

Leading Transportation Change

Today's tate

State departments of transportation bear little resemblance to their forebearers of even the recent past. Today state DOTs are modern, technology-dependent organizations with a broad range of capabilities. These DOTs ensure the nation's multimodal transportation system serves local communities and regional economies alike by moving people and goods as safely and efficiently as possible.

It is a big job that requires a holistic understanding of not only traditional civil engineering, but also big data, technology, environmental impacts, economic needs, workforce trends and, of course, people. In short, today's state DOTs are not the highway departments of yesteryear.

What follows are real-world actions and examples of how state DOTs are serving their customers—the people and businesses that rely on safe transportation to maintain and improve their quality of life while buttressing the economic vitality of the United States.



Bicyclists, pedestrians, and other forms of "nonmotorized" transportation are increasingly key focal points for state DOTs, especially at the project level. In fact, 30 percent all trips in the U.S. are of one mile or less, with 50 percent three miles or less. Thus, it is clear that there are many opportunities to walk and bike, so facilities and infrastructure are needed to support such trips. Because building and enhancing a transportation system that serves all usersregardless of transport mode-makes the nation's communities more livable and vibrant places.

To accommodate the fast-growing popularity of active transportation among residents and visitors, the Virginia Department of Transportation constructed the \$75 million Virginia Capital Trail. The fully paved 51.7-mile multi-use trail provides a safe, non-motorized path for cyclists, pedestrians and other users: https://benefits.transportation.org/virginia-capital-trail/

In an effort to enhance roadway and bicycle safety, the Utah Department of Transportation implemented bike boxes in two newly reconfigured intersections to provide a safe and visible stopping area for people using the bicycle lanes as part of UDOT's efforts to reduce congestion and improve traffic flow in these areas: https://benefits.transportation.org/bike-boxes/



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The goal of a "complete streets" policy is to make the nation's highway system safe and accessible to all users; drivers, passengers, bicyclists, pedestrians, and transit riders alike. To that end, proper planning is key: providing the appropriate level of multimodal accommodations in the right context, on the right project, and in the right manner to meet the needs of the community. That requires a state DOT to work with a state's regional transportation planning partners and transit providers to identify and include walking, bicycling, and transit needs as part of regional mobility plans. The state DOT then tailors those "complete street" plans to the "unique needs" of locales across the state, serving as a foundation for highway planning and design, construction, maintenance, and daily operations.

The South Carolina Department of Transportation has adopted a Complete Streets policy for the stateowned highway system: a policy that requires the South Carolina DOT to work with the state's regional transportation planning partners and regional transit providers to identify and include walking, bicycling, and transit needs as part of their regional visioning plans. The agency will then tailor those plans to the "unique needs" of locales across the state, serving as a foundation for highway planning and design, construction, maintenance, and daily operations: https://aashtojournal.org/2021/02/12/scdot-adoptscomplete-streets-policy-for-state-highways/

As part of its commitment to the Complete Streets Program, the Connecticut Department of Transportation created the "Community Connectivity Program," which looks for opportunities to improve connections for biking, walking, and public transit in community centers throughout the state: https://americastransportationawards.org/connecticut-department-of-transportation-community-connectivity-grant-program-boxer-square-revitalization/



Resiliency/Resilient Systems

"Resiliency" is not only about making infrastructure more robust so it better withstands extreme events such as hurricanes and flooding while lasting longer, but also about saving money. Resiliency often relies on better planning to determine whether transportation infrastructure should be located where it is in the first place. Better placement and construction could reduce damage from extreme events, thus reducing the cost of maintenance and repairs.

In the aftermath of a major rain event that caused 14 landslides along the Kuhio Highway between Waikoko and Wainiha, the Hawaii Department of Transportation not only worked quickly to clear and reopen the road to travel completed multiple slope stabilizations and bridge repairs to address the dangers posed by future rain events. https:// americastransportationawards.org/hawaii-department-of-transportation-kauai-emergency-repairs/

Resiliency became a priority for the Colorado Department of Transportation after a 2013 flooding event along the Front Range caused severe damage 500 miles of road and 50 bridges, requiring more than \$700 million in emergency repairs. Building on lessons learned from that event, the Colorado DOT spent the last eight years crafting risk assessment tools and a strategic investment guide to make the state's transportation infrastructure more resilient in the face of floods, high winds, avalanches, rockfalls, and other extreme events. https://www.codot.gov/ programs/planning/cdot-resilience-program



State DOTs recognize the large relative contribution of greenhouse gas from the transportation sector compared to all emissions. In addition to implementing strategies that that include reducing vehicle miles traveled, addressing carbon intensity of fuels and vehicle fuel efficiency, and carbon sequestration-states also have recognized that decarbonization and electrification of the transportation fleet will over time substantially impact greenhouse gas emissions.

The Maine Department of Transportation is playing a key role in the state governor's plan to reduce greenhouse gas emissions from transportation by helping create a "clean transportation roadmap" to highlight how the state can increase the number of electric vehicles or EVs operating on its roads by 2030. https://aashtojournal.org/2021/04/09/mainedot-helping-create-statewide-ev-planning-roadmap/

The California Department of Transportation is helping reduce the state's greenhouse gas emissions through the installation of electric vehicle (EV) fastcharging stations along state highways in Central California: https://benefits.transportation.org/electric-vehicle-fast-chargers-available-along-state-highways-in-central-california/

²hoto by CALTRANS

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States are developing solutions to manage broadband deployment on their own properties, speeding up the federal permitting process for high-speed broadband deployment—especially in rural areas to facilitate the merger of technology between motor vehicles and infrastructure. That not only leads to greater mobility and increased safety on the nation's roads but also broader access to digital resources for rural communities across the country.

To improve safety for the Little Cottonwood Canyon area, the Utah Department of Transportation collaborated with telecommunications companies on a \$6 million project to install 15 miles of fiber optic cabling and a Distributed Antenna System using 21 antenna poles. AT&T is using this infrastructure to provide a full-range of wireless services to canyon users including enhancements for 911 emergency services, high-speed data transmission, and 4G wireless carrier services: <u>https://americastransportationawards.org/utah-department-of-transportation-cottonwood-canyons-public-private-partnership-fiber-deployment/</u>

The North Carolina Department of Transportation flew more than 260 drone missions and captured more than 8,000 videos and photos of roads, bridges, and dams as part of a large-scale research project to determine potential work roles for drones. This helped government agencies assess conditions quickly, deploy emergency responders efficiently, and divert traffic from damaged areas. The drones assisted first responders and helped authorities assess critical issues and allocate resources more efficiently in damaged areas: <u>https://benefits.transportation.org/putting-drones-to-work-in-north-carolina/</u>



Public transportation includes a broad array of services including rural, urban, regional and intercity bus, as well as travel demand management and commuter rail. State DOTs spend more on public transportation services—roughly \$20.3 billion in 2019—than the federal government and focuses on making transit services part of an integrated transportation system to maximize mobility options for all Americans.

The North Central Kansas Coordinated Transit District has embraced regional transit strategies using federal and state funds to provide effective and efficient transportation solutions to the entire region: Using coordinated dispatch software, forming a partnership in funding a mobility management position, and implementing a regional route. Those key strategies allow for the most effective use of federal and state transit funding and result in the best outcome for transit users in the region: https:// benefits.transportation.org/north-central-kansas-regional-transit/

The Pulse—Richmond, Virginia's new Bus Rapid Transit system—connects residents, communities and local businesses to improve the overall quality of life. Working directly with the Greater Richmond Transit Company, the Virginia Department of Rail and Public Transportation—a division of the Virginia Department of Transportation—led the initial stages of the project, securing a \$25 million USDOT grant and committing another \$32 million in state resources to the project. The Virginia DOT also delivered a fast 18-month design-build construction effort to transform US 250 through the heart of Richmond's congested urban core into a multimodal corridor: https://benefits.transportation.org/the-pulse-busrapid-transit-richmond-va/

Today's State DOTs



States contribute approximately \$750 million in ticket revenue and direct payments to Amtrak. Passenger rail demand continues to increase. The 28 state-supported Amtrak routes carry 15 million riders annually or 48 percent of Amtrak's total ridership; a 25 percent increase from 10 years ago.

An Illinois Department of Transportation project helped speed up travel times on one of the most popular Amtrak routes in the Midwest. At the same time, new stations with many features that enhance the customer experience, such as climate-controlled waiting areas, Wi-Fi and connections to bike trails, were built along the route as centerpieces of downtown redevelopment efforts: https://benefits.transportation.org/remaking-passenger-rail-in-illinois/

SunRail is the Orlando region's first-ever commuter rail and first large-scale mass transit project. Since the system's launch in 2014, SunRail has served commuters as an efficient way to travel. In summer 2018, the second phase launched, expanding service into southern Orange and Osceola counties. To date, SunRail's Southern Expansion is exceeding expectations as ridership increased more than 78 percent and, on some days, total ridership numbers are double those of when only the first phase was in operation: https://benefits.transportation.org/sunrail-ridership-at-all-time-high-after-southern-expansion/



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Safety is the very basis of transportation, which is why state DOTs are adopting a "safe systems" approach when it comes to everything from route planning and infrastructure design to construction and eventually operation. According to the Federal Highway Administration, the philosophy underpinning a "safe systems" approach means that, rather than accept fatalities and serious injuries as a price for mobility, no one should be killed or injured when using the nation's roadway system. That philosophy guides a variety of state DOT endeavors including the inclusion of centerline and edge-line rumble strips to roadways; upgrades to highway signs; traffic signal improvements; and improvement to pavement markings. State DOTs are also studying wrong-way driving interdiction initiatives using automated technology, as well building infrastructure that better accommodates the needs of bicyclists, pedestrians, scooter uses, and motor vehicles.

The Idaho Transportation Department came up with an \$8 million reconstruction and realignment of a four-road, five-legged intersection known as "malfunction junction." The redesign of this intersection—completed five weeks ahead of schedule—significantly improved the safety and travel efficiency for commercial vehicles, motorists, and pedestrians alike: <u>https://</u> <u>americastransportationawards.org/idaho-transportation-department-transforming-malfunction-junction/</u>

The South Dakota Department of Transportation uses several "standout" safety countermeasures included high friction surface treatment, centerline rumble strips, and shoulder rumble strips to improve travel safety. High friction surface treatments provide better traction and help motorists maintain control on bridges and at horizontal curves. The South Dakota DOT was the first state DOT in the nation to test this treatment to prevent winter-related crashes, and now other northern states are following suit: <u>https://bene-</u> fits.transportation.org/saving-lives/



State DOTs are considering issues related to race, equity, diversity, and inclusion or DEI within the transportation sector—addressing those issues with "humility, introspection, and respect, being mindful of the importance of listening to and learning" from those most adversely affected by past decisions. That means aligning transportation system work better with the needs of communities of color, tribal governments, as well as disadvantaged business enterprises.

The Alabama Department of Transportation played a key role in how one of the only all-electric ferry vessels connects the town of Gee's Bend to Camden, the county seat, where most of the grocery stores, schools, medical facilities, and government offices—including the voting registrar—are established. It is a story that exemplifies the fundamental role transportation plays in civil rights, environmental, and social justice issues. <u>https://etapnews.trans-</u> portation.org/small-alabama-town-overcomes-barriers-to-establish-all-electric-ferry/

The Michigan Department of Transportation recently created a new executive-level position to help the agency incorporate equity and inclusion in all aspects of its business. The agency noted that it designed this new CCEIO position to help it make "meaningful progress" optimizing its organizational culture, aligning equity and inclusion goals with business outcomes while responding to changes or policies that affect employee and customer populations. <u>https://aashtojournal.org/2021/04/23/</u> michigan-dot-creates-new-diversity-inclusion-executive-level-position/



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