of Service
LOTS	Locally Operated Transit System
MAA	Maryland Aviation Administration
MARC	Maryland Commuter Rail system
MDE	Maryland Department of the Environment
MDP	Maryland Department of Planning
MDOT	Maryland Department of Transportation
MdTA	Maryland Transportation Authority
MMID	Maryland Midland Railroad
M&O	Management & Operations
MPA	Maryland Port Administration
MPO	Metropolitan Planning Organization
MTA	Maryland Transit Administration
MTN	Martin State Airport
NAAQS	National Ambient Air Quality Standards
NHTS	National Household Travel Survey
NOx	Oxides of Nitrogen
NPDES	National Pollution Discharge Elimination System
NS	Norfolk Southern Railroad
OBO	Other-Based Other
PFA	Priority Funding Area
RPD	Regional Planning District
SHA	Maryland State Highway Administration
SIP	State Implementation Plan
SOV	Single Occupancy Vehicle
STPP	Surface Transportation Policy Project
TANF	Temporary Assistance to Needy Families
TAZ	Transportation Analysis Zone
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21 st Century
TIP	Transportation Improvement Program
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TOD	Transit Oriented Development
TSM	Transportation System Management
TTI	Texas Transportation Institute
UPWP	Unified Planning Work Program
URDL	Urban/ Rural Demarcation Line
US	Unites States
V/C	Volume to Capacity
VEIP	Vehicle Emissions & Inspection Program
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compounds
WBO	Work-Based Other