COLORADO DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

APPLIED RESEARCH AND INNOVATION BRANCH

❑ Who We Are

Applied Research and Innovation Branch resides in the Division of Transportation Development (DTD) of the Colorado Department of Transportation (CDOT). Our primary purpose is to conduct research that has a direct application to planning, design, construction, maintenance, or operations at CDOT. Our research program facilitates the implementation of successful results through knowledge sharing, specification changes, and modifications to standard practices. Our research goal constantly aims for timely completion and delivery of transportation engineering research and other relevant studies in the areas of safety, traffic operations, urban mobility, transit, aeronautics, environment, sustainability, decision making, and socio-economics. Our research project may be conducted in-house contingent on the availability of personnel and expertise but is often contracted out through requests for proposals (RFPs) from in-state universities/colleges and other out-of-state academic institutions, universities and/or private consultants that are qualified to perform the required research work.

❑ How We Are Funded

We use the following various funding sources as necessary and appropriate to finance our research activities: ***State Planning and Research (SP&R) Funds*** **-** We finance a majority of our research ventures using SP&R funds with a 20 percent state match and our FHWA-approved transportation pooled-fund studies with 100 percent SP&R funds; ***State Funds*** **–** Because of limited scope, local interest, or shortage of federal funds, we finance certain studies with state funds that are derived from the Colorado State Highway Users Tax Fund and approved through the State Transportation Commission review process; ***Public-Private Partnerships*** **-** If deemed necessary, we also pursue these types of ventures that comply with state and federal regulations to leverage research funding and enhance implementation opportunities for the benefit of our transportation program; ***Other Funding Sources*** **–** We may utilize other funding sources for research projects in a manner consistent with our mission and goals without compromising the impartiality of the research results.

❑ What We Do

We identify and select research topics and problem statements, develop scopes of work, conduct research in-house, if feasible, and select consultants to perform research in the following areas:

Protection of Environment and Sustainability **-** Air and water quality, threatened and endangered species, noise abatement, National Environmental Policy Act (NEPA) processes, and sustainability in transportation programs.

Structures, Geotechnical and Hydrology/Hydraulics **-** Bridge and retaining wall design, slope stability and foundations, geology, hydrology and hydraulics.

Safety, Traffic Operations, Planning, and Intelligent Transportation Systems - Highway safety, worker's safety, traffic operations, rock fall and avalanche control, geometric design, transportation planning, maintenance, and intelligent transportation systems.

Pavements and Materials - Pavement design; mix designs for asphalt and concrete; pavement preservation; use of geotextiles, crack sealants and fillers, binders and additives; tire-pavement noise; pavement textures and skid resistance; anti-icing and deicing chemicals; and use of sustainable materials in pavements.

- ❑ **Staff**

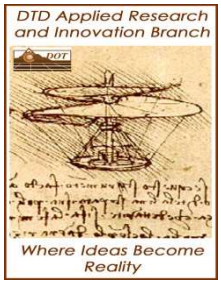
CDOT-DTD's Applied Research and Innovation Branch staff is comprised of 8 members. It is headed by the Director of Research and Development who supervises 3 professional engineers, 1 research scientist, 1 general professional, and 2 technical support personnel. Necessary assistance with problem statement prioritization, research scope development, request for proposal (RFP), research oversight, implementation, and technology transfer activities is provided by both technical and general professional staff throughout the Department.

- ❑ **Facilities/Expertise**

CDOT-DTD's Applied Research and Innovation Branch office is located in CDOT Headquarters at Shumate Building, 4201 East Arkansas Avenue, Denver, Colorado. CDOT has laboratory facilities in the Staff Materials and Geotechnical Branch situated in a different location and in 6 Regional Materials Engineering offices. These testing facilities include AASHTO Materials Reference Laboratory (AMRL), Cement and Concrete Reference Laboratory (CCRL), and Western Alliance for Quality Transportation Construction (WAQTC) certified/accredited laboratories for aggregates, hot-mix asphalt, concrete, soils and embankment materials. These facilities have the capabilities to perform various sampling and testing activities for the following: soils resilient modulus (M_R), skid resistance, wearing course friction, depth and strength of pavement structures, asphalt pavement moisture susceptibility, pavement smoothness, pavement texture, binder rheological properties, asphalt pavement mix stiffness and permanent deformation, Superpave mixture volumetrics, pavement markings, reinforcing steel bars for concrete pavements, geotechnical and subsurface investigations, and other miscellaneous items that need critical assessment to evaluate the condition and performance of the CDOT highway network.

Library Services and Local Technical Assistance Program (LTAP)

CDOT library has the largest, most comprehensive collection of transportation-related materials in the state. The library provides timely access to these materials to the public. The Colorado LTAP program is a cooperative effort among FHWA, CDOT, and the University of Colorado at Boulder. LTAP supplies training programs, technology updates, specialized technical assistance, library services, newsletters, and rental equipment to local agencies.



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