

Category A - Roadway design

Provide safety evaluation report. Perform design and prepare plans, special provisions, cost estimates and bid documents for construction of streets and roads. Provide designs that are ADA compliant. Perform streetlight and traffic signal designs to upgrade streetlights and traffic signals within the project limits. Provide innovative stormwater drainage designs to improve the conveyance of storm water and comply with stormwater regulations. Perform design for safety improvements, including signage and pavement markings. Provide maintenance of traffic plan for safe vehicular, bicycle, and pedestrian traffic during construction including developing mitigation measures and strategies, multimodal access improvement, streetscape and landscaping, and low impact storm water design. Develop and provide innovative streetscape designs that increase the soil volume available for street trees as well as drawings and specifications for best practices related to tree box designs. Develop and review low impact development and green design concepts for DDOT projects. Develop permeable alternatives for sidewalk materials that improve the regrowing conditions for street trees. Provide innovative designs for LID, green infrastructure, and street trees and tree boxes. Develop, incorporate and review street tree elements and concepts and tree box designs for DDOT projects. Develop, incorporate, and review tree protection concepts and specifications. Provide CADD services, microstation, peopak, etc. and prepare design standards, manuals and procedures. Perform utility investigations and conduct surveys as necessary. Provide Constructability reviews to check contract documents for accuracy, conformance with DDOT standards, constructability, phasing, scheduling, safety, conflicts, Maintenance of Traffic, and ease of future maintenance and operations.

Category B - Streetscape and Conceptual Design Services

Prepare, develop and review streetscape design plans and illustrations to include urban, architectural, and landscape design of DDOT projects. Design elements should be based on established roadway and urban design best practices and follow the DDOT Design and Engineering Manual (DEM), National Association of City Transportation Officials (NACTO) and American Association of State Highway and Transportation Officials (AASHTO) design guides. Projects may include:

- Traffic calming
- Street furnishings
- Transit amenities
- Materials
- Wayfinding
- Landscaping
- Low impact development
- Public art
- Parking facilities

Category C - Bridge design

Provide safety evaluation report. Perform structural analyses and design of bridges, culverts, and other related structures including buildings. Prepare plans, special provisions, cost estimates and bid documents for construction of bridges and as per the latest ASSHTO LRFD specifications and the DDOT standards and design manuals. Project plans may involve including adjacent street or roadway design. Perform design for safety improvements. Provide bridge and other structures architectural services by preparing, developing, and/or reviewing architectural drawings, and preliminary structural analysis and design of bridges and other structures; prepare bridge type studies and load ratings; prepare, develop or review landscape and streetscape drawings for adjacent street or roadway; develop, incorporate, and review urban design elements and concepts in bridges, retaining walls, fences, barriers, sign structures, bridge lightings, and other structures on DDOT projects. Perform streetlight and traffic signal designs within the project limits. The same electrical consultant will perform streetlight and traffic signal designs. Provide maintenance of traffic plans for safe vehicular, bicycle and pedestrian traffic during construction. Provide designs that are ADA compliant. Provide innovative storm water/drainage designs to improve the conveyance of storm water and comply with storm water regulations. Perform utility investigations as necessary. Provide Constructability Reviews to check contract documents for accuracy, conformance with DDOT standards, constructability, phasing, scheduling, safety, conflicts, Maintenance of Traffic and ease of future maintenance and operations. Provide emergency inspection of bridges, culverts and highway structures including, but not limited to, appurtenant electrical and mechanical systems, and make recommendations for immediate actions.

Category D - Construction engineering and management

Provide management support and related services for construction projects. Provide a competent staff to assist DDOT personnel in the inspection and coordination of the project during the construction phase. Oversee construction activities to ensure that the quality of materials and workmanship meet or exceed District standards. Maintain accurate records of field measurements, records of submittals and materials testing, documentation such as inspector daily reports, weekly reports, and project diaries, change orders, RFI's, government estimates, and payments. Provide all equipment and materials necessary, including office equipment, surveying equipment, testing equipment, communication equipment, transportation for project business, and office supplies. Prepare construction manual and procedures. Aid DDOT staff in monitoring contractor performance on performance-based contracts and conducting performance audits on current programs.

Category E - Traffic engineering (streetlight and traffic signal)

Coordinate traffic signal and streetlight design. Perform traffic signal and streetlight design and preparation of plans, specifications, and estimates for the following types of projects: designs for specific and streetlight design to complement specific bridge and roadway construction plans; traffic signal and streetlight design to satisfy a need unrelated to construction; install, remove, and/or relocate street lights in connection with road and bridge improvement projects; upgrade street and alley lights; remove and replace direct-buried cable and outdated conduit systems using terra cotta or gas pipes;

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design of tunnel, underpass, and underdeck lights, overhead guide signs, welcome to Washington signs, navigation lights and special project lists such as landscape lights. Designs should consider use of the latest guide and shall be based on the ASSHTO/IES levels for different roadway classifications.

Traffic signal design generally includes the design and preparation of plans, specifications, and estimates for:

- Installing new traffic signals.
- Relocating, replacing or upgrading existing traffic signals.
- Complementing various maintenance of traffic or detour stages.
- Installing new or rerouting existing traffic signal system communications cable and supporting hardware.
- Reconfiguring street intersections with channelizing islands to control and direct traffic movements.

Category F - Traffic engineering (Operations and Safety)

Prepare engineering studies and design documents related to operations and safety. Services may include:

Collecting and evaluating traffic data (turning movement counts, speed counts, automated traffic counts, crash data, etc.)

Conducting field investigations and performing crash analyses, as well as developing countermeasure assessments for corridor, intersection, and pedestrian improvements.

Reviewing traffic operations (including capacity analyses and other multimodal performance measures of evaluation) to determine existing traffic conditions and levels of traffic congestion and evaluating impacts of proposed changes to the roadway network.

Evaluating existing intersection control (including performing traffic signal and all-way stop sign warrant analyses, evaluating existing signal timings, and providing signal operation and optimization support).

Analyzing corridors and subareas using simulation tools.

Performing traffic calming assessments and corridor studies.

Evaluating and developing solutions for access and circulation issues.

Planning for large venues and special events, including parking management plans, wayfinding signage, intersection capacity studies, and pedestrian and vehicular flow for pre- and post-event conditions.

Developing standard operating procedures and deploying plans using strategic data based approach that takes into account agency priorities and constraints.

Developing traffic mitigation measures for capital improvement projects.

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Traffic studies contemplated by DDOT include, but are not limited to, intelligent transportation systems, traffic calming, signal timing, neighborhood conditions, traffic counts, origin and destination studies, calculation of roadway and intersection performance, simulation modeling, collection and evaluation of crash statistics, traffic carrying capacity of roadways, and collection of other information on existing traffic conditions and level of traffic congestion.

Category G - Geotechnical investigations and Studies

Perform soil borings, boring logs, test cores, laboratory tests, analyses, and recommendations for appropriate action. Prepare Geotechnical Investigation Reports and Foundation Reports

Category H - Environmental Engineering Investigations and Studies

Conduct studies to determine the environmental impact of proposed transportation facilities, including impacts on air quality, water quality, noise, neighborhood impacts and impacts on cultural resources. Environmental studies shall be consistent with all Federal requirements including, but not limited to those under the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act, the Executive Order on Environmental Justice, and Section 4 (f) requirements. The consultant shall collect environmental data related to DDOT projects, evaluate environmental impacts, prepare draft reports, maps, and other documents to describe anticipated environmental impacts, develop environmental mitigation recommendations, when appropriate, and document all research and findings in draft and final report. Environmental studies shall be conducted with appropriate public notification and opportunity for public participation. Conduct environmental studies consistent with local Environmental Policy Act requirements such as the DDOT Environmental Manual.

Category I - Transportation Planning Studies

Conduct studies to determine transportation needs of residents, businesses, and visitors to the District of Columbia, including, but not limited to strategic plans, truck or freight management plans, parking evaluation and plans, pedestrian and bicycle plans, bus transit plans, scenario planning, demand modeling, Transportation Demand Management, alternatives analysis, major multi-modal transportation facility plans, transportation assets, inventories, and traffic studies, and parking demand and management.

Ability to analyze crash and other data sources, diagnose the problem, select countermeasures, prioritize projects, and prepare various safety plans. Ability to support and assess the District traffic records system and prepare recommendations as needed.

Identify and evaluate transit service improvements, including bus- and rail-based transit. Identify and evaluate proposed development projects in the study area and determine daily and peak hour traffic generated by the new development. Calculate modal splits for employees, visitors, and customers, to determine the impact on local streets, sidewalks, and other transportation facilities. Offer recommendations, identify alternatives, and provide other related technical assistance.

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Perform economic and financial evaluations of transportation policy and capital proposals to make sound investment decisions and assure coordination with community development policies and objectives.

Prepare preliminary design plans to demonstrate the physical characteristics and operating characteristics of proposed transportation facilities. Prepare computer simulations showing operating characteristics of proposed alternative traffic solutions. Develop artist renderings and design visualization using computer simulations, assist Department in preparing for and recording the results of alternative design charrettes with community groups and businesses, and scheduling, conducting, and recording meetings to gauge public sentiments on proposed transportation projects.

Category J - Transportation Research and Technology Transfer

Conduct applied research studies and analyses and evaluations of current and experimental practices to identify state-of-the-art technologies and procedures that can be utilized in the District of Columbia to improve mobility, safety, and efficiency, and resource conservation. Prepare reports that evaluate alternative technologies and methodologies and their applicability in the District. Conduct analyses of new demonstration projects to evaluate their effectiveness and efficiency in meeting design goals and DDOT objectives. Ability to identify innovative programs and work with District agencies to implement, advance, and support programs that can reduce crashes in the District. Provide support to District agencies and others in developing safety related grants and monitoring grantee performance according to federal guidelines.

The following are areas of research that will reflect the urban, multimodal context of the District, even though those terms are not specifically called out in each topic area.

Policy and Planning: Research related to planning practices, techniques, and policy approaches to implement planning goals. Topics include modal planning (bicycle, pedestrian, transit), long-range planning, and sub-area plans.

Design: Includes preliminary engineering and design-related practices, such as value engineering, 3D models, and alternative technical concepts.

Construction: Includes tools, techniques, and processes for construction and construction management. Recent topics include geosynthetic reinforced soil, integrated bridge system, and trenchless undergrounding.

Materials: Testing and quality control for materials used in construction, particularly newer materials and processes like pervious pavements and cold-in-place recycling of asphalt.

Transportation Systems Operations and Management and Intelligent Transportation Systems (ITS): Operations of the transportation system, including areas like curbside management as well as ITS and signals, with research in areas such as simulation, modeling and parking.

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Technology and Data: Encompasses enterprise data management, geographic information systems (GIS), and new technologies that can impact other topic areas (e.g. new data collection techniques).

Business Processes: The means by which work is managed at the agency and might address contracting, streamlining of workflows or introducing new technologies.

Asset Management: Covers all agency assets, from roadways and bridges to streetlights, parking meters, and traffic signals.

Urban Forestry/Environmental: National Environmental Protection Act (NEPA) activities, tree health, and storm water are all areas of interest in this topic.

Economics and Financing: Innovative project delivery methods like public-private partnerships, contracting models, and tools such as congestion pricing.

Category K - Public Participation and Partnering

Develop and implement public participation and partnering programs. The work to be performed by the consultant shall include the development of public participation work plans, the preparation of materials for use at public meetings, including maps, brochures, power point presentations, videos, an independent project specific website that can stand alone and also link back to the DDOT website, and the development of computer simulation models that describe the potential impacts of transportation projects. The consultant shall also prepare project mailing lists of stakeholder groups and interested parties, develop project web sites and other methods of communicating project information to the public, assist in the scheduling and conducting public meetings, and design charettes. Develop public surveys, purchase media notices and advertising, and develop artwork and scripts. Develop public education campaign materials related to transportation issues that can be televised as written script or full videos on the local Public Broad Cast Channels and local media channels and prepare evaluation reports on the effectiveness of the campaign.

The consultant shall also assist in the development and implementation of “partnering” activities, including the development of Memoranda of Agreement with private organizations and other public agencies to share responsibilities in the development and implementation of projects. The consultant shall provide technical support in the Department’s negotiations with private organizations and other public agencies in the development of joint transportation projects.

Consultant must provide the services of a professional engineer(s) who can understand technical engineering documents and interpret them for lay audiences, and who can assist DDOT with technical engineering support for the purpose of developing joint transportation projects.

Category L - Bicycle and Pedestrian Studies, Planning, and Design

Collect data and information regarding bicycle and pedestrian services and facilities. Prepare draft and final reports regarding bicycle routes and trails and pedestrian facilities to promote the safe and efficient

movement of individuals with sufficient data to support its findings. Develop policies and plans to promote bicycle and pedestrian safety. Plan and design bicycle and facilities.

Category M - Railroad Consulting Technical Services

The services required relate to those railroads operating on the rail system of the United States, for example, CSX and Amtrak. Subjects in which technical consulting and planning advisor services may be required include:

- Assessment of rail carrier interests and positions
- Advice regarding railroad operations and facilities
- Identification of D.C. railroad objectives and interests
- Negotiations with railroads
- Abandonments of rail lines
- Surface Transportation Board actions
- Assistance in preparing communications with federal agencies regarding railroad matters
- Estimation of costs related to railroad construction and maintenance
- Capacity assessments of freight and passenger rail

Category N - Pavement Management and Infrastructure Data Collection Service

Provide a comprehensive pavement condition (distress, ride quality, and skid) data collection and analysis service using the latest state-of-the-art technology. Be able to perform both destructive and non-destructive condition assessment. Use collected information and analyze existing pavement material and condition and recommend appropriate action plan. Present data both in raw and processed format per the DDOT's standards and polices for integrating with existing systems. Provide infrastructure asset data (asset type, dimensions, exact location, etc) collection services. Information needs to be collected in a format approved by DDOT. Perform pavement, pavement material, and related analysis and system improvement studies.

Category O - Right-of-Way Services

Prepare right-of-way plans, manage the acquisition process such as clearances, determination of ROW needs, ROW authorization, Relocation Assistance, ROW changes, government land permission/permits, utility clearance, and supply expert services for the acquisition process.

Category P - Intelligent Transportation Systems

Provide ITS services for planning, requirements analysis, conceptual design, final design, systems engineering (including systems development and integration planning and design), operations concepts, operations planning, and maintenance planning and performance measurement.

These services may apply to any of the following:

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1. Existing subsystems such as:
 - a. Transportation Management Center (TMC)
 - b. Closed circuit television (CCTV)
 - c. Traffic signals
 - d. Highway Advisory Radios
 - e. Roadway Weather Information Systems
 - f. Traffic detectors
 - g. Telecommunications
2. Roadway operations patrol
3. New technology market studies and planning and design for future deployments
4. Traffic simulation
5. Geographic Information System (GIS)
6. ITS/Commercial Vehicle Operations (CVO)
7. Commercial Vehicle Information System Network (CVISN)
8. Traffic signal optimization
9. Cost benefit studies
10. ITS architecture
11. System engineering management plan
12. Web applications
13. Performance measures
14. ITS for transit

Work can include all phases in the system engineering life cycle with applications in ITS. Work may also include emerging areas such as autonomous/connected vehicles, and leveraging of data from social media and third party data providers. None of the services will include deployment, implementation, or maintenance.

Because of the nature of the services to be provided, Consultant will be required to provide a professional civil engineer with experience relevant to the tasks required, e.g., roadway engineering, or traffic engineering.

Category Q - Materials Testing

Conduct materials testing services in the areas of Portland cement concrete, asphalt, soils and aggregates, and metals. The testing lab shall be AASHTO accredited in the above areas of testing. All testing shall be conducted in accordance with current AASHTO/ASTM standard procedures. Test reports shall be signed and stamped by a professional engineer licensed in the District of Columbia and shall be submitted to DDOT for review and records.

Category R - Stormwater Management and Green Infrastructure Design:

Prepare design plans, special provisions, cost estimates, and bid documents to construct stormwater management and green infrastructure practices in existing streets, roads, alleys, sidewalks, and public open space. Stormwater management and green infrastructure practices may include vegetated

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stormwater collection and treatment practices, bio retention, permeable pavements, enhanced tree growing conditions, landscape areas, infiltration practices, water storage areas, green alleys, and drainage systems. Perform hydrologic and hydraulic analysis of project areas to determine optimum placement and sizing of stormwater management practices. Prepare plans and calculations needed for stormwater permits. Prepare planting plans for stormwater collection areas and landscape areas. Perform watershed and neighborhood scale site analysis to determine optimum and available locations for stormwater practices using GIS mapping systems and include all available data to determine conflicts. Develop and provide new and innovative stormwater capture designs for use in public right-of-way areas.

Category S - Transit Consulting Technical Services:

Provide services relating to transit operations (streetcar/light rail/bus) including consulting, planning, and oversight. Provide assistance on transit operations and facilities (streetcar/light rail/bus) including construction and maintenance, passenger assessments, safety and security, and fare and enforcement. Provide consulting services for contract administration relating to transit design, manufacturing, operation, and maintenance (streetcar/light rail/bus); Federal Transit Administration laws, rules, and oversight; and communication with federal and outside agencies. Provide consulting services on transit vehicle design (streetcar/light rail/bus), manufacturing oversight, and commissioning services, off-wire propulsion technology, track, traction power system, overhead catenary system, command center design, and system commissioning services.

Category T - Appraisal Services:

Provide professional real property appraisal services. Perform all services and prepare all reports in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), the Uniform Standards of Professional Appraisal Practice (USPAP), the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA), the laws and regulations of the District of Columbia, and the District of Columbia Department of Transportation Right of Way Policies and Procedures Manual, 2009, revised 2011. Certify all appraisals are completed by a competent professional. Determine the fair market value (FMV) of the interests being acquired by evaluating all available factors and comparables including, but not limited to, the following:

- (1) Disregard any decrease or increase in the FMV of the real property caused by the Project;
- (2) Consider partial acquisition situations using an after-acquisition valuation of the remainder property;
- (3) Value easements and associated damages to the remainder property;
- (4) Appraise tenant owned improvements at their contributing value or salvage value; and
- (5) Consider remediation costs for existing contamination. Provide any related litigation support.

Category U – Program Management

Provide comprehensive program management support including, but not limited to: project support, financial, scheduling, and strategic planning. Provide strategic planning and financial planning, analysis, and budgeting of projects. Serve as an advisor for difficult or complex resource allocation situations. Refine, develop where required, and implement processes and procedures for planning and delivering projects. Provide oversight of professional services and construction management firms under contract with DDOT. Provide progress reports, including cost and schedule information/updates, critical construction issues, and other program reports as defined by and required by DDOT. Provide public policy support and public engagement. Coordinate with various groups as necessary; monitor, document, and present program activities to ensure program status and direction are clearly and accurately understood by all stakeholders and the public. Provide coordination within DDOT, and among DDOT and external stakeholders, partners, consultants, and private entities. Assist DDOT in developing and acquiring memoranda of understanding or agreements with local and/or federal government agencies. Provide utility coordination.

Provide program scheduling and analysis; oversee development and updates of a master program schedule and execution; review construction schedules of the contractor and construction manager; and review and comment on project schedule and payment schedule. Attend and participate in pre-construction conferences as required by DDOT. Attend on-site construction meetings as required by DDOT. Provide document control and electronic data collection management and support. Track and monitor the preparation of documentation for close-out.