

APPENDIX E

**LOCAL INITIATIVES SUBMITTED BY THE NORTH CENTRAL
TEXAS COUNCIL OF GOVERNMENTS**

Dallas-Fort Worth Moderate Area Attainment Demonstration
State Implementation Plan Revision for the 2015 Eight-Hour
Ozone National Ambient Air Quality Standard

Project Number 2022-021-SIP-NR

2015 Ozone National Ambient Air Quality Standard Appendix E: Local Initiatives Submitted by the North Central Texas Council of Governments

The **North Central Texas Council of Governments (NCTCOG)** has an assortment of locally implemented strategies in the Dallas-Fort Worth (DFW) area, including projects, programs, partnerships, and policies. These programs are expected to be implemented in the 10-county nonattainment area by 2023. Due to the continued progress of these measures, additional air quality benefits will be gained and will further reduce precursors to ground-level ozone formation. The following is a summary of each strategy:

- **Air Quality Public Education and Communication**

As policies, projects, and programs are implemented to fulfill obligations required under the variety of air quality mandates such as the Federal Clean Air Act, National Ambient Air Quality Standards, State Implementation Plan, etc., communication efforts are strategically created and implemented to educate and inform the region on current air quality levels, associated impacts, funding opportunities, and new programs and/or policies.

NCTCOG continues to promote air quality awareness throughout the North Texas region through campaigns such as **Air North Texas**. This campaign strives to create a unified message and brand related to air quality with regional partners. The campaign teaches local governments and the public about the health impacts of emissions and encourages the use of voluntary measures that help reduce emissions, including, but not limited to, vehicle maintenance, combining errands, ridesharing, reducing idling, and promoting existing NCTCOG emission reduction programs like **TryParkingIt.com**, **Engine Off North Texas**, and the **Regional Smoking Vehicle Program**.

To help guide direction, an Air North Texas coalition was created in 2007. Air pollution alerts and *Clean Air Corner*, a monthly blog with sustainable clean air tips, are sent to those participating in the campaign. The Air North Texas campaign website will offer information on air quality programs and facts, resources, and educational and advertising resources for partners. The campaign may also include participation in community events around North Texas, radio and television public service announcements, paid advertising, social media, resources for children, and an awareness day in the summer called Clean Air Action Day.

Clean Air Action Day encourages North Texans to implement clean air strategies. The goal is for residents to incorporate easy lifestyle changes into their daily lives or, at the very least, during ozone season. Air North Texas and its partners continue to educate the business community on how to reduce their impact on air quality through their practices and operations.

- **Bicycle/Pedestrian Projects**

Projects to create and/or enhance bicycle/pedestrian pathways, sidewalks, and on-street bikeways throughout the region; extending and completing the region's roadway and passenger rail transit network to link individuals to alternative methods

of transportation other than driving a vehicle. By doing so, the automobile emissions that would otherwise be released from the automobile are removed completely. In the North Central Texas region, the Regional Veloweb and Community Paths are designed for use by bicyclists, pedestrians, and other nonmotorized forms of active transportation. In addition to these, on-street bikeways also serve as another form of active transportation. In accounting for existing and future projects, NCTCOG has identified 1,883 miles of regional veloweb; 2,959 miles of community paths; and 2,113 miles of on-street bikeway projects serving the 10-county nonattainment area.

- **Clean Construction Demonstration Project**

NCTCOG has drafted a model Clean Construction Specification that can be used to establish emissions-based requirements for equipment in use on certain projects. The specification requires certain operational practices such as limits on idling and stipulates that equipment meet specific emissions standards. This template language has been added to the NCTCOG **Public Works Construction Standards North Central Texas, Fifth Edition**, as Item 110, Air Quality Requirement for Equipment. These construction standards were approved by the NCTCOG Executive Board in October 2017 and are widely used by NCTCOG local governments as a starting point for local government construction contracts. NCTCOG will encourage local governments to integrate this language in new construction.

- **Dallas-Fort Worth Clean Cities**

Through the **Dallas-Fort Worth Clean Cities Coalition (DFWCC)**, NCTCOG provides outreach, education, training, and technical assistance about ways to improve the efficiency of vehicle operations. The efficiencies include the use of alternative fuel vehicles, idle reduction technologies, fuel economy strategies, and other operational efficiencies which can reduce fleet emissions, conserve fuel, and lower operating costs. Fleet operations is the primary focus of DFWCC activities, though some general consumer engagement is also integrated through the **Electric Vehicles North Texas Program**. Activities include maintenance of a website at www.dfwcleancities.org, development of region-specific newsletter and outreach/educational materials, and integration of national resources from the Department of Energy and national lab partners; participation and presentations at community, environmental, and fleet-oriented events; DFWCC-hosted face-to-face meetings, webinars, workshops/events, and trainings; and customized or one-on-one technical assistance to fleets. Through this work, NCTCOG is facilitating the transition to cleaner-burning fuels that produce fewer ozone-forming pollutants. An Annual Report to the Department of Energy documents the use of these fuels and other clean vehicle technologies throughout the DFW area and reflects the work of dozens of local fleets. In a typical year, over 20 million gasoline gallon equivalent of conventional fuel has been displaced by a cleaner-burning alternative fuel, idle reduction, or other fuel efficiency measures. The emissions reductions achieved through this program are above and beyond those reflected in emissions inventories because current modeling estimates all vehicle emissions based on gasoline or diesel fuel types and does not reflect the reduced emissions achieved through the use of idle reduction technologies, hybrid vehicles, or vehicles powered by natural gas, propane, electric fuel.

- **Clean Fleet Policy**

The **Regional Transportation Council** approved a Clean Fleet Policy in December 2014 which sets guidelines for efficient fleet operations. The policy calls for emissions reductions, fuel conservation, partnership with NCTCOG and DFWCC, and driver/operator education. Policy elements also include a requirement to adopt an idle reduction policy or standard operating procedure. As of July 2018, 68 entities have adopted the revised policy. NCTCOG will continue to promote adoption of the updated policy across the region, as well as continue to include the policy as either an eligibility criterion or evaluation measure in various funding programs.

- **Electric Vehicles North Texas**

Through the **Electric Vehicles North Texas** Program, NCTCOG coordinates efforts to increase awareness and adoption of electric vehicles (EVs) and promote local government initiatives that facilitate EV adoption [e.g., supporting installation of electric vehicle supply equipment (EVSE)]. Stakeholders include a variety of interests, including utility companies, fleets, local businesses, EV manufacturers, infrastructure producers, and interest groups. Through the early work of this initiative, the DFW area was a target market for early deployment of EVSE and now has a robust infrastructure of over 400 public-access recharging facilities. Moreover, the Federal Highway Administration has designated every major interstate that passes through the DFW area, as well as US 75, as either EV-ready or EV-pending due to the amount of infrastructure already available. Over 40,000 EVs were registered in the DFW area as of January 2021, and the number of registered EVs is expected to continue to steadily climb. These vehicles achieve real-world emissions reductions as compared to their conventional counterparts on both tailpipe emissions and on a well-to-wheels basis. NCTCOG will continue to work toward increased adoption of EVs, including development of consumer awareness materials and outreach events, fostering of partnerships and education with vehicle dealers, planning support for infrastructure development, guidance on local government policies that can impact EV market penetration, and support for fleets' transition to EVs.

- **Congestion Management Process**

The **Congestion Management Process (CMP)** provides for the effective management of new and existing transportation facilities through development and implementation of operational and Travel Demand Management strategies, and by providing information to decision makers on system performance and the effectiveness of implemented strategies. Although major capital investments are still needed to meet the growing travel demand, the CMP also develops lower-cost strategies that complement capital investment recommendations. The result is more efficient and effective transportation systems, increased mobility, and a leveraging of resources. In 2021, NCTCOG and the Regional Transportation Council established a regional target to reduce single-occupancy vehicle commute trips by 20 percent with the target maintained each year. All Travel Demand Management strategies, including carpooling, vanpooling, transit, biking, walking, telecommuting, and flexible work schedules are encouraged to achieve the regional target.

- **Engine Off North Texas**

The Engine Off North Texas Program is designed to reduce emissions by reducing vehicle idling. Efforts focus on improving public awareness of idle-reduction technologies, regulatory options, and campaign strategies organizations can use to reduce idling from various vehicle types. As part of this program, NCTCOG educates local governments of the State Idling Rule (TAC 114.512) and encourages the adoption of an idle restriction ordinance or resolution. To date, 25 municipalities have adopted an idling restrictions ordinance, which is consistent with the Regional Transportation Council's Locally Enforced Motor Vehicle Idling Restrictions Resolution (R21-06). NCTCOG will continue to promote adoption, education, and enforcement of idling restrictions throughout the region, along with broader idle-reduction strategies.

- **Freeway and Arterial Bottleneck Removal**

Bottleneck removal strategies are low cost, quickly implementable solutions to improve locations of isolated congestion. These types of strategies include adding travel lanes, restriping merging or diverging areas, reducing lane or shoulder widths to add a travel and/or auxiliary lane, providing bypass routes, modifying weave patterns, metering or closing entrance ramps, improving traffic signal timing on arterials, and implementing high-occupancy vehicle or managed lanes. Regional transportation providers coordinate with local governments in the identification and mitigation of bottlenecks. Corridor studies and sub-regional traffic management teams are forums to identify potential bottleneck locations and recommendations for improvements.

- **Grade Separation Projects**

Idling time that would otherwise be created by intersection blockage is eliminated by separating a road or railroad track from a crossroad. With this elimination of idling, grade separations increase the efficiency of traffic flow, thereby improving travel time and minimizing delay. Thus, vehicle emissions and fuel consumption are reduced. In accounting for existing and future projects, NCTCOG has identified 98 locations in the 10-county nonattainment area. Since these projects are included in the DFW regional travel model, benefits from these projects are already accounted for in the on-road mobile source emission inventories.

- **High-Emitting Vehicle Program**

The **High-Emitting Vehicle Program (HEVP)** conducts regional programs to reduce emissions from on-road mobile sources. These initiatives focus on public awareness and enforcement of emissions standards. Identifying high-emitting vehicles and encouraging drivers to address emissions problems that may develop in the period between annual emissions inspections helps the highest polluting vehicles be repaired or replaced sooner. The following list outlines specific programs/projects under the HEVP umbrella program:

- *North Texas Car Care Clinics*

NCTCOG partners with nonprofit and community organizations, and auto repair facilities at clinics, workshops, and events to educate North Texans about proper

vehicle maintenance and what to do when the check engine light illuminates. NCTCOG staff will also provide information and resources related to keeping vehicles compliant through the state's Vehicle Inspection and Maintenance Program and reducing emissions in the Dallas-Fort Worth region.

- *Regional Emissions Enforcement Program*

The Regional Emissions Enforcement Program (REEP) was developed to help identify and remove high-emitting vehicles from roadways with counterfeit, expired, fictitious, fraudulent, improper state emissions inspections. REEP takes a four-pronged approach, utilizing law enforcement for: conducting covert operations on state vehicle emissions inspection stations to identify and prosecute inspectors performing improper inspections, finding and prosecuting dealers and manufacturers of fictitious or counterfeit vehicle inspection reports, investigating and pursuing civil litigation against car dealers selling improperly inspected vehicles, and on-road emissions enforcement of vehicles traveling in our region. Also, as part of this collaborative effort, NCTCOG developed the NCTCOG Emissions Database (NED) in coordination with the Texas Commission on Environmental Quality and the Texas Department of Public Safety to allow law enforcement 24/7 access to emissions inspection data to aid in the enforcement of the state Inspection and Maintenance Program. This program has been highly utilized and has become a valuable tool to law enforcement in their efforts to build a case against stations performing illegal activity related to vehicles emissions testing. The NED is also used to aid in the identification of vehicles with fictitious or fraudulent temporary paper tags. REEP training will be enhanced to include other enforcement-related projects, including truck lane restrictions, smoking vehicles, and idling restrictions.

- *On-Road Vehicle Emissions Project*

This project is being implemented in multiple parts. The first strategy is capturing real-world tailpipe emissions of on-road vehicles in a realistic setting of both gasoline and diesel vehicles. This data aids in modeling efforts and helps identify high-emitting vehicles and develop air quality planning strategies in the nonattainment area. This program also aids in identifying diesel vehicles that may have had their emissions components tampered with by utilizing an onboard diagnostic scanning device, leading to understanding the nature of tampering activity occurring in the region. The other strategy is developing and implementing a mobile emissions enforcement task force to combat the prevalence of fraudulent Texas temporary paper plates and fraudulent vehicle inspections. Elimination of fraudulent inspections and improper paper plates ensures vehicles are not circumventing the state's vehicle Inspection and Maintenance Program and helps restore state and local revenue collection through the state's vehicle registration process.

- *Regional Smoking Vehicle Program*

The North Central Texas Regional Smoking Vehicle Program is designed to encourage North Texans to voluntarily maintain and repair their vehicles and to promote public awareness regarding the harmful emissions and air pollution caused by smoking vehicles. Reported vehicle owners are mailed educational

information about why their vehicle might be smoking, as well as any incentives available to replace their vehicle with a newer, cleaner one. Vehicle owners reported through this program are also logged in NED for law enforcement to cross-check when citing motorists for an emissions-related offense.

- **High-Occupancy Vehicle/Managed Lanes**

High-occupancy vehicle (HOV) projects promote carpooling; thereby, removing single-occupancy vehicles and associated emissions released from the vehicle tailpipe. The increase in flow of HOV lanes offers incentive for drivers to carpool. Accounting existing and future projects, NCTCOG has identified 315 total lane miles of either HOV or managed lane projects in the 10-county nonattainment area. Since these projects are included in the DFW regional travel model, benefits from these projects are already accounted for in the on-road mobile source emission inventories.

- **Intelligent Transportation System**

The **Intelligent Transportation System (ITS)** improves traffic speeds and reduces idling time through advanced traffic control systems and more efficient incident and corridor management. ITS also combines the strengths of regional transportation planning models and traffic simulation models with overall transportation management strategies. Examples of ITS projects include transportation management centers, dynamic message signs, vehicle detectors, integration of systems, and closed-circuit television cameras, in addition to the 511DFW regional traveler information system. According to the Fort Worth Regional and Dallas Area Wide ITS Plans, transportation system capacity significantly increases by implementing these types of transportation management strategies, thereby enhancing the overall efficiency of the entire transportation system. In addition, benefits include fuel savings and air pollution reduction, safer streets and highways, and reductions in maintenance costs. Together with transit agencies, local governments, Texas Department of Transportation, etc., the DFW metropolitan area is currently involved in the planning, programming, and implementation of ITS programs and projects. Using the National ITS Architecture as a model, the region has and continues to define a Regional ITS Architecture to guide future deployment and to build consensus for multiagency systems integration. NCTCOG has identified over 70 percent (Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties) and over 90 percent (Collin, Dallas, Denton, and Tarrant counties) of ITS coverage within the region.

- **Intersection Improvement Projects**

Improvements to intersections, including left and/or right turn lanes decrease the amount of time automobiles are left idling at intersections. This decrease in idling reduces fuel consumption and vehicle emissions. Accounting for existing and future projects, NCTCOG has identified numerous locations in the 10-county nonattainment area.

- **On-Road Vehicle Emissions Project**

NCTCOG plans to capture tailpipe emissions of on-road vehicles in a real-world setting of both gasoline and diesel vehicles. The data will aid in modeling efforts, help identify high-emitting vehicles and assist in the development of air quality

planning strategies in the nonattainment area. Additionally, NCTCOG will assist to fund mobile emissions enforcement task forces to combat the prevalence of fraudulent Texas temporary paper tags and fraudulent vehicle inspections. Elimination of fraudulent inspections and improper paper plates ensures vehicles are not circumventing the state's vehicle Inspection and Maintenance Program and helps restore state and local revenue collection through the state's vehicle registration process.

- **Park-and-Ride Projects**

Park-and-Ride facilities promote carpooling, vanpooling, and transit usage. With each occupied parking space at these locations, it can be assumed that the otherwise additional "running" emissions from each parked vehicle are eliminated. Park-and-Ride lots that also serve as transit stations are not accounted for in this category as it is assumed most of these Park-and-Ride lots contain transit riders, which are then captured in rail transit projects. NCTCOG has identified 29,575 parking spaces contained in Park-and-Ride projects that are complete and open to the public. Park-and-Ride facilities that are part of existing transit stations are included in the DFW regional travel model, so benefits from these projects are already accounted for in the on-road mobile source emission inventories.

- **Public Transportation Projects**

Public transportation projects involve implementation of new or expanded transit services or facilities. The improvements may be accomplished for all types of transit such as rail, fixed route, paratransit, and demand response service. The three main components of improved transit are system/service expansion projects, system/service operational improvements, and inducements. By improving regional transit systems, an increase in opportunity is created for new passengers, as well as an increase in air quality benefits. As a backbone of the public transportation system, transit projects reduce the number of cars on the roads, relieve congestion for people who drive, and improve air quality for all. Rail transit projects involve implementation of new or expanded rail services or facilities.

A few rail transit projects are under construction, including Dallas Area Rapid Transit's 26-mile Silver Line and Trinity Metro's 2-mile TEXRail southwest extension. Additionally, McKinney Avenue Transit Authority implemented their Improved Service Frequency Plan, increasing the number of railcars and service frequency. In accounting for existing and future rail transit projects, NCTCOG has identified over 400 miles of rail projects in the 10-county nonattainment area. One non-rail high-capacity transit project under development is the first 17-mile phase of Trinity Metro and Denton County Transit Authority's (DCTA) 35-mile IH 35W Express Bus corridor. Also, there is a growing list of micro-transit operations in the region that are either expanding or starting new services such as Arlington's Via Rideshare and RAPID demand services, Trinity Metro's ZipZone on-demand service, DCTA's network transition to GoZone on-demand service, and Dallas Area Rapid Transit's GoLink service in partnership with STAR Transit to provide on-demand service in the Southern Dallas County Inland Port area. Planned enhancements in the Southern Dallas Inland Port area include the introduction of electric vehicles and expansion of service by STAR Transit. New services are being explored by the city of Grand Prairie to increase access to education and enhance current paratransit services, and the city

of Cedar Hill is seeking to introduce a demand-response service for seniors and individuals with disabilities. By improving regional transit systems, an increase in opportunity is created for new passengers, as well as an increase in air quality benefits. Since these projects are included in the DFW regional travel model, benefits from these projects are already accounted for in the on-road mobile source emission inventories. Additionally, 15 public transportation providers operate service within the 10-county nonattainment area, providing over 70 million passenger trips in 2018.

- **Saving Money and Reducing Truck Emissions**

The **Saving Money and Reducing Truck Emissions (SMARTE)** Program aims to improve industry awareness of freight traffic effects on air quality, promote the use of SmartWay®-verified technologies, and encourage industry-specific best practices in the freight industry. The initiative includes focus on idle reduction, emission reduction, and fuel-saving strategies in the heavy-duty trucking industry. The SMARTE Program educates drivers and fleet managers through public interaction and engagement in the field to ensure a large audience is reached, with an emphasis on small fleets and owner-operators who typically lack staff needed to identify fuel-efficient and cost-saving techniques on their own. SMARTE provides informational materials on a variety of NCTCOG initiatives suitable for the trucking industry, including DFWCC, the Clean Fleet Policy, the Environmental Protection Agency (EPA) SmartWay Transport Partnership, and SmartWay-verified technologies, and information on relevant funding opportunities to provide financial assistance with obtaining capital-intensive items.

- **SmartWay Transport Partnership**

The EPA **SmartWay Transport Partnership (SmartWay)**, established in 2004, is a voluntary, public-private partnership with the ground freight industry designed to reduce emissions, reduce fuel consumption, and increase energy efficiency among the freight transportation sector. NCTCOG joined the SmartWay Transport Partnership as an Affiliate in 2006. In this role, NCTCOG has committed to outreach and education efforts related to the program in the DFW area. In addition, NCTCOG will pursue opportunities to implement projects that increase use of verified SmartWay technologies, including idle reduction and fuel-saving activities NCTCOG will continue to pursue implementation of projects which address the goals of the SmartWay Transport Partnership.

- **Energy Efficiency and Renewable Energy**

NCTCOG has worked on energy efficiency and renewable energy topics for almost a decade, beginning with solar initiatives and expanding into a Regional Energy Management Program focused on facilitating energy management and efficiency education, activities, and partnerships with an emphasis on the public sector. By conserving energy through efficiency measures, and expanding the use of renewable generation, air pollution associated with conventional power generation can be reduced while also increasing resiliency and reliability of the grid. Additionally, the Regional Integration of Sustainability Efforts Coalition was established by NCTCOG to foster peer exchange and collaboration among local governments supporting sustainability and environmental initiatives across the region. Resources are

compiled at a website called Conserve North Texas at www.conservenorthtexas.org. Key elements of NCTCOG efforts in this topic area include:

- *SolSmart and Solar Energy Technology*

NCTCOG has undertaken several efforts to advance solar adoption across the region, leading to designation as a SolSmart region in April 2020. Key efforts include supporting local governments in pursuing their own SolSmart designation by removing regulatory or policy barriers to solar; creation of a central website at [Go Solar Texas](http://GoSolarTexas.com) to house Texas-specific information; development of regional template materials for permitting, zoning, and codes; and hosting trainings for first responders, inspectors, permitting officials, and other staff to increase local governments' knowledge of solar technology. NCTCOG goals include drafting a plan for increased solar deployment, securing SolSmart designation for at least 10 additional municipalities, and increasing deployment of solar across all sectors while leveraging the connections between solar deployment and other regional goals such as emergency preparedness and grid resiliency.

- *Local Government Energy Reporting*

Per the statutory requirements outlined in the [Texas Health and Safety Code §388.005\(c\)](#), all political subdivisions, state agencies, and institutes of higher education in a nonattainment area or an affected county are required to establish a goal to reduce electricity consumption by at least 5 percent each year and submit a report to the Texas State Energy Conservation Office each year regarding the entity's progress and efforts to meet the reduction goal. However, there has historically been a very low rate of compliance with this requirement, and data quality has often been poor. NCTCOG and the South-Central Partnership for Energy Efficiency as a Resource (SPEER) began technical assistance efforts and outreach in 2019 to increase data quality and reporting rates. NCTCOG and SPEER provide support through workshops, white papers, and case studies, all of which are posted on the Conserve North Texas website in the Local Government Energy Reporting Toolkit (<http://conservenorthtexas.org/item/local-government-energy-reporting-toolkit>).

- *Energy Codes*

Buildings use a substantial amount of energy. By updating building codes, especially energy codes, municipalities can greatly impact the degree of energy consumption in their city. For five consecutive years, NCTCOG has surveyed the North Central Texas region and determined there is a significant percentage of cities, small and large, that are operating under energy codes as old as 2000. The NCTCOG energy code survey results over the past five years are posted on the NCTCOG Code Adoption Survey webpage (<https://www.nctcog.org/envir/regional-building-codes/code-adoption-surveys>). NCTCOG is outreaching to cities with energy codes 2006 or older, then leveraging technical expertise from SPEER by connecting the identified cities with SPEER for assistance in moving through the updated code adoption process.

- *Property Assessed Clean Energy*

Texas Property Assessed Clean Energy (TX-PACE) is a financial tool available to incentivize commercial and industrial property owners to upgrade facility infrastructure with energy efficiency or water conservation improvements. Several city and county PACE programs already exist in the North Central Texas region, including the following: cities of Burleson, Corinth, Dallas, Farmers Branch, and Princeton; the Town of Prosper; and Denton, Navarro, and Tarrant counties. In 2021, NCTCOG initiated efforts to implement a program to become a PACE Authorized Representative for the 16-County North Central Texas region. NCTCOG supports PACE Program adoption due to its ability to reduce energy and water consumption within commercial buildings, improve regional air quality by reducing the need for electricity generation, and provide economic benefits by spurring investment in communities. NCTCOG held a “Regional Property Assessed Clean Energy (PACE) Roundtable for Local Governments” which was recorded; additional materials can be found on the following Conserve North Texas webpage, <http://conservenorthtexas.org/article/2021/regional-property-assessed-clean-energy-pace-roundtable-local-governments>. Impacts of PACE projects are estimated by the Houston Advanced Research Center through the TX-PACE Energy and Emissions Tracker, available at <https://pace.harcresearch.org/>. NCTCOG’s efforts to promote expanded adoption of and use of PACE financing will continue.

- **Solar**

Increased adoption of solar technologies, at both the rooftop and industrial scale, is a critical step towards reducing harmful emissions resulting from electric generating units (EGU). For North Central Texas in particular, solar is the key to avoiding increases in EGU emissions in the face of a growing population. NCTCOG has participated in several projects to increase solar deployment across Texas, including **Solar Ready II** (in partnership with the National Association of Regional Councils, the Mid-America Regional Council, Meister Consultants Group, Inc., and Council of State Governments), a contract awarded by the State Energy Conservation Office, and a technical assistance award as a SolSmart Advisor. Through these projects, NCTCOG has conducted outreach to local governments about solar Best Management Practices, developed template regional materials related to permitting and zoning ordinances, and hosted trainings for first responders, inspectors, permitting officials, and other staff to increase local governments’ comfort with solar technology. Ultimately, the goal is to streamline local regulatory processes, increasing the magnitude and rate of solar installations. As of March 2018, NCTCOG had assisted six municipalities in the DFW area in receiving SolSmart designation. This designation indicates the cities have updated local policies and processes in a way that results in a more solar-friendly regulatory environment. NCTCOG developed and maintains extensive resources, including cost-benefit analysis tools for a variety of solar applications and template documents for local governments, online at www.GoSolarTexas.org. Stakeholders engaged in these initiatives have conducted region-specific research and estimated that total installed solar capacity in the 10-county DFW ozone nonattainment area was approximately 43,626 kW as of early 2016. As installed solar capacity continues to increase, additional emissions reductions will be gained through reduced demand on conventional EGUs.

- **Sustainable Development**

The promotion of livable communities supporting sustainability and economic vitality has become the objective of the North Central Texas region because of the interconnections between land use, transportation, economy, environmental quality, and livability. Sustainable development is utilized as a tool to help meet the coordination between land use, transportation, and improvement of air quality. Numerous studies have shown a reduction in vehicle miles traveled (VMT) due to higher density, mixed-use, infill, or transit-oriented development connected by alternative modes of transportation and pedestrian improvements due to the reduction in need for automobile usage to access various uses. As a result, transportation strategies and projects must be responsive to regional trends in economic expansion, population growth, development, quality of life, public health, and the environment in order to provide mobility and prevent the continued decline of the region's air quality status. The Regional Transportation Council has adopted a variety of strategies and policies to ensure the development of transportation plans, programs, and projects which promote air quality improvements through sustainable development. These strategies are designed to (1) respond to local initiatives for town centers, mixed-use growth centers, transit-oriented developments, infill/brownfield developments, and pedestrian-oriented projects; (2) complement rail investments with coordinated investments in Park-and-Ride, and bicycle and pedestrian facilities, and (3) reduce the growth in VMT per person. The shift toward alternative modes of transportation and lower VMT will lead to reduced transportation-related emissions and improved public health and quality of life.

NCTCOG's **Sustainable Development Funding Program** was created by the Regional Transportation Council (RTC) to encourage public/private partnerships positively addressing existing transportation system capacity, rail access, air quality concerns, and/or mixed land uses. By allocating transportation funds to land use projects promoting alternative transportation modes or reduced automobile use, NCTCOG and its regional partners are working to address escalating air quality, congestion, and quality of life issues. Four calls for projects were conducted in 2001, 2005-2006, 2009-2010, and 2017 and \$241 million was programmed by the RTC, which includes \$178 million of direct funds plus matching funds of \$63 million from local governments to 106 projects. The funded sustainable development projects include infrastructure, landbanking, and planning projects. NCTCOG staff worked with local governments and Independent School Districts (ISDs) to promote efficient school siting and multimodal transportation connections around school locations. NCTCOG staff provided technical assistance to the cities of Arlington, Little Elm, Kennedale, Fort Worth, Dallas, and Denton and funded sidewalks connecting to school locations in many locations. Staff will continue to coordinate and fund school siting and transportation projects in partnership with other local governments and ISDs in the region. Staff provided technical assistance to local governments related to corridor planning projects. Technical assistance was provided for a preliminary review of existing land uses, bike and pedestrian facilities, and a traffic flow analysis for the SH 183 corridor. Staff will continue to provide technical assistance to local governments on other land use-transportation projects in the region.

- **Technology Improvements**

NCTCOG continues to offer programs providing financial assistance for projects that reduce emissions from on-road vehicles and non-road equipment. Most funding is directed toward early replacement of older fleet vehicles and equipment, but some funding has also been used to implement idle reduction infrastructure projects to reduce emissions from heavy-duty diesel vehicles at truck stops and trucking terminals. The primary source of this funding comes from Environmental Protection Agency grant awards; as of January 2022, NCTCOG is overseeing implementation of awarded projects funded under the 2017, 2018, 2019, and 2020 National Clean Diesel Funding Assistance Program and administers calls for projects as funds become available. The Texas Volkswagen Environmental Mitigation Program has also been a source of funding for vehicle replacement projects, as well as electric charging infrastructure projects in the region. As of December 2021, over \$35.7 million in funding has been requested and over \$25.4 million awarded to fleets in the Dallas-Fort Worth area for bus, refuse, and freight vehicle placement projects. NCTCOG will continue to seek opportunities to provide financial assistance for projects that achieve nitrogen oxides emissions reductions.

- **Traffic Signal Improvements**

The DFW Metropolitan Area is involved in the planning, programming, and implementation of traffic signal improvement programs and projects. Arterial congestion accounts for 35 percent of the total congestion in the region, in turn adding emissions due to inefficient traffic patterns and unnecessary idling. Traffic signal improvements such as signal retiming and signal coordination can enhance traffic flow and help decrease vehicular emissions. Emphasis of the Traffic Signal Improvement Program in the North Central Texas region is placed upon major arterial corridors, where synchronizing a succession of traffic signals to operate as a continuous system has a great impact on a large volume of traffic. These improvements result in a more consistent travel speed and reduced delay, which decreases vehicular emissions due to minimizing frequent starts, stops, and unnecessary idling. NCTCOG has begun a new program, Regional Traffic Signal Program, which will include an inventory of signals and signal equipment, procurement of a signal performance measures platform, and signal data to be used to identify signals needing improvement. This platform and further investigation will define needs for individual signals so that retiming efforts, signal equipment, signal management, and capacity improvements can be addressed. Additionally, NCTCOG will pursue funding sources and opportunities for other signal improvements.

- **Transportation Safety Program**

The **Transportation Safety Program** focuses on improving traffic safety throughout the region by supporting planning efforts to develop safety policies, programs, and projects. NCTCOG offers a **Traffic Incident Management Training Program** for emergency responders that helps to initiate a common, coordinated response to traffic incidents that will build partnerships, enhance safety for emergency personnel, reduce upstream traffic crashes, improve the efficiency of the transportation system, and improve air quality in the Dallas-Fort Worth region. The **Regional Mobility Assistance Patrol Program** operates on congested corridors to improve roadway safety and simultaneously reduce non-recurrent congestion due to crashes. **Drive Aware North**

Texas is an educational campaign aimed at improving negative driver behaviors that are the leading contributing factors for serious injury and fatality crashes in the North Central Texas region.

- **Truck Lane Restriction Program**

A pilot study to improve operational efficiency and highway safety was conducted to study the effects of restricting trucks with three or more axles from using the left lane on controlled access, and state-system facilities with three or more lanes in each direction. Truck lane restrictions were implemented on segments of IH 20 and IH 30 in the DFW region from August 2005 through January 2006. Results showed truck lane restrictions effectively controlled trucks from using the left lane, slightly reduced truck speeds, and increased safety by reducing truck versus car conflicts, thus reducing ozone precursor emissions.

In 2012, the Texas Department of Transportation (TxDOT) requested all eligible corridors without truck lane restrictions within the state have the restrictions implemented where appropriate and feasible. Within the region, this included additional sections of IH 20, IH 30, IH 45, and IH 820, as well as new corridors, including portions of IH 35E, IH 35W, IH 635, US Highway 75, US Highway 175, SH 114, SH 121, SH 360, and Loop 12. These additions were included in the 2013 Truck Lane Restriction Expansion. In 2019, TxDOT Dallas requested help establishing additional Truck Lane Restrictions for these new corridors or sections of existing corridors, including US 75, IH 45, IH 35E, SH 183, US 67, IH 635, and IH 30. Once all additions are fully implemented, the total mileage of truck lane restrictions will be well over 550 miles. While the number of remaining eligible corridors is small, additional restrictions will be implemented along these corridors in the future.

- **Vanpool Projects**

Vanpool projects include a group of 6 to 15 commuters who travel to and from the same area, have similar work hours, share the costs of operating the van, and usually meet at a centralized location such as a Park-and-Ride lot. By consolidating travelers into one vehicle, these projects reduce air pollution, reduce traffic congestion, and help conserve fuel. The **Regional Vanpool Program** is operated by Dallas Area Rapid Transit, Denton County Transportation Authority, and Trinity Metro and includes a total of 286 vanpools serving the 10-county nonattainment area.

- **Automated Vehicles and Related Technologies**

Through its automated vehicle (AV) programs, NCTCOG is exploring and advancing vehicle technology solutions that may reduce emissions. Many AVs are being developed on an electric vehicle platform, which will have air quality benefits. Many developers are working to advance a shared vehicle use model under which fleets of AVs operating many hours each day serve a substantial portion of a city's mobility needs. This has the potential to reduce the number of vehicles required for surface mobility and could have associated environmental benefits such as reducing the amount of land and built structures to provide parking and other services to privately owned vehicles. In a related development, AVs are likely to roll out in new vehicle types that are smaller and lighter than today's vehicles. This has potential air quality and other environmental benefits. AVs in the freight sector have the potential

for improving emissions by substituting relatively small electric-powered freight delivery robots for the full-sized delivery trucks used today. The data generated by AVs will be a highly useful source of information for highway operators to use to optimize highway operations, generating air quality, and other benefits. As part of its AV Program, NCTCOG has worked with local cities to (1) make their traffic signal data accessible to the developer community to power connected vehicle applications that optimize traffic flow and (2) utilize roadway incident reports and traffic speed data accessible through the **Waze Connected Citizens Program** to optimize traffic signal timing, provide improved information to travel navigation services to steer vehicles around road closures, and more efficiently target pothole repair, and the like.