Maryland State Highway Administration

About Our Engineering Offices

State Highway Administration (SHA), a modal of the Maryland Department of Transportation (MDOT) is responsible for more than 16,000 lane miles of interstate, primary and secondary roads and more than 2,500 bridges. SHA employees plan, design, build and maintain these roads and bridges to the highest safety and performance standards possible while paying close attention to sociological, environmental, ecological and economic concerns. SHA employs 3,200 people at our Baltimore headquarters, Hanover complex, and seven districts throughout the state. The Baltimore headquarters location includes Construction Inspection Division, Office of Environmental Design, Office of Chief Engineer, Office of Equal Opportunity, Office of Communications, Office of Highway Policy and Technology Utilization, Office of Planning and Preliminary Engineering, Office of Highway Development and Office of Bridge Development as well as the offices of Real Estate, Finance and Information Technology, Legal Counsel and Administration. The Hanover complex, located in Hanover, MD includes the offices of Maintenance and Traffic & Safety as well as the Statewide Operations Center. Our seven district offices handle most of the day-to-day responsibilities of constructing and maintaining highways in Maryland's 23 counties, while the Office of Traffic & Safety (OOTS) installs and maintains all SHA signal systems. Roadway signs are manufactured by OOTS, but the majority of sign maintenance occurs at the district level. Similarly, the Office of Materials and Technology, located in Brooklandville, MD, tests and investigates construction and maintenance materials, assisted by four regional labs throughout the state.

About the Divisions

SHA is responsible for the construction, operations and maintenance of Maryland's State Highway system. Each division listed below, works closely together in order to develop and maintain one of the best highway systems in the country.

Office of Bridge Development (GETP Optional Rotation)

The Office of Bridge Development is responsible for the design, inspection and maintenance of approximately 2,500 bridges and other structures throughout the state. The specific functions of each division within the Office of Bridge development are as follows (all GETP Optional Rotations):

Bridge Design Division

The Bridge Design Division performs the design for all structures on the state maintained system, which includes new bridges, bridge replacements, deck replacements, culverts, retaining walls and noise abatement walls. This division is also involved extensively in the bridge replacement program for all county owned bridges.

Bridge Hydraulics Division

The Bridge Hydraulics Division provides hydrology and hydraulic studies (the study of water flow and how it affects the area of the structure and the surrounding areas) and determines sizes of proposed structures over streams, rivers and wetlands. This unit also evaluates potential problems as it relates to fish and other marine life and provides recommendations where necessary to insure their passage.

Bridge Inspection & Remedial Engineering Division (B.I.R.E.)

The Bridge Inspection and Remedial Engineering Division keeps state highway structures safe for the traveling public through a continuous and regular condition inspection (both above and below water) of all existing structures. In addition, this division provides for structural analysis, routine maintenance, preventive maintenance, as well as repair and replacement contracts that address structural needs. The evaluation of all permits involving overweight moves and their affect on structures is also a full time assignment to this area.

Quality Assurance Division

The Quality Assurance Division assists Bridge Design Division engineers, consultant designers and construction contractors by assuring that the shop drawings meet contract plans and specifications for materials, sizes and construction methods. This division is responsible for checking detailed fabrication or erection shop drawings containing construction materials such as; reinforcing steel bars, structural steel, timber, precast-prestressed concrete items, sheet piling, etc. with the contract documents. The detailed plans of the components necessary to construct the structure are checked for stress calculations and construction methods. These components include concrete formwork, temporary sheeting and shoring, cofferdams, falsework, erection and demolition procedures. Prior to fabrication and construction in the field, it is essential that any flaws during the shop drawing submittal process are detected. This will assist in preventing delays and possible claims during construction.

Office of Construction (Required GETP Rotation)

The Office of Construction oversees contract bids, awards and notices. They set the standards for construction by compiling detailed specifications. This office also analyzes contractor's claims, develops construction utility policies and sets MBE goals.

Construction Inspection Division

The Construction Inspection Division is responsible for the efficient and timely management of SHA's Construction Program by supplying qualified inspection personnel statewide. The field staff, which consists of 250 technicians and engineers, as well as over 250 consultant inspectors, are responsible for the thorough inspection of work performed. Inspection includes compliance with all specifications and contract requirements, testing and visual inspection is conducted to assure quality materials are incorporated into the completed construction, enforcement of traffic requirements to assure the safety of workers and travelers in a construction work zone, and assure contractor compliance with environmental requirements. In addition, documentation of all work performed is completed, tracking accurate measurements and computation of quantities for contractor payment and assuring construction is completed as quickly and efficiently as possible with minimal impact to the public.

Office of Highway Development (GETP Optional Rotation)

The mission of the Office of Highway Development (OHD) is to deliver the highway capital program by designing plans for project improvements that safely support Maryland's communities, economy and environment. The Office of Highway Development is composed of 6 divisions responsible for detailed location and design of all highway improvement projects from the time they reach the program stage until they are advertised and cleared for construction. The specific function of each division is as follows (all GETP Optional Rotations):

Highway Design Division

The Highway Design Division (HDD) is responsible for managing consultant and in-house design of capital investment projects. HDD engineers manage multi-disciplined teams through the final design of a project and provide technical support to other offices within SHA during planning and construction. HDD is responsible for preparing engineering plans, specifications and cost estimates that are used for advertising major projects for construction bids. To ensure the delivery of fast-track and unique projects, HDD continues to explore and pilot innovative contracting methods that represent the best of the industry.

Highway Hydraulics Division

The Highway Hydraulics Division (HHD) provides engineering design services and develops policies, procedures and standards related to small waterway crossings, storm water management and erosion/sediment control. HHD works closely with other offices and divisions at SHA to provide technical services, project management and plan reviews on environmental issues. HHD plays an important role in developing environmentally sensitive designs; preparing environmental permits and subsequent coordination with regulatory agencies. HHD's efforts in this area are recognized nationally for their leadership. HDD is responsible for all work and coordination necessary to obtain the permits required under the National Pollution Discharge Elimination System (NPDES) program administered by the U.S. Environmental Protection Agency (EPA) through the Maryland Department of the Environment (MDE). They also develop and administer a program to provide inspection services to all SHA storm water management ponds to address MDE Dam Safety Regulations.

Plats and Surveys Division

The Plats and Surveys Division (PSD) plays a key role in the Planning, Design and Construction processes at MDOT, SHA, and other State Agencies. The early and continuous access to field surveys and property boundary information provides a basis for developing a good foundation for any project. PSD explores and uses state-of-the-art technology such as satellite photography and robotic survey equipment to ensure the quality, accuracy and speed with which this information is delivered. The primary function of PSD is to identify topographic features and property boundaries that can influence the design and costs, as well as property impacts of projects. As the custodian of field survey information, PSD maintains an up-to-date inventory of existing survey data.

Community Design Division

The Highway Design Division (HDD) is responsible for managing consultant and in-house design of capital investment projects. HDD engineers manage multi-disciplined teams through the final design of a project and provide technical support to other offices within SHA during planning and construction. HDD is responsible for preparing engineering plans, specifications and cost estimates that are used for advertising major projects for construction bids. To ensure the delivery of fast-track and unique projects, HDD continues to explore and pilot innovative contracting methods that represent the best of the industry.

Office of Materials Technology (GETP Optional Rotation)

The Office of Materials Technology provides materials related services to the planning, design, construction, and maintenance offices of SHA. These services are also rendered to other transportation modal administrations, counties, and other state agencies and municipalities. The Office of Materials Technology is structured as follows (all GETP Optional Rotations):

Engineering Geology Division
The Engineering Geology Division develops geotechnical designs for rock slopes and rock foundations as well as conducts groundwater contamination and quantity studies.

Geotechnical Engineering Division
The Geotechnical Engineering Division conducts subsurface investigations and field soil testing for the design of structures and roadways.

Pavement Division
The Pavement Division provides pavement designs and life cycle cost analysis and operates Maryland's pavement management system.

Structures and Pavement Inspection Division
The Structures and Pavement Inspection Division performs friction testing of the State's highway network and special friction testing to support accident investigations by law enforcement agencies.

Regional Material Laboratories
Quality Assurance/Quality Control Clearance and Acceptance of Materials.

Office of Planning & Preliminary Engineering (OPPE) (GETP Optional Rotation)

The Office of Planning & Preliminary Engineering (OPPE) is responsible for the management of all activities required to obtain location, engineering and environmental approvals for major capital projects. Core activities are completed by small teams of 3-6 people within the office. Full project teams can be very large and include representatives from within the State Highway Administration, Federal Highway Administration, Mass Transit Administration and local governments. The selection of the scope, location, design, and mode choice for improvements are influenced by review and resource agency input. Also influenced is the public participation process which takes into consideration engineering standards, travel demand requirements, natural environmental, cultural and socio-economic issues, community support and budgetary constraints. The Office of Planning & Preliminary Engineering (OPPE) is structured as follows (all GETP Optional Rotations):

Highway Information Services Division
The Highway Information Services Division is responsible for data collection and support, traffic monitoring, highway mapping and GIS Development.

Program Development Division
The Program Development Division authorizes and maintains funding for projects through the technical development of the Consolidated Transportation Plan (CTP), Statewide Transportation Improvement Program (STIP), and Statewide Planning and Research Program.

Project Planning Division
The Project Planning Division is responsible for engineering, environmental and public involvement activities needed to obtain location and environmental approvals.

Regional Intermodal Planning Division
The Regional Intermodal Planning Division performs planning and liaison activities necessary to develop SHA's portion of the CTP, STIP and Long Range Plan. Additionally, this division conducts feasibility studies, and evaluates the needs for, and determines locations of, Park & Ride facilities, and handles bicycle/pedestrian affairs.

Office of Traffic & Safety (GETP Optional Rotation)

The Office of Traffic & Safety consists of the Traffic Development and Support Division, Traffic Engineering Design Division, Traffic Safety Division, Intelligent Transportation Systems Division, Motor Carrier Division and the Traffic Operations Division. The specific functions of each division within the Office of Traffic & Safety are as follows (all GETP Optional Rotations):

Traffic Development & Support Division

The Traffic Development and Support Division provides large-scale support and traffic engineering development for projects that are in planning, as well as for projects that are in the design and operation phases. Additionally, this division maintains Maryland's Work Zone Traffic Control standards and regularly reviews Maintenance of Traffic for major design plans and construction projects. This Division also develops signal timing charts for all traffic control signals throughout the State of Maryland.

Traffic Engineering Design Division

The Traffic Engineering Design Division is responsible for the preparation, production, oversight, and design of all traffic control devices statewide. This includes the development and preparation of contracts, special provisions, engineer's estimates and specifications. This Division supports other SHA divisions in performing specialized design work to implement unique solutions to complex traffic operational issues. Each District Office also has its own Traffic Section.

Traffic Safety Division

The Traffic Safety Division is responsible for providing leadership coordination and support for Maryland's traffic safety programs. This Division also identifies and defines traffic safety problems and ensures that traffic safety is given consideration in all highway decisions.