

DALLAS-FORT WORTH AIR QUALITY IMPROVEMENT PLAN - ENERGY MEASURES																	
MEASURE OVERVIEW													AIR QUALITY BENEFITS PER UNIT/TYPICAL PROJECT IN METRIC TONS				DISADVANTAGED COMMUNITY BENEFITS
PROGRAM AREA	MEASURE	PROJECTS TO QUANTIFY WITHIN MEASURE	DESCRIPTION	RELATED STRATEGIES PRESENTED IN IMPLEMENTER SURVEY	PERCENTAGE OF RESPONDENTS WHO CONSIDER THIS A PRIORITY	RELATED STRATEGIES PRESENTED IN PUBLIC SURVEY	PERCENTAGE OF RESPONDENTS WHO "AGREE"	IMPLEMENTING AGENCIES	AUTHORITY TO IMPLEMENT	METRICS FOR TRACKING PROGRESS	IMPLEMENTATION MILESTONES	IMPLEMENTATION SCHEDULE	ESTIMATED ANNUAL GHG REDUCTION (CO2e)	ESTIMATED ANNUAL CRITERIA POLLUTANT REDUCTION			EXPECTED COMMUNITY BENEFITS
														OXIDES OF NITROGEN	VOLATILE ORGANIC COMPOUNDS	PARTICULATE MATTER 2.5	
Energy Demand Management Program	Public Sector Energy Efficiency & Refrigerant Transition Program	Increase Energy Efficiency of Existing Buildings	Replace older, inefficient appliances and systems, such as HVAC, heat pumps/ smart meter, chillers, and boilers, with focus on most efficient EnergyStar-certified units.	Adopt heat pumps for commercial and residential buildings	35%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	Public Entities and Utilities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	0.00002 - 0.0037 per retrofit	0.00000001 - 0.000002 per retrofit	0.0000000004 - 0.0000001 per retrofit	0.000000001 - 0.0000002 per retrofit	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being
		LED Lighting Retrofits	Replace older lighting technology with efficient LEDs	Retrofit lighting with light-emitting diodes (LED)	62%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	Public Entities and Utilities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	0.00000004 per streetlight	0.00000000002 per streetlight	0.000000000005 per streetlight	0.00000000002 per streetlight	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being
	Residential Energy Efficiency Rebate Program	Conduct Residential Energy Audits and Weatherization Rebate Program	Conduct a comprehensive energy audit/preliminary energy assessment to identify potential energy or water efficiency improvements for residents and offer rebates to weatherize homes	Conduct energy audits for residents	46%	Residents/community members should be provided incentives to help with energy efficiency/weatherization projects.	88%	Public Entities and Utilities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	0.0000009 per household	0.0000000004 per household	0.000000003 per household	0.000000000004 per household	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being; Reduced Costs; Increased Awareness and Engagement; Increased Safety
		Provide Incentives for Residential Solar	Provide incentives for local residential solar installations, facilitate community solar opportunities, and/or support "Solarize" group-purchase options to reduce residential solar costs.	Incentivize residential solar projects	38%	Residents/community members should be provided incentives to help with energy efficiency/weatherization projects. I am interested in installing solar panels at my residence.	88% 57%	Public Entities and Utilities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope an incentive program; program start; program end	Years 1-2 Identifying scope of program, Years 3-4 program implementation, Year 5 Evaluate projects	0.00000004 solar per household	0.0000000001 solar per household	0.00000000005 solar per household	0.00000000001 solar per household	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being; Reduced Costs; Increased Awareness and Engagement
	Energy Plans/Audits/ Policies	Implement Building Energy Performance Management Program/Plan/Policy	Benchmark building energy consumption using Energy Star Portfolio Manager	Benchmark building energy consumption and implement a building energy performance management program	50%	We should reduce air pollution from electricity generation. I am interested in installing solar panels at my residence.	78% 57%	Public Entities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	Not Quantifiable	Not Quantifiable	Not Quantifiable	Not Quantifiable	Increased Awareness and Engagement; Increased Resiliency and Adaptability
		Conduct Energy Audits for Organizations	Conduct a comprehensive energy audit/preliminary energy assessment to identify potential energy or water efficiency improvements for commercial buildings or industrial facilities	Conduct energy audits for organizations	42%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	Public Entities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	Not Quantifiable	Not Quantifiable	Not Quantifiable	Not Quantifiable	Increased Awareness and Engagement; Increased Resiliency and Adaptability
	Green/Cool Roof Replacements	Implement Cool/Green Roofs	Install cool roofs on government buildings (includes white paint for reflectivity, green roofs planted with vegetation)	Install cool roofs on buildings (e.g., white paint, "green" vegetated roofs)	54%	Residents/community members should be provided incentives to help with energy efficiency/weatherization projects. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	88% 91%	Public Entities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	0.0002 - 0.011 per building roof	0.00000006 - 0.000004 per building roof	0.000000002 - 0.0000002 per building roof	0.000000007 - 0.0000005 per building roof	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being
		Resilient Building Improvements	Provide resiliency elements, such as battery or hydrogen fuel cell energy storage, solar, microgrids and cleaner burning generators (LPG,CNG), to improve resiliency at public buildings.	Incentivize commercial/industrial solar projects	42%	Power outages are a problem.	72%	Public Entities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	8.27 - 40.94	0.40 - 0.52	0 - 0.027	0.009 - 0.011	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being
	Distributed Energy and Resilience for Public Entities	Increase Grid Resiliency for Communities	Develop community-scale renewable energy (wind, solar), microgrids, battery storage and/or hydrogen fuel cell storage, or vehicle-to-grid facilities	Modernize and update the electric grid Utilize more battery storage for resiliency	35% 38% 46%	We should reduce air pollution from electricity generation. Power outages are a problem.	78% 72%	Public Entities in NCTCOG Jurisdiction in Collaboration with Electric Utilities	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	16.89 - 33.77	0.006 - 0.016	0.00028 - 0.00055	0.00076 - 0.0015	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being
		Develop Emergency Shelters	Identify appropriate buildings and retrofit them to include resiliency elements to accommodate sheltering of the general public in the event of a power outage. These buildings could include community centers, large libraries, schools, etc. that could accommodate large numbers of people.	Modernize and update the electric grid	38%	We should reduce air pollution from electricity generation.	78%	Public Entities in NCTCOG Jurisdiction	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start; project end	Years 1-2 Identifying scope of individual projects, Years 3-4 individual projects completed, Year 5 Evaluate projects	5.51 - 27.29	0.26 - 0.35	0 - 0.02	0.006 - 0.0072	Increased Resiliency and Ability to Adapt; Job Creation and Economic Development; Improved Health and Well-Being; Increased Safety
				Establish grid reliability requirements	35%	Power outages are a problem.	72%										
	Advancing Energy Elements in Building Codes	Expand Regional Codes Program to Support EVs, Solar and Energy Efficient Buildings	Enhance/expand regional codes program with additional training and outreach to expand adoption of latest & greatest building codes, including solar-ready provisions supported by the Regional Codes Coordinating Council and energy efficiency Develop resources to guide regional adoption of EV-friendly (e.g. EV-ready, EV-capable, and/or EV-installed) building codes or standards	Promote clean energy financing programs, such as PACE	42%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	NCTCOG	Yes	Established scope of work; annual project status reports; final report at the end of five-year project period	Identify and scope project; trainings and resources developed; trainings conducted	Year 1 Identifying scope of project, Years 2-3 Develop trainings and resources, Years 4-5 Conduct trainings and coordinate with local governments	Not Quantifiable	Not Quantifiable	Not Quantifiable	Not Quantifiable	Increased Awareness and Engagement; Increased Resiliency and Adaptability; Increased Safety
				Benchmark building energy consumption and implement a building energy performance management program	50%												
Update building codes Increase EV adoption among commercial vehicle fleets (freight, contractors, etc.)				66%													

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																Oxides of Nitrogen	Volatile Organic Compounds	Particulate Matter 2.5	
Watershed Management	Implement Integrated Stormwater Management, Low Impact Development, Green Stormwater Infrastructure, and other Nature-based Solutions	Provide Economic Rebates for Green Infrastructure and Water Efficient Landscaping	Green infrastructure and low-impact landscaping sequesters carbon, reduces water used for irrigation, and reduces site runoff	Sequester carbon in agriculture operations Implement urban forestation and green infrastructure programs	35% 83%	We should use drought-tolerant plants/grass. We do not have enough public parks/green spaces.	95% 77%	Local cities and counties to private property owners	Yes	Established scope of work; project status reports at year 2 and year 4 milestones; final report at the end of five-year project period	Rebate program approved through public entity; commercial business owners establish vendors for installation, construction begins, construction ends, rebate provided.	Year 1- Establish program and enrollments, Years 2-3- Installation occurs, Years 3-4- Installations finalize, Year 5- Evaluate project and rebate provided.	1183.89	0.47	Not Quantifiable at This Time	0.05	New Green Space/Community Beautification; Increased Resiliency/Ability to Adapt; Improved Health and Well-Being; Increased Awareness/Engagement; Increased Resiliency/Ability to Adapt		
		Update Local Policy, Codes, Drainage Criteria and Ordinances	Update local policy, codes, drainage criteria and ordinances as necessary to encourage wider adoption of nature based solutions towards reduced stormwater peaks and volumes, improved water quality, and associated green space benefits	Sequester carbon in agriculture operations Implement urban forestation and green infrastructure programs	35% 83%	We should use drought-tolerant plants/grass. We do not have enough public parks/green spaces.	95% 77%	Local governments	Yes	Draft of the ordinance proposal introduced at council or committee meeting, evidence of public hearing, meeting minutes showing council voted to approve ordinance change, ordinance signed by mayor.	Ordinance introduced in special committee or city council meeting; public hearing, ordinance appears before public governing body for a vote. If approved, executive governing body signs ordinance into effect.	Year 1- Ordinance introduced and public hearing, Years 2-3- Ordinance approved and executive governing body signs ordinance. Year 5- Evaluate project	N/A	N/A	N/A	N/A	New Green Space/Community Beautification; Increased Resiliency/Ability to Adapt; Improved Health and Well-Being; Increased Awareness/Engagement; Increased Resiliency/Ability to Adapt		
		Implement Bioswales and Other Organic Stormwater Collection Areas to Increase Local Storage	Implement bioswales and other organic stormwater collection areas to provide extra storage and limited treatment for runoff during extreme storm events; would also provide urban heat island mitigation, note: may be related to similar measures in transportation sector around public ROW, and also similar measures under AGFOLU around increasing green space.	Sequester carbon in agriculture operations Implement urban forestation and green infrastructure programs	35% 83%	We should use drought-tolerant plants/grass. We do not have enough public parks/green spaces.	95% 77%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status reports at year 2 and year 4 milestones; final report at the end of five-year project period	Procurement of vendors to install stormwater collection materials, construction/installation begins, maintenance and installation as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	1183.89	0.47	Not Quantifiable at This Time	0.05	New Green Space/Community Beautification; Increased Resiliency/Ability to Adapt; Improved Health and Well-Being; Increased Awareness/Engagement; Increased Resiliency/Ability to Adapt		
		Install Smart Controls and Sensors to LID and Green Infrastructure to Analyze and Quantify Stormwater Collection Efforts	Encourages carbon sequestration through green infrastructure. Smart controls reduce energy expenditure by assessing conditions of green infrastructure and making adjustments.	Install smart manhole covers Implement stormwater collection programs	76% 90%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status reports at year 2 and year 4 milestones; final report at the end of five-year project period	Procurement of vendors for sensors and smart controls, installation begins, installation finalizes, project evaluation.	Year 1-Procure vendors, Years 2-3- Installation occurs, Years 3-4- Installations finalize, Year 5- Evaluate project	0.0035	Unspecified	Unspecified	Unspecified	Green Spaces and Community Beautification, Job Creation and Economic Development, Increased Safety, Water Conservation, Increased Health and Well-Being; Increased Resiliency and Adaptability		
	Restore, Protect and Maintain Riparian Corridor Ecosystems	Implement measures to protect, enhance and maintain riparian corridor ecosystems; while many channels in our area are required be relatively clear to ensure flood conveyance, there are also TODES MS4 Permit requirements to maintain at least a 50-foot buffer along all waters of the state.	Expand urban forests Improve forest management policies	82% 39%	We should use drought-tolerant plants/grass. We do not have enough public parks/green spaces.	95% 75%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors to plant and maintain vegetation added to corridor, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	2.2	0	unspecified	unspecified	Green Spaces and Community Beautification; Improved Health and Well-Being; Increased Safety			
	Expand Contamination Detection and Pollution Prevention Measures	Provide Discharge Detection and Sampling Kits for Illicit Discharge Detection & Elimination (IDDE) Investigations	Supports increased detection and elimination of pollutants to Municipal Separate Storm Sewer Systems	90%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of sampling kit vendors, update and train staff on new sampling process if needed, project evaluation.	Year 1-Procure vendors, Years 2-3- Update and train staff on new sampling process if needed, Year 5- Evaluate project.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable	Improved Health and Well-Being			
	Update Stormwater & Wastewater Conveyance Infrastructure	Install Smart Manhole Covers	Install smart manhole covers to quickly provide updates on potential sewer blockages/overflows.	Install smart manhole covers	76%	We have a flooding problem.	51%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors to install manhole covers, identify maintenance staff, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	52.46	0	0.38	0	Improved Health and Well-Being; Water Conservation; Increased Resiliency and Adaptability		
		Utilize Trenchless Pipe Rehabilitation	Implement pipe rehabilitation projects based on prioritization using trenchless construction methods. Using trenchless rehabilitation methods would limit the traffic impacts from construction, uses about 60 percent less energy, and can reduce particulates associated with excavation, and reduce waste when compared to remove and replace construction methods.	Implement stormwater and wastewater collection programs	90%	We have a flooding problem. Our water infrastructure (pipes) is too sensitive to heat/cold.	51% 59%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors to install manhole covers, identify maintenance staff, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	0.0011	0.00	Unspecified	Unspecified	Increased Resiliency and Adaptability		
		Increase Available Stormwater Detention Volumes	Augment Stormwater Detention Basin Storage	Construct & maintain stormwater basins in flood prone communities to reduce local flood potential; measures include stormwater detention basin construction and dredging to provide local flood storage	Implement stormwater collection programs	90%	We have a flooding problem.	51%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for detention construction and dredging, identify maintenance staff, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	N/A	N/A	N/A	N/A	Increased Safety, Improved Health and Well-Being; Increased Resiliency and Adaptability	

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Water & Wastewater Treatment Infrastructure	Improve Water & Waste Treatment Process Efficiency	Develop and Implement a Strategic Energy Management and Conservation Plan for Water Utilities	Efforts to include formulation of energy policy; energy efficiency through energy audit, energy conservation, and energy usage goals; data and process analysis for identification of strategies to achieve those goals, development of methods to measure progress, coaching, walk-thru, and standard operating procedures and development and publication of annual reports.	Employ energy conservation technology for water utility companies	71%	We should reduce air pollution from electricity generation. I am concerned about drought and future water supply issues.	78% 89%	Water utility companies in NCTCOG jurisdiction	Yes	Report developed detailing baseline energy use; Plan written outlining energy management goals and strategies. Final report on any implementation impacts.	Establish method of auditing energy use, including procuring any outside vendors to run audit, audit begins, audit ends, establish energy conservation goals, develop methods of conservation, implementation of method, project evaluation.	Year 1- Establish methods and procure vendors, Year 2- Conduct audit, Year 3- Establish conservation goals and develop methods to meet the goal, Year 4- Implement method, Year 5- Evaluate project.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable	Job Creation and Economic Development; Increased Awareness and Engagement
		Update Aging Water/Wastewater Treatment Plant Infrastructure	Funding would update water/ wastewater treatment plant infrastructure with energy efficient supplies such as pumps and filters, etc.	Employ energy conservation technology for water utility companies Create green purchasing policies	71% 81%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	Water/wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for supplies, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Provide maintenance and installations as needed, Year 5- Evaluate project	0.005	N/A	N/A	N/A	Increased Resiliency and Adaptability
		Increase On-Site Renewable Energy into Wastewater Treatment Plant Site	Funding would diversify energy sources at water/wastewater treatment plants by increasing the use of co-generation, combined heat & power, solar, hydroelectric, and wind energy in the treatment process.	Increase the renewable portfolio standard and/or establish energy efficiency portfolio standard for electricity	41%	Industrial facilities should find ways to reduce emissions and decrease energy consumption.	91%	Water/wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for supplies, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Year 5- Maintenance as needed and evaluate project	57.15	0	0.00009	0.03	Increased Resiliency and Adaptability; Improved Health and Well-Being
		Pursue Energy-Efficient Disinfection Processes	Funding would support UV disinfection and other processes that would reduce energy expenditures from biomass cookstoves	Increase the renewable portfolio standard and/or establish energy efficiency portfolio standard for electricity Create green purchasing policies	41% 81%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Water/wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for disinfection, installation of new equipment begins, staff trained on new processes, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2- Installation occurs, staff trained on new processes, Years 3-4 - Maintenance as needed, Year 5- Evaluate project	1249.12	0.57	0.02	0.06	Increased Resiliency and Adaptability; Improved Health and Well-Being
		Install Water-Source Heat Pumps at Water- and Wastewater Treatment Plants	Funding would pay for upgrades to water and wastewater plants to utilize water-source heat-pumps.	Employ energy conservation technology for water utility companies	71%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Water/wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for supplies, installation begins, maintenance and installations as needed, project evaluation.	Year 1- Procure vendors, Years 2- Installation occurs, Years 3-4- Maintenance as needed, Year 5- Evaluate project	333.00	0.15	0.0053	0.016	Increased Resiliency and Adaptability; Improved Health and Well-Being
		Support Bio-Gas Capture & Reuse in Wastewater Treatment Plants	Funding would support the design and construction of biogas storage and processing infrastructure.	Employ energy conservation technology for water utility companies	71%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for construction, installation of new equipment begins, staff trained on new processes, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-3 Installation occurs, staff trained on new processes, Years 3-4 - Maintenance as needed, Year 5- Evaluate project	22	Unspecified	Unspecified	Unspecified	Increased Resiliency and Adaptability
	Address On-site Sewage Facility Systems	Identify and Repair Aging On-site Sewage Facility Systems	Provide Authorized Permitting Authorities with software upgrades needed to track On-Site Sewage Facility systems, and to upgrade, repair, or replace efficiency	Employ energy conservation technology for water utility companies	71%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of software vendors, installation of software, convert paper permitting records to digital copies, project evaluation.	Year 1- Procure vendors, install software, Year 2- Convert paper permits to digital software, Year 5- Evaluate project	0.0074	Negligible	0.00435	Not specified	Improved Health and Well-Being; Increased Resiliency and Adaptability, Job Creation and Economic Development - helps to reduce bacteria-related discharges in areas with related TMDLs
		Provide Sanitary Sewage Upgrades in Developing Areas with Existing On-Site Sewage Facility Systems	Provide sanitary sewer upgrades in developing areas with existing on-site sewage facility systems; incentivize hookup, and appropriate tank and drain field closure.	Employ energy conservation technology for water utility companies	71% %	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for construction and drainfield closure, construction of hook up lines begins, remaining drainfields closed once hook ups are complete, project evaluation.	Year 1- Procure vendors, Years 2-4- Construction, Year 4-Drain field closure, Year 5- Evaluate project.	0.0074	Not specified	0.00435	Not specified	Improved Health and Well-Being; Increased Resiliency and Adaptability, Job Creation and Economic Development - helps to reduce bacteria-related discharges in areas with related TMDLs
		Provide Financial Rebates to Upgrade OSSF	Provides homeowner incentives to upgrade On-Site Sewage Facility systems	Employ energy conservation technology for water utility companies	71%	Local governments should have more programs to help residents reduce waste.	85%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Rebate program approved through public entity, homeowners establish vendors for installing upgrades, construction begins, construction ends, rebate provided, project evaluation.	Year 1- Establish program and enrolls, homeowners establish vendors, Years 2-3- Installation occurs, Years 3-4- Installations finalize, Year 5- Evaluate project and rebate provided.	Negligible	Negligible	Negligible	Negligible	Improved Health and Well-Being, Increased Awareness and Engagement - helps to reduce bacteria related discharges in areas with related TMDLs

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MEASURE OVERVIEW													AIR QUALITY BENEFITS PER UNIT/TYPICAL PROJECT IN METRIC TONS				DISADVANTAGED COMMUNITY BENEFITS			
PROGRAM AREA	MEASURE	PROJECTS TO QUANTIFY WITHIN MEASURE	DESCRIPTION	RELATED STRATEGIES PRESENTED IN IMPLEMENTER SURVEY	PERCENTAGE OF RESPONDENTS WHO CONSIDER THIS A PRIORITY	RELATED STRATEGIES PRESENTED IN PUBLIC SURVEY	PERCENTAGE OF RESPONDENTS WHO "AGREE"	IMPLEMENTING AGENCIES	AUTHORITY TO IMPLEMENT	METRICS FOR TRACKING PROGRESS	IMPLEMENTATION MILESTONES	IMPLEMENTATION SCHEDULE	ESTIMATED ANNUAL GHG REDUCTION (CO2e)	ESTIMATED ANNUAL CRITERIA POLLUTANT REDUCTION	OXIDES OF NITROGEN			VOLATILE ORGANIC COMPOUNDS	PARTICULATE MATTER 2.5	EXPECTED COMMUNITY BENEFITS
Wastewater Infrastructure	Improve Bio-Solids Management	Divert Biosolids from Wastewater Treatment into Thermal Waste-to-Energy Facilities	Funding would be used to implement thermal treatment processes, like gasification and pyrolysis. Would reduce GHG from treatment processes, but depending on process used may have high energy needs to support process, and may not result in full air quality improvements for all constituents;	Divert biosolids from wastewater treatment into waste-to-energy systems	62%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for construction, construction begins, staff trained on new processes, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, staff trained on new process, Years 3-4- Maintenance and installations as needed, Year 5- Evaluate project	22	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Increased Resiliency and Adaptability
		Divert Biosolids from Wastewater Treatment into Waste-to-Energy Facilities	Funding would be used to implement anaerobic digestion and/or co-generation units in order to use organic wastes to develop renewable energy	Divert biosolids from wastewater treatment into waste-to-energy systems	62%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of digester and co-generation unit vendors, installation and construction begins, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, staff trained on new process, Years 3-4- Maintenance and installations as needed, Year 5- Evaluate project	22	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Unspecified	Increased Resiliency and Adaptability
		Update Bio-Solids Management from Wastewater Treatment for Placement into Low Carbon Soils to Sequester Carbon Through Landfarming	Funding would be used to identify better locations and infrastructure for placing dewatered sludge for disposal and carbon sequestration	Replace inorganic nitrogen fertilizer with lower emission alternative	65%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Wastewater utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for transfer and disposal, necessary equipment installed, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Installation occurs, Years 3-4- Maintenance as needed, Year 5- Evaluate project	0.035	0.000011	Unspecified	0.00013873	Unspecified	0.00013873	Green Spaces and Community Beautification; Increased Resiliency and Adaptability; Improved Health and Well-Being	
	Support Effluent Reuse	Reduce Chemical Use Affecting Effluent Reuse Options	Decrease the amount of energy/chemicals utilized at water treatment plants by upgrading and expanding the current reuse program which distributes non-potable reclaimed water for irrigation, industrial processes	Increase water reuse practices	76%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for transfer and disposal; infrastructure, construction begins, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-4- Construct reuse hookups and infrastructure, Year 5- Evaluate project	506.14	0	0.01	0.025	0.025	Improved Health and Well-Being; Increased Resiliency and Adaptability; Water Conservation		
Implement Methods for Non-Potable Water Reuse		Develop and implement methods of using non-potable water from various sources to treat and use for other functions	Increase water reuse practices Implement rainwater catchment programs	76% 90%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for transfer and disposal; infrastructure, construction begins, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-4- Construct reuse hookups and infrastructure, Year 5- Evaluate project	506.14	0	0.01	0.025	0.025	Improved Health and Well-Being; Increased Resiliency and Adaptability; Water Conservation			
Water Resources	Improve Local Water Conservation	Utilize Automated Metering Infrastructure (Water Meters)	Allows the customer and utility to proactively locate continuous water usage (potential leaks) on the city and private side, saving energy on extraction and treatment.	Provide rebates for smart water meters to residents	71%	We need more access to clean water. Industrial facilities should find ways to reduce emissions and decrease energy consumption.	68% 91%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of meter vendors, installation of new meters, staff trained on new processes, project evaluation.	Year 1- Procure vendors, Years 2-3- Install new meters, training staff on new processes, Year 5- Evaluate project	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Increased Resiliency and Adaptability; Water Conservation; Increased Awareness and Engagement
		Explore Aquifer Storage and Recovery	Explore Aquifer Storage and Recovery options to establish redundant water supply, and as potential water storage option.	Implement rainwater catchment programs	90%	We need more access to clean water.	68%	Water utility companies in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procure study on various storage and recovery options, determine water sources and best aquifers to pursue for storage and recovery.	Year 1- Procure vendors to conduct study, Years 2-5- determine sources and aquifer locations.	Not quantifiable at this time	Not quantifiable at this time	Not quantifiable at this time	Not quantifiable at this time	Not quantifiable at this time	Not quantifiable at this time	Improved resiliency and adaptability	
		Develop Aquifer Protection and Land Preservation Efforts	Provide funding to establish protected land designated for aquifer storage and support Aquifer Storage and Recovery (ASR) projects, lessening the energy expenditure of treatment infrastructure	Improve forest management policies Restore degraded lands and forested lands to enhance carbon sequestration	39% 61%	We need more access to clean water.	68%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Milestones for preservation vary by method of preservation. Milestones for subsequent ASR projects include: Procurement of vendors to construct storage and recovery facilities, construction begins, construction ends, project evaluation.	Year 1- Procure vendors, Years 2-3- Construct storage facility, Year 4- Water storage begins, Year 5- Evaluate project	145.15	0	0	0.0091	0.0091	Increased Resiliency and Adaptability; Improved Health and Well-Being		
		Implement Building-Scale Rainwater Harvesting for Commercial and Municipal Buildings	Funding would support the capture, diversion, and harvesting of rainwater for non-potable purposes	Implement rainwater catchment programs	90%	We need more access to clean water.	68%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors for to install rainwater harvesting infrastructure, construction begins, maintenance as needed, project evaluation.	Year 1- Procure vendors, Years 2-3- Construction, Year - Maintenance as needed, Year 5- Evaluate project	18.14	0.0091	0	0	0	Increased Resiliency and Adaptability; Improved Health and Well-Being; Water Conservation		
		Establish Home Water Conservation Audits and Smart Water Meter Rebate Programs	Audit program would identify potential conservation opportunities, lowering the energy needed to supply water to residents	Provide rebates for smart water meters to residents	71%	Local governments should have more programs to help residents reduce waste. We need more access to clean water.	85% 68%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Rebate program approved through public entity, homeowners establish vendors for installation, installation begins, installations finalize, rebate provided, project evaluation.	Year 1- Establish program and enrolls, Years 2-3- Installation occurs, Years 3-4- Installations finalize, Year 5- Evaluate project and rebate provided.	54.43	0.027	0	0	0	Increased Resiliency and Adaptability; Improved Health and Well-Being; Water Conservation; Reduced Costs; Increased Awareness and Engagement		
		Implement Municipal and Commercial Water Conservation Audits with Irrigation Repair Programs	Irrigation system audit programs to help municipal and commercial system operators identify opportunities to conserve water by identifying equipment that needs repair. Consider use of non-potable, or cooling tower discharge for makeup water. The project can include contract opportunities for implementing irrigation system repairs.	Provide rebates for smart water meters to residents	71%	Local governments should have more programs to help residents reduce waste. We need more access to clean water.	85% 68%	Public entities in NCTCOG jurisdiction	Yes	Established scope of work; project status report at halfway point in the project; final report at the end of five-year project period	Procurement of vendors to provide audits, audits begin and repairs needed are identified, repairs begin, project evaluation.	Year 1- Procure vendors, Year 2- Audits begin, Year 3- Repairs begin as needed, Year 5- Evaluate project	54.43	0.027	0	0	0	Increased Resiliency and Adaptability; Improved Health and Well-Being; Water Conservation; Reduced Costs; Increased Awareness and Engagement		

DALLAS-FORT WORTH AIR QUALITY IMPROVEMENT PLAN- MATERIALS MANAGEMENT (SOLID WASTE) MEASURES																		
MEASURE OVERVIEW														AIR QUALITY BENEFITS PER UNIT/TYPICAL PROJECT IN METRIC TONS			DISADVANTAGED COMMUNITY BENEFITS	
PROGRAM AREA	MEASURE	PROJECTS TO QUANTIFY WITHIN MEASURE	DESCRIPTION	RELATED STRATEGIES PRESENTED IN IMPLEMENTER SURVEY	PERCENTAGE OF RESPONDENTS WHO CONSIDER THIS A PRIORITY	RELATED STRATEGIES PRESENTED IN PUBLIC SURVEY	PERCENTAGE OF RESPONDENTS WHO "AGREE"	IMPLEMENTING AGENCIES	AUTHORITY TO IMPLEMENT	METRICS FOR TRACKING PROGRESS	IMPLEMENTATION MILESTONES	IMPLEMENTATION SCHEDULE	ESTIMATED ANNUAL GHG REDUCTION (CO2e)	ESTIMATED ANNUAL CRITERIA POLLUTANT REDUCTION				EXPECTED COMMUNITY BENEFITS
														Oxides of Nitrogen	Volatile Organic Compounds	Particulate Matter 2.5		
Expand Local Compost Opportunities to Reduce Organic Waste Disposal	Implement Curbside-Type Residential Organics Pickup with Diversion to Commercial Compost Operations	Funding would support the contracts with 3rd party entities that would pick up residential organics (yard waste, houseplants, etc.) from front lawns to local compost operations with reuse	Provide education on food waste Optimize waste collection and transfer networks	81% 76%	There are not enough recycling and composting options. Local governments should have more programs to help residents reduce waste.	76% 85%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	13,886.27	Negligible	Negligible	Negligible	Improved Health and Well-Being, Increased Resiliency and Adaptability, Increased Awareness and Understanding, Negligible Impact on Reducing Organic Waste at Landfill		
	Incentivize Multi-Family Residential Developers to Incorporate Space for Community Compost and Recycling	Funding would give priorities to developments that support multifamily composting efforts.	Provide education on food waste Implement low-waste construction methods	81% 76%	There are not enough recycling and composting options. Local governments should have more programs to help residents reduce waste.	76% 85%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	8,054.04	Negligible	Negligible	Negligible	Improved Health and Well-Being, Increased Resiliency and Adaptability, Increased Awareness and Understanding, Negligible Impact on Reducing Organic Waste Streams		
	Develop Regional Compost Facilities to Support Organic Diversion From Landfills	Implementing regional compost facilities would reduce landfill GHG from organic waste streams, as well as the GHG and priority pollutants associated with their land. Funding would be used to implement, expand existing and new compost facilities.	Implement low-waste construction methods Provide education on food waste	76% 81%	There are not enough recycling and composting options. Local governments should have more programs to help residents reduce waste.	76% 85%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	69,431.34	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Improved Health and Well-Being, Increased Resiliency and Adaptability, Increased Awareness and Understanding, May Help Reducing Organic Waste Streams, Extends Landfill Life		
	Divert Organic Waste into Waste-to-Energy Systems	Implement Organic Waste to Energy Through Anaerobic Digestion	Divert food waste and other appropriate organic materials to anaerobic digestors to use for energy	Divert organic waste from landfills into waste-to-energy systems Implement methane reduction best practices	71% 57%	We should reduce air pollution from electricity generation.	78%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	85,052.84	Negligible	Negligible	Negligible	Increased Resiliency and Adaptability, Job Creation and Economic Benefits, Better Carbon Capture Related to Embodied Carbon in Construction Materials	
Expand Regional Construction Materials Recycling Efforts	Funding would aid in increasing the number of construction demolition materials recycling facilities.	Implement low-waste construction methods Modify construction process/materials to reduce emissions impacts	76% 55%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	Negligible	Negligible	Negligible	Negligible	Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Landfill Life			
	Partner with Construction Companies That Prioritize Low-Waste Techniques into Their Projects	Accelerate the acceptance of low-waste construction practices through education, incentives and partnerships, and continue to pursue zero-waste waste practices for all construction projects.	Implement low-waste construction methods Modify construction process/materials to reduce emissions impacts	76% 55%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction through regional Public Works Committee	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	Negligible	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Landfill Life		
	Adopt Contract Requirements to Prioritize Deconstruction Methods Over Demolition Practices Where Feasible	Deconstruction methods achieve high landfill diversion rates and support the market for recovered materials, reducing energy costs needed to make new materials.	Implement low-waste construction methods Modify construction process/materials to reduce emissions impacts	76% 55%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction through regional Public Works Committee	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	Negligible	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Landfill Life		
	Implement Western Regional Resource Management Center	Expand landfill capacity in the western portions of the region to support ongoing growth and limited existing landfill capacity. Project includes siting, design, permitting, with early implementation of compost facility, odors, facility, recycling/MRF and regional landfill construction in follow-on grant/funding funded.	Optimize waste collection and transfer networks	76%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 siting & design permitting, year 5	99,187.63	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Improved Health and Well-Being, Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Service in Underserved Part of the Region, Siting will need to incorporate LIDAC Analyses and Local Input to Reduce Impacts		
Materials Management	Implement Landfill Gas Collection & Management Systems	Implement landfill gas collection systems to optimize GHG diversion, and reuse as a renewable gas resource. Implementation of new equipment, and/or upgrading existing landfill gas collection systems can reduce the need for flaring, and direct off-gassing, thus reducing landfill GHG contributions.	Improve landfill cover and sealing	48%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	19,837.53	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Improved Health and Well-Being, Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Service in Underserved Part of the Region, Siting will need to incorporate LIDAC Analyses and Local Input to Reduce Impacts		
	Utilize Efficient Landfill Soils and Cover	Improve landfill cover and sealing to prevent landslides from entering water systems and the local environment	Improve landfill cover and sealing	43%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	3,967.51	Negligible	Negligible	Negligible	Increased Resiliency and Adaptability, Reduces GHG generation and Leachate, Extends Landfill Life, Note: May be Part of Normal Anticipated Landfill Operation Costs, Reduces Local Impacts from Landfill Operations		
	Consider Buffers and More Appropriate Zoning for Landfills Near Residential Areas	Implement deed restrictions or zoning changes in areas zoned for industrial or landfill use near residential use. Explore buffer zones of safe distances from landfills or toxic waste areas from residential areas and implement options for structural exposure reduction measures, such as vegetative screens, raised berms, and open green space for areas with high air pollution burden.	Improve landfill cover and sealing	48%	There should be incentives to encourage local businesses to recycle/reduce waste.	88%	Public entities within NCTCOG jurisdiction through Regional Codes Committee	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	NA	Negligible	Negligible	Negligible	Increased Resiliency and Adaptability, Reduces GHG generation and Leachate, Extends Landfill Life, Note: May be Part of Normal Anticipated Landfill Operation Costs		
	Upgrade Existing Facilities to Optimize Load Strengths	This renovation and reconfiguration of existing sites would increase load/unloading times. The upgrades will ensure that the transfer stations are equipped to meet future power and emission control requirements.	Increase waste diversion through expanded recycling efforts	81%	Illegal dumping of trash is a problem.	81%	Public entities within NCTCOG jurisdiction through Resource Conservation Council	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	NA	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Reduces GHG generation and Leachate, Extends Landfill Life, Note: May be Part of Normal Anticipated Landfill Operation Costs		
Implement Recycling & Transfer Facilities	Construct Additional Recycling Centers in the Region	Currently residents can be required to travel over 30 minutes for the nearest recycling center. Increasing ship off locations serves on vehicle emissions per year.	Increase waste diversion through expanded recycling efforts	81%	There are not enough recycling and composting options.	76%	Public entities within NCTCOG jurisdiction through Resource Conservation Council	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	NA	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Reduces GHG generation and Leachate, May Reduce Waste Hauling Traffic		
	Construct Bulk Transfer Station at Landfills	A bulk transfer station located immediately after the entrance to the landfill proper would reduce emissions of vehicles traveling to and from the working face of the landfill, which is, at times a 2.5 to 3.8 miles, round trip.	Optimize waste collection and transfer networks	76%	There are not enough recycling and composting options. Illegal dumping of trash is a problem.	76% 81%	Public entities within NCTCOG jurisdiction through Resource Conservation Council	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	500	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Reduces GHG generation and Leachate, May Reduce Waste Hauling Traffic		
	Expand Waste Diversion Collection Networks to Support Multi-Family Dwellings	Additional waste diversion would increase landfill capacity by targeting multifamily residential buildings, providing greater access to sustainable materials management practices	Optimize waste collection and transfer networks	76%	There are not enough recycling and composting options. Illegal dumping of trash is a problem.	76% 81%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	500	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, Better Carbon Capture Related to Embodied Carbon in Construction Materials, Extends Landfill Life		
	Improve Waste Collection	Local planning may allow for more efficient waste hauling, resulting in reduced vehicle miles traveled per year, and related emissions and priority pollutants	Optimize waste collection and transfer networks	76%	There are not enough recycling and composting options. Illegal dumping of trash is a problem.	76% 81%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	500	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Anticipated, but not quantifiable at this time	Increased Resiliency and Adaptability, May Reduce Vehicle Miles Traveled		
	Convert Waste Trucks to Lower-Emission Vehicles	Replace existing waste trucks with lower-emission vehicles, such as those that use RNG as fuel. Measure and associated emissions/priority pollutant reductions are included under Transportation measure for "Clean Vehicle & Equipment Program"	Convert waste trucks to lower-emission vehicles	62%	We should reduce air pollution from large diesel vehicles.	86%	Public entities within NCTCOG jurisdiction	Yes	Established scope of work, annual project status reports, final report at the end of five-year project period	Identify and scope individual projects; obtain relevant permits; project start project end	Years 1-2 Identify scope of individual projects. Years 3-4 individual projects completed. Year 5 Evaluate project	500	Quantified under Transportation Sector	Quantified under Transportation Sector	Quantified under Transportation Sector	Increased Resiliency and Adaptability, May Reduce Vehicle Miles Traveled		