SOAR BAKERSFIELD | Sustainable Opportunities Advancing Resilience

APPENDIX H

Implementation Matrix

Measure ID	Measure Description	Key Implementing Agencies	Implementation Timelines and Milestones	Authority to Implement and Timelines for Obtaining Authority	Metrics for Tracking Success	Annual GHG Reduction Potential ($MTCO_2e$/year)[1]	Annual Air Pollutant Reduction Potential (tons/year)[1]	Cost Estimates for Unfunded Portion of Measure and Source[1]	Potential External Funding Sources[2]
BE-P-1	**Continued and Expanded Low-Income Energy Efficiency Program** In partnership with Community Action Partnership of Kern (CAPK), GRID Alternatives, and Kern Community College District, the City secured funding through the Transformative Climate Communities Round 5 grant opportunity to implement a Low-Income Energy Efficiency Program. The program offers no-cost energy audits and completion of limited weatherization and energy efficiency upgrades for low-income households in Southeast Bakersfield. The City will seek to use this initial effort as a baseline and continue and expand this program as additional funding is available.	▸ City of Bakersfield	▸ **2026**: Conduct additional engagement with partners to define scope and roles ▸ **2027**: Identify and secure funding ▸ **2028:** Procurement and program administrative start up ▸ **2028 through 2033**: Program implementation	▸ **2025**: City Council action on SOAR Bakersfield ▸ **2027**: Secure agreements with implementing partners ▸ **2027:** City Council approval of funds ▸ **2028 through 2033**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▸ Target number of no-cost audits completed: 500 audits ▸ Target number of homes with efficiency upgrades completed: 400 homes ▸ Average household income where audits and home upgrades are completed	▸ **2030**: Not quantified due to unknown level of program implementation in 2030 ▸ **2040**: 23 ▸ **2045**: 23	**Criteria Air Pollutants:** ▸ **2040 and 2045** ▪ NO_X: 0.022 ▪ PM_{10} + $PM_{2.5}$: 0.0016 ▪ VOCs: 0.0011 ▪ CO: 0.017 ▪ SO_X: 0.00012 **Hazardous Air Pollutants:** ▸ **2040 and 2045** ▪ 1,4-Dichlorobenzene: 0.00000025 ▪ Benzene: 0.00000044 ▪ Formaldehyde: 0.000016	▸ **Total Cost**: $7,529,000 ▸ **Source**: Calculated based on costs from the Transformative Climate Communities Round 5 Implementation Grant Budget Breakdown	▸ California Energy Commission (CEC) 1 Percent Interest Rate Loans ▸ US Department of Energy (US DOE) Energy Efficiency and Conservation Block Grant Program ▸ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▸ Inflation Reduction Act (IRA) Residential Energy Rebate Programs ▸ Strategic Growth Council (SGC) Transformative Climate Communities (TCC)
RE-P-1	**Continue and Expand Solar Installations at Residences** The City is currently partnering with GRID Alternatives, a nationwide non-profit organization, and Kern Community College District through the Transformative Climate Communities implementation program to provide low-income homeowners in Southeast Bakersfield access to affordable solar energy. The program is currently active and anticipates providing solar photovoltaic generating systems to 75 homeowners. The City will seek to continue and expand this program as funding becomes available.	▸ City of Bakersfield	▸ **2026**: Conduct additional engagement with partners to define scope and roles ▸ **2027**: Identify and secure funding ▸ **2028:** Procurement and program administrative start up ▸ **2028 through 2033**: Program implementation	▸ **2025**: City Council action on SOAR Bakersfield ▸ **2027**: Secure agreements with implementing partners ▸ **2027:** City Council approval of funds ▸ **2028 through 2033**: Obtain appropriate construction permitting through City of Bakersfield, as needed ▸ **2028 through 2033**: Obtain interconnection agreements with PG&E, as needed	▸ Target number of homes with rooftop solar installed: 200 homes ▸ Target kW of PV installed: 940 kW ▸ Average household income where solar installations are completed	▸ **2030**: Not quantified due to unknown level of program implementation ▸ **2040**: 5 ▸ **2045**: 0	Not quantified as reductions in the use of grid-supplied electricity may not result in local air pollutant reductions	▸ **Total Cost**: $9,249,000 ▸ **Source**: Calculated based on costs from the Transformative Climate Communities Round 5 Implementation Grant Budget Breakdown	▸ US DOE Title 17 Clean Energy Financing Program ▸ IRA Community Change Grants Program ▸ SGC TCC
FH-P-1	**California Inland Port** In partnership with Kern COG and other local jurisdictions, identify potential sites for and support the development of an intermodal freight facility and increased rail freight capacity to shift freight from trucks to rail. The California Inland Port Project proposes a new intermodal rail spine that would connect the Central Valley to the Ports of Long Beach and Los Angeles, serving as a logistics center for interstate and international movement of goods. With increased capacity on existing railways and the development of an intermodal facility in the Bakersfield/Shafter area, the Inland Port could substantially reduce the number of heavy-duty trucks by shifting the movement of freight to rail. This shift would substantially reduce the number of trucks on I-5, SR 99, and connecting routes, reducing congestion and pollutants from diesel-fueled trucks. Site selection and project design will be carefully evaluated to avoid compounding environmental burdens in frontline communities.	▸ City of Bakersfield ▸ Caltrans ▸ California Public Utilities Commission ▸ Kern Council of Governments ▸ Fresno Council of Governments ▸ Port of Long Beach ▸ Port of Los Angeles ▸ San Joaquin Valley Air Pollution Control District ▸ South Coast Air Quality Management District ▸ Kern County ▸ Fresno County	▸ **2025 through 2027 (in process)**: Conduct market and environmental feasibility analyses ▸ **2028 through 2033**: Identify and analyze railway capacity upgrades and intermodal facilities ▸ **2033 through 2040**: Construct infrastructure and facilities	Regulatory authority required to complete this measure is unknown at this stage of exploration	▸ Annual freight tonnage moved by rail to the San Joaquin Valley ▸ Reduction of on-road freight vehicle travel	▸ **2045**: 11,855	**Criteria Air Pollutants:** ▸ **2045** ▪ NO_X: 50.46 ▪ PM_{10}: 0.36 ▪ VOCs: 0.97 ▪ CO: 0.21 ▪ SO_X: 0.13	Additional analysis and project scoping are required to develop cost estimates	Uknown at this stage

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		▶ Merced County ▶ Other incorporated cities							
AF-P-1	**Electric Vehicle Charging Infrastructure at City-owned Sites** Several City-owned sites for EV charging installation have already been identified and are in the design phase. The City will conduct a sites assessment and implementation strategy for EV charger installations at additional City-owned sites, prioritizing locations in frontline communities. The City will also develop, publish, and regularly update a map of existing and planned EV chargers at City-owned sites.	▶ City of Bakersfield	▶ **2026 through 2027**: Identify appropriate locations and infrastructure needs ▶ **2028**: Identify and secure funding ▶ **2029**: Site planning and design for EV charger installations ▶ **2029 through 2031**: Install EV chargers	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2027**: City Council approval of installation locations ▶ **2028:** City Council approval of funds ▶ **2029 through 2031**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▶ Target number of EV chargers installed: 40 Level 2 charging ports	No direct GHG reductions	No direct air pollutant reductions	▶ **Total Cost**: $2,933,000 ▶ **Unit Cost:** $74,831 per charging port ▶ **Source**: Calculated based on average cost per charging port from California's Deployment Plan for the National Electric Vehicle Infrastructure (NEVI) Program Annual Update average cost per charging port.	▶ CEC California Electric Vehicle Infrastructure Project 2.0 (CALeVIP 2.0) ▶ CEC Communities in Charge ▶ CEC Clean Transportation Program ▶ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▶ U.S. Department of Transportation (US DOT) National Electric Vehicle Infrastructure Formula Program ▶ IRA Community Change Grants Program ▶ SGC TCC ▶ San Joaquin Valley Air Pollution Control District (Valley Air) Chare Up! Program
AF-P-2	**Electric Vehicle Charging in Frontline Communities** The City will identify opportunities with developers on concurrent community revitalization efforts to include EV charger installations in public spaces and near multifamily housing developments, prioritizing installations that would directly benefit frontline communities. Infrastructure constraints (e.g., transformer capacity, utility responsiveness) will be considered during planning to avoid cost escalations and ensure feasibility. The City will also assess community demand and vehicle ownership trends to guide implementation.	▶ City of Bakersfield	▶ **2026 through 2027**: Identify appropriate locations and infrastructure needs ▶ **2028**: Identify and secure funding ▶ **2029**: Site planning and design for EV charger installations ▶ **2029 through 2031**: Install EV chargers	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2027**: City Council approval of installation locations ▶ **2028:** City Council approval of funds ▶ **2029 through 2031**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▶ Target number of EV chargers installed: 40 Level 2 charging ports	No direct GHG reductions	No direct air pollutant reductions	▶ **Total Cost**: $2,933,000 ▶ **Unit Cost:** $74,830 per charging port ▶ **Source**: Calculated based on average cost per charging port from California's Deployment Plan for the National Electric Vehicle Infrastructure (NEVI) Program Annual Update	▶ CEC CALeVIP 2.0 ▶ CEC Communities in Charge ▶ CEC Clean Transportation Program ▶ California Pollution Control Financing Authority Electric Vehicle Charging Station Financing Program ▶ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▶ Valley Air Chare Up! Program
AO-P-1	**Alternative-Fueled and Zero-Emission City Equipment Fleet** The City owns and operates a fleet of construction vehicles, and thus will have a lead role in the communitywide transition to alternative-fueled and zero-emission equipment. The City's Fleet, Solid Waste, and Streets & Utilities departments have already begun field-testing zero-emission heavy-duty equipment models and will continue to do so. These departments are developing specifications for procurement, and will seek to increase zero-emission vehicles in the fleet as technology allows.	City of Bakersfield	▶ **2026**: Identify equipment, appropriate locations, and infrastructure needs ▶ **2027 through 2028**: Identify and secure funding ▶ **2029 through 2033**: Procure equipment and install charging/fueling infrastructure	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2027**: City Council approval of equipment infrastructure upgrade plans ▶ **2027 through 2028:** City Council approval of funds ▶ **2029 through 2033**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▶ Target number of equipment replacements: 200 vehicles and equipment ▶ Reduction in fuel expenses	▶ **2030**: Not quantified due to unknown level of program implementation in 2030 ▶ **2040**: 17 ▶ **2045**: 17	**Criteria Air Pollutants:** ▶ **2040** ▪ CO: 0.054 ▪ NO_X: 0.0033 ▪ SO_X: 0.00018 ▪ $PM_{2.5}$: 0.00034 ▪ PM_{10}: 0.00106 ▪ ROG: 0.0058 ▶ **2045** ▪ CO: 0.052	▶ **Total Cost**: $26,415,000 ▶ **Unit Cost:** ▪ $74,830 per charging port ▪ $57,250 per EV ▶ **Source**: Calculated based on average cost per charging port from California's Deployment Plan for the National Electric Vehicle Infrastructure	▶ CEC Clean Transportation Program ▶ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▶ Valley Air Chare Up! Program

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							▪ NO_X: 0.0030 ▪ SO_X: 0.00018 ▪ $PM_{2.5}$: 0.00034 ▪ PM_{10}: 0.00105 ▪ ROG: 0.0052	(NEVI) Program Annual Update, and unit costs of EVs only given uncertainty in equipment types that will be replaced	
TDM-P-1	**Vanpools** In partnership with Kern COG, expand and promote the use of vanpools by supporting employers and community members in securing funding for and establishing vanpools for commuting to and from work, with EV vanpools preferred. Utilize Kern COG's CommuteKERN (Rideshare) Ridematching software to help commuters find vanpool matches, log their trips and be eligible for prizes and incentives.	▸ City of Bakersfield ▸ Kern Council of Governments	▸ **2026**: Conduct additional engagement with partners to define scope and roles ▸ **2027 through 2028**: Identify and secure funding ▸ **2027 through 2028**: Analyze charging capacity needs to support EV vanpools ▸ **2028 through 2029:** Procure and install EV chargers ▸ **2028 and ongoing**: In partnership with Kern COG, create and implement an outreach program to promote use vanpools ▸ **2030 and ongoing**: Deployment of EV vanpools	▸ **2025**: City Council action on SOAR Bakersfield ▸ **2027**: Secure agreements with implementing partners ▸ **2028:** City Council approval of funds ▸ **2028 through 2029**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▸ Target number of EV vanpools: 50 ▸ Vanpool utilization: riders/trips/days of operation	▸ **2030**: 3,175 ▸ **2040**: 2,853 ▸ **2045**: 2,807	**Criteria Air Pollutants:** ▸ **2030** ▪ CO: 11.432 ▪ NO_X: 0.7909 ▪ SO_X: 0.03440 ▪ $PM_{2.5}$: 0.06208 ▪ PM_{10}: 0.18206 ▪ ROG: 1.3413 ▸ **2040** ▪ CO: 9.107 ▪ NO_X: 0.5499 ▪ SO_X: 0.03089 ▪ $PM_{2.5}$: 0.05746 ▪ PM_{10}: 0.17791 ▪ ROG: 0.9693 ▸ **2045** ▪ CO: 8.758 ▪ NO_X: 0.5060 ▪ SO_X: 0.03036 ▪ $PM_{2.5}$: 0.05653 ▪ PM_{10}: 0.17690 ▪ ROG: 0.8762	▸ **Capital Cost**: $3,742,000 ▸ Annual Cost: $825,000 ▸ Unit Cost: ▪ $1,375 monthly cost for EV vanpool ▪ $74,830 per charging port ▸ **Source**: Calculated based on California Vanpool Authority monthly operation estimates and charging infrastructure needs	▸ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▸ Sustainable Transportation Equity Project ▸ Valley Air Chare Up! Program
TI-P-1	**Bus Rapid Transit on Key Corridors** In partnership with Golden Empire Transit District (GET) and Kern COG, implement bus rapid transit (BRT) on key corridors, including Chester, California West, and California East. GET is currently planning for implementation of at least one BRT route, which will include the installation of 35 queue jump lanes, 150 bike parking and bike kiosks, and bus shelters across the BRT line. As BRT routes are implemented, GET will analyze service and ridership to determine future expansions of the BRT system.	▸ City of Bakersfield ▸ Golden Empire Transit District ▸ Kern Council of Governments	**Initial BRT Route** ▸ **2026 through 2027**: In partnership with GET, identify locations for queue jump lanes, bike facilities, and bus shelters ▸ **2027 through 2028**: Identify and secure funding ▸ **2028 through 2029:** Install queue jump lanes, bike facilities, and bus shelters ▸ **2030 and ongoing**: Operation of initial BRT route **Additional BRT Routes** ▸ **2035 through 2040**: Identify and design infrastructure improvements needed for operation of two (or more) additional BRT routes ▸ **2035 through 2040**: Identify and secure funding sources	**Initial BRT Route** ▸ **2025**: City Council action on SOAR Bakersfield ▸ **2028:** City Council approval of funds ▸ **2028 through 2029**: Obtain appropriate construction permitting through City of Bakersfield, as needed ▸ **2028 through 2030**: Identify and secure required agreements for temporary construction easements, as needed **Additional BRT Routes** ▸ Authority to implement milestones expected to be similar to previous actions	▸ Target BRT infrastructure installed: ▪ 35 queue jump lanes ▪ 150 bike parking places ▪ Bus shelters: to be determined ▸ Number of BRT routes in operation: 3 routes ▸ BRT route service headways ▸ BRT route ridership	▸ **2030**: 125 ▸ **2040**: 438 ▸ **2045**: 457	**Criteria Air Pollutants:** ▸ **2030** ▪ CO: 0.448 ▪ NO_X: 0.0310 ▪ SO_X: 0.00135 ▪ PM2.5: 0.0243 ▪ PM10: 0.00713 ▪ ROG: 0.0525 ▸ **2040** ▪ CO: 1.398 ▪ NO_X: 0.0844 ▪ SO_X: 0.00474 ▪ $PM_{2.5}$: 0.00882 ▪ PM_{10}: 0.02731 ▪ ROG: 0.1488 ▸ **2045** ▪ CO: 1.428 ▪ NO_X: 0.0825	Additional analysis and project scoping is required to develop cost estimates	▸ California Department of Transportation (Caltrans) Sustainable Communities Program ▸ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▸ Infrastructure State Revolving Fund (ISRF) ▸ Sustainable Transportation Equity Project (STEP) ▸ U.S. Federal Transit Administration (US FTA) Grants for Buses and Bus Facilities Program ▸ Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants

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			▶ **2040 and ongoing:** Operation of additional BRT routes				▪ SO_X: 0.00495 ▪ $PM_{2.5}$: 0.00922 ▪ PM_{10}: 0.02883 ▪ ROG: 0.1428		
TI-P-2	**South Bakersfield Transit Hub** In partnership with Golden Empire Transit, Kern Regional Transit, and Kern County, convert the Kern Delta Park-and-Ride to a South Bakersfield Hub for public transit. The Kern Delta Park-and-Ride is 3-acre property owned by Kern County, which serves GET Routes 62 and X92, FlixBus, and Kern Regional Transit Routes 130 and 145. The property is located near senior and health centers, as well as places of worship. Capital improvements and amenities may include bus bays, shaded waiting areas and passenger amenities, operator restrooms, increased lighting and security presence, and limited parking.	▶ City of Bakersfield ▶ Golden Empire Transit District ▶ Kern Regional Transit ▶ Kern County ▶ Kern Council of Governments	▶ **2026 through 2028**: With relevant partners, determine the scope of project and infrastructure upgrades needed ▶ **2028 through 2029**: Identify and secure funding ▶ **2029 through 2030:** Construct facilities ▶ **2030**: Full operation of transit hub	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2027**: Identify and secure agreements with Kern County for expansion of transit facilities on the property ▶ **2029:** City Council approval of funds ▶ **2029**: Obtain appropriate construction permitting through City of Bakersfield and Kern County	▶ Ridership for transit routes serving the facility	▶ **2030**: 120 ▶ **2040**: 107 ▶ **2045**: 106	**Criteria Air Pollutants:** ▶ **2030** ▪ CO: 0.430 ▪ N NO_X O_x: 0.0297 ▪ SO_X: 0.00129 ▪ $PM_{2.5}$: 0.00233 ▪ PM_{10}: 0.00685 ▪ ROG: 0.0504 ▶ **2040** ▪ CO: 0.342 ▪ NO_X: 0.0207 ▪ SO_X: 0.00116 ▪ $PM_{2.5}$: 0.00216 ▪ PM_{10}: 0.00669 ▪ ROG: 0.0365 ▶ **2045** ▪ CO: 0.329 ▪ NO_X: 0.0190 ▪ SO_X: 0.00198 ▪ $PM_{2.5}$: 0.00213 ▪ PM_{10}: 0.00665 ▪ ROG: 0.0330	Additional analysis and project scoping is required to develop cost estimates	▶ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▶ Infrastructure State Revolving Fund ▶ Sustainable Transportation Equity Project ▶ US FTA Grants for Buses and Bus Facilities Program ▶ Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants
HSR-P-1	**High-Speed Rail Station Area Plan "Green Loop"** In partnership with the California High-Speed Rail Authority, implement the three projects identified in the Downtown Bakersfield High-Speed Rail Station Area Plan that would create a "green loop" forming a continuous active transportation network around downtown Bakersfield. These projects include: ▶ Wall Street Pedestrian Paseo ▶ Golden State Connector (Multi-use Trail) ▶ Garces Circle Pedestrian Plaza	▶ City of Bakersfield	▶ **2027 through 2028**: Identify and secure funding ▶ **2028 through 2030**: Design active transportation projects ▶ **2030 through 2035:** Construct projects	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2028:** City Council approval of funds ▶ **2028 through 2030**: Identify and secure required agreements for public access/pedestrian easements, as needed ▶ **2028 through 2030**: Perform environmental impact analyses and obtain appropriate environmental permitting, as needed ▶ **2030 through 2035**: Obtain appropriate construction permitting through City of Bakersfield ▶ **2030 through 2035**: Identify and secure required agreements for temporary construction easements, as needed	▶ Target length of active transportation infrastructure constructed: 33 miles ▶ Trails completed: ▪ Q Street, Kern Island Canal & Central Branch Canal (all segments) ▪ Baker Street, King Street & Lotus Lane (segment 2) ▪ H Street (all segments) ▪ Rosedale Highway & 21st Street (all segments)	▶ **2030**: Not quantified due to unknown level of program implementation in 2030 ▶ **2040**: 4,481 ▶ **2045**: 4,404	**Criteria Air Pollutants:** ▶ **2040** ▪ CO: 14.29 ▪ NO_X: 0.8627 ▪ SO_X: 0.04846 ▪ $PM_{2.5}$: 0.09015 ▪ PM_{10}: 0.2791 ▪ ROG: 1.521 ▶ **2045** ▪ CO: 13.74 ▪ NO_X: 0.7938 ▪ SO_X: 0.04763 ▪ $PM_{2.5}$: 0.08870 ▪ PM_{10}: 0.2776 ▪ ROG: 1.375	▶ **Total Cost**: $89,517,000 ▶ **Cost per Trail:** ▪ Q Street, Kern Island Canal & Central Branch Canal (all segments): $31,874,000 ▪ Baker Street, King Street & Lotus Lane (segment 2): $3,952,000 ▪ H Street (all segments): $27,429,00 ▪ Rosedale Highway & 21st Street (all segments): $26,262,000 ▶ **Total Cost**: $89,517,000 ▶ Active Transportation Plan	▶ Caltrans Active Transportation Planning Program ▶ Caltrans Sustainable Communities Program ▶ Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants ▶ Valley Air Bike Paths ▶ Sustainable Transportation Equity Project (STEP) ▶ U. Federal Highway Administration (FHWA) Active Transportation Infrastructure Investment Program ▶ See City of Bakersfield 2025 Active Transportation Plan for additional funding sources

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WB-P-1	**Downtown Walkability Plan** Create a Walkability Plan and/or Pedestrian Design Guidelines for downtown and southeast Bakersfield that seeks to improve street lighting, safer crosswalks, ADA compliance, shading, urban greening, and signage, consistent with the Transformative Climate Communities Plan.	▶ City of Bakersfield ▶ Kern County	▶ **2026**: Identify and secure funding ▶ **2027 through 2028**: Develop plan ▶ **2029 and ongoing:** Implement plan	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2026:** City Council approval of funds	▶ Completion of plan	No direct GHG reductions	No direct air pollutant reductions	▶ **Total Cost**: $250,000 ▶ **Source**: Consultant estimate	▶ Caltrans Active Transportation Planning Program ▶ Caltrans Sustainable Communities Program ▶ Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants ▶ Sustainable Transportation Equity Project (STEP) ▶ FHWA Active Transportation Infrastructure Investment Program
WB-P-2	**Active Transportation Plan Priority Trails** The City's Active Transportation Plan (ATP) provides a long-term vision for the development of a robust citywide network of dedicated bicycle and pedestrian infrastructure. It proposes 19 multi-modal trails that include the construction of bikeways, pedestrian sidewalks and paths, bicycle parking and end-of-trip facilities, and general safety improvements. Five projects were identified as priority for an initial implementation group. These include: ▶ Mount Vernon Trail (full extents) ▶ Ming Ave / Belle Terrace Trail Segment 1 (east of New Stine Rd) ▶ Ming Ave / Belle Terrace Trail Segment 2 (west of New Stine Rd) ▶ Akers / McKee Trail (full extents) ▶ Baker / King / Madison / Lotus Trail Segment 1 (north of Ming Ave / Belle Terrace trail connection)	▶ City of Bakersfield	▶ **2025 through 2027:** Identify and secure funding ▶ **2025 through 2027:** Design active transportation projects ▶ **2026 through 2030:** Construct projects	▶ **2025:** City Council action on SOAR Bakersfield ▶ **2025 through 2027:** City Council approval of funds, as available ▶ **2026 through 2028:** Identify and secure required agreements for public access/pedestrian easements, as needed ▶ **2026 through 2029**: Perform environmental impact analyses and obtain appropriate environmental permitting, as needed ▶ **2026 through 2029**: Obtain appropriate construction permitting through City of Bakersfield ▶ **2026 through 2029**: Identify and secure required agreements for temporary construction easements, as needed	▶ Target length of active transportation infrastructure constructed: 19 miles ▶ Trails completed: ▪ Mount Vernon Avenue ▪ Ming Avenue and Belle Terrace (segments 1 and 2) ▪ Akers Road and McKee Road ▪ Baker Street, King Street, and Lotus Lane (segment 1)	▶ **2030**: 1,646 ▶ **2040**: 1,477 ▶ **2045**: 1,452	**Criteria Air Pollutants:** ▶ **2030** ▪ CO: 5.914 ▪ NO_X: 0.4091 ▪ SO_X: 0.01779 ▪ $PM_{2.5}$: 0.03211 ▪ PM_{10}: 0.09417 ▪ ROG: 0.6938 ▶ **2040** ▪ CO: 4.711 ▪ NO_X: 0.2844 ▪ SO_X: 0.01598 ▪ $PM_{2.5}$: 0.02972 ▪ PM_{10}: 0.09203 ▪ ROG: 0.5014 ▶ **2045** ▪ CO: 4.530 ▪ NO_X: 0.2617 ▪ SO_X: 0.01570 ▪ $PM_{2.5}$: 0.02924 ▪ PM_{10}: 0.09150 ▪ ROG: 0.4532	▶ **Total Cost**: $22,901,000 ▶ **Cost per Trail:** ▪ Mount Vernon Avenue: $3,728,000 ▪ Ming Avenue and Belle Terrace (segment 1): $3,071,000 ▪ Ming Avenue and Belle Terrace (segment 2): $3,784,000 ▪ Akers Road and McKee Road: $3,822,000 ▪ Baker Street, King Street, and Lotus Lane (segment 1): $8,496,000 ▶ **Source**: 2025 City of Bakersfield Active Transportation Plan	▶ Caltrans Active Transportation Planning Program ▶ Caltrans Sustainable Communities Program ▶ Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants ▶ Valley Air Bike Paths ▶ Sustainable Transportation Equity Project (STEP) ▶ FHWA Active Transportation Infrastructure Investment Program ▶ See City of Bakersfield 2025 Active Transportation Plan for additional funding sources
WE-P-1	**Turf Replacement Program** The Turf Replacement Program involves redesigning select medians throughout Bakersfield. The core components of this program include: ▶ Turf Replacement: Replacing existing turf with low-water consumption, California-friendly, drought-tolerant landscaping; ▶ Irrigation System Upgrade: Removing current spray irrigation systems and installing efficient drip irrigation systems; and ▶ Tree Replacement: Replacing absent or non-viable trees with department-approved species, adhering to established standards.	▶ City of Bakersfield	▶ **2025 through 2026**: Identify and secure funding ▶ **2026 through 2027**: Construct project	▶ **2025:** City Council action on SOAR Bakersfield ▶ **2026:** City Council approval of funds ▶ **2026 through 2027**: Obtain appropriate construction permitting through City of Bakersfield, as needed	▶ **Phase 6 (31,580 sq. ft.):** Old River Rd. from Stockdale to Ming (5 medians) ▶ **Phase 7 (38,106 sq. ft.):** Buena Vista from Ming to White Ln. (4 medians) ▶ **Phase 8 (33,546 sq. ft.):** S. Allen from Ming to White Ln. (5 medians) ▶ **Phase 9 (40,508 sq. ft.)**:	▶ **2030**: 1.7 ▶ **2040**: 0.2 ▶ **2045**: 0.0	Not quantified as reductions in the use of grid-supplied electricity may not result in local air pollutant reductions	▶ **Total Cost**: $898,375 ▶ **Source**: City of Bakersfield. June 20, 2025. Memorandum: Recreation and Parks SOAR Project: Turf Replacement Program	▶ U.S. Bureau of Reclamation (USBR) WaterSMART Water and Energy Efficiency Grants

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	This comprehensive redesign will not only contribute to creating a sustainable environment through significant water conservation but also improve public and staff safety, enhance aesthetic appeal, and reduce long-term maintenance costs for the city. High-priority phases of the program include landscaping and irrigation improvements on Old River Road, Buena Vista, S. Allen, Bernard, and Beale, totaling 23 medians where improvements would be made.				▪ Bernard between Mt. Vernon Ave. and Oswell St. (4 medians) ▪ Beale between Niles St. and Jefferson St. (5 medians)				
WE-P-2	**City of Bakersfield Water Advanced Metering Infrastructure** The City of Bakersfield recently received grant funding to install 5,500 advanced metering infrastructure meters (AMIs) at existing residential units across its service area. While this funding supports a portion of the deployment, additional funding will be needed to complete full installation for all customers within the service area, which will require approximately 45,000 additional AMIs. Funding has been identified for 5,000 of these additional meter installations; however, the City intends to pursue further funding opportunities to ensure full deployment of an additional 40,000 AMI meters citywide. New developments are required to install AMIs with the construction of a new home. The City will also explore strategies to mitigate cost impacts for residents in older areas where aging infrastructure may lead to higher water usage readings (e.g., due to leaks).	▸ City of Bakersfield	▸ **2026 through 2027**: Identify and secure funding ▸ **2027 through 2029**: Procure and deploy AMIs	▸ **2025**: City Council action on SOAR Bakersfield ▸ **2027:** City Council approval of funds	▸ Target number of AMIs deployed: 40,000 AMIs	▸ **2030**: 1,478 ▸ **2040**: 198 ▸ **2045**: 11	**Criteria Air Pollutants:** ▸ **2030** ▪ CO: 0.074 ▪ NO_X: 0.0058 ▪ SO_X: 0.00014 ▪ $PM_{2.5}$: 0.00028 ▪ PM_{10}: 0.00077 ▪ ROG: 0.0107 ▸ **2040** ▪ CO: 0.038 ▪ NO_X: 0.0024 ▪ SO_X: 0.00012 ▪ $PM_{2.5}$: 0.00024 ▪ PM_{10}: 0.00074 ▪ ROG: 0.0055 ▸ **2045** ▪ CO: 0.034 ▪ NO_X: 0.0020 ▪ SO_X: 0.00012 ▪ $PM_{2.5}$: 0.00024 ▪ PM_{10}: 0.00073 ▪ ROG: 0.0044	▸ **Total Cost**: $9,400,000 ▸ **Unit Cost**: $235 per AMI ▸ **Source**: Calculated based on unit costs from the City of Bakersfield Proposal for Water and Energy Efficiency Grant (WEEG) Bakersfield AMI Project.	▸ USBR WaterSMART Water and Energy Efficiency Grants
WT-P-1	**Renewable Energy at Treatment Plants** Install renewable energy and battery energy storage at the City's two wastewater treatment plants and the City's 10-million-gallon interface tank and booster station and Water Resources administration building to provide energy cost savings and resilience to power outages. The City already has plans to install renewable energy generation and battery storage at WWTP No. 3 and can expand renewable energy to WWTP No. 2.	▸ City of Bakersfield	▸ **2026 through 2027**: Identify and secure funding ▸ **2027 through 2028**: Design project ▸ **2028 through 2029**: Construct project	▸ **2025**: City Council action on SOAR Bakersfield ▸ **2027:** City Council approval of funds ▸ **2028:** Obtain interconnection agreements with PG&E	▸ Target solar projects complete: 2 projects ▸ Solar PV capacity installed: 2 MW	▸ **2030**: 179 ▸ **2040**: 59 ▸ **2045**: 0	Not quantified as reductions in the use of grid-supplied electricity may not result in local air pollutant reductions	▸ **Total Cost**: $3,000,000 ▸ **Unit Cost**: $1,500,000 per solar array ▸ **Source**: Estimated from proposed cost of solar array at water system facilities, from City of Bakersfield Fiscal Year 2025-26 proposed budget	▸ CEC 1 Percent Interest Rate Loans ▸ FEMA Safeguarding Tomorrow Revolving Loan Fund (RLF) Program ▸ Federal Infrastructure Investment and Jobs Act, aka Bipartisan Infrastructure Law ▸ HUD Community Development Block Grant (CDBG) ▸ Infrastructure State Revolving Fund (ISRF)

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OW-P-1	**Expanded Curbside Organic Pickup** The City operates an organic waste recycling program and will continue distributing organic collection carts and bins as service areas grow and the program expands.	▶ City of Bakersfield	▶ **Ongoing**: Continue to provide organics carts at new developments	▶ **None**: Provision of organic carts is required through ordinance	▶ Households with organic carts and service ▶ Businesses with organic carts and service	▶ **2030**: 15,564 ▶ **2040**: 35,018 ▶ **2045**: 44,745	**Criteria Air Pollutants:** ▶ **2030** ▪ Ammonia: 0.92 ▪ VOCs: 82 ▶ **2040** ▪ Ammonia: 1.88 ▪ VOCs: 158 ▶ **2045** ▪ Ammonia: 2.29 ▪ VOCs: 188 **Hazardous Air Pollutants:** ▶ **2030** ▪ Acetaldehyde: 1.01 ▪ Benzene: 0.23 ▶ **2040** ▪ Acetaldehyde: 2.05 ▪ Benzene: 0.46 ▶ **2045** ▪ Acetaldehyde: 2.50 ▪ Benzene: 0.56	▶ **Unit Cost**: $145 per curbside cart (cost may be included in service fees, does not consider cost for pickup service) ▶ **Source**: Estimated from ULINE curbside cart costs	▶ Waste service fees
KR-P-1	**Kern River Parkway Plan Priority Projects** The Kern River Parkway Plan proposes eight projects to improve the Kern River Parkway over the next ten years, while generating excitement for future projects along the parkway. Projects reflect a balance of recreational improvements and natural resource protection. They will enhance areas of high need, high visibility, or strategic connections. A selection of these projects will help to reduce climate pollutants and improve resilience, including: ▶ KRP-2: Improvements to Kern River Parkway Trail at The Park At Riverwalk, ▶ KRP-3: Truxtun Healing Garden and Improvements, ▶ KRP-4: San Miguel Commemorative Grove Enhancements, ▶ KRP-6: Bakersfield Environmental Study Area (BESA) Improvements, and ▶ KRP-8: Uplands Riparian Restoration.	▶ City of Bakersfield ▶ Kern County ▶ Kern River Parkway Foundation ▶ California State University, Bakersfield	▶ **2025 through 2027**: Identify and secure funding ▶ **2027 through 2030**: Additional planning and project design ▶ **2030 through 2034:** Restoration work and park improvements	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2025 through 2027:** City Council approval of funds, as available ▶ **2028 through 2030**: Obtain appropriate environmental permitting	▶ Target restoration and improvements projects completed: 5 projects ▶ Target acres of restoration and improvements: 330 acres	▶ **2030**: Not quantified due to unknown level of program implementation in 2030 ▶ **2040**: 333 ▶ **2045**: 333	Not quantified due to uncertainty in air pollutant reductions from projects	▶ **Total Cost**: $11,748,000 ▶ **Cost per Project:** ▪ KRP-2: Improvements to Kern River Parkway Trail at The Park At Riverwalk: $500,000 ▪ KRP-3: Truxtun Healing Garden and Improvements: $6,000,000 ▪ KRP-4: San Miguel Commemorative Grove Enhancements: $3,670,000 ▪ KRP-6: Bakersfield Environmental Study Area (BESA) Improvements: $100,000 ▪ KRP-8: Uplands Riparian Restoration: $578,000 ▶ **Source**: City of Bakersfield 2024 Kern River Parkway Management Plan	▶ Healthy Soils Program (HSP) ▶ Regional Resilience Planning and Implementation Grant Program (RRGP)

Measure ID	Measure Description	Key Implementing Agencies	Implementation Timelines and Milestones	Authority to Implement and Timelines for Obtaining Authority	Metrics for Tracking Success	Annual GHG Reduction Potential ($MTCO_2e$/year)[1]	Annual Air Pollutant Reduction Potential (tons/year)[1]	Cost Estimates for Unfunded Portion of Measure and Source[1]	Potential External Funding Sources[2]
WL-P-1	**Reduced Pesticide and Herbicide Application** Incentivize farmers to reduce pesticide and herbicide use through the provision of grants. Grants can be awarded to assist farmers in achieving organic certification and fund research in alternative weed management practices.	▶ City of Bakersfield ▶ Kern County ▶ Kern County Farm Bureau ▶ San Joaquin Valley Air District ▶ California State University, Bakersfield ▶ California Department of Food and Agriculture	▶ **2027:** Identify and develop partnerships for program implementation ▶ **2028 through 2029**: Identify sources of funding ▶ **2030:** Develop program development ▶ **2030 and ongoing**: Implement program	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2027:** Secure agreements with implementing partners ▶ **2029**: City Council approval of funds	▶ Grant funding allocated ▶ Tons of pesticides reduced ▶ Tons of herbicide reduced	Not quantified due to uncertainty in final project scope	Not quantified due to uncertainty in final project scope	Additional analysis and project scoping are required to develop cost estimates	▶ The Environmental Quality Incentives Program (EQIP)
UG-P-1	**Central City and Citywide Tree Plan Pilot Projects** Seven pilot projects are proposed to catalyze momentum around improving Bakersfield's tree canopy in the Central City, as part of the 2024 Central City and Citywide Tree Plan. These projects are focused on areas of either high need, high visibility, and strategic connections. Transformative projects give a sense of what is possible to ultimately strengthen Bakersfield's urban forest. The projects include: ▶ Streetscapes: P1: Truxtun Avenue, P2: H Street, P3: Green Street Corridor East Segment; and P4: Green Street Corridor West Segment; ▶ City Parks: P5: Mill Creek Park and Central Park; and P6: New Downtown Plaza; and ▶ Other Public Spaces: P7: Chester & 19th Greening.	▶ City of Bakersfield	▶ **2025 through 2027**: Identify and secure funding ▶ **2025 through 2027**: Design projects ▶ **2026 through 2030:** Construct projects	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2025 through 2027:** City Council approval of funds, as available ▶ **2026 through 2028**: Identify and secure required agreements for easements, as needed ▶ **2026 through 2029**: Obtain appropriate environmental permitting, as needed ▶ **2026 through 2029**: Obtain appropriate construction permitting through City of Bakersfield	▶ Target trees planted: 412 trees ▶ Projects completed: ▪ P1: Truxtun Avenue ▪ P2: H Street ▪ P3: Green Street Corridor East Segment ▪ P4: Green Street Corridor West Segment ▪ P5: Mill Creek Park and Central Park ▪ P6: New Downtown Plaza ▪ P7: Chester & 19th Greening	▶ **2030**: 9.8 ▶ **2040**: 9.8 ▶ **2045**: 9.8	**Criteria Air Pollutants:** ▶ **2030, 2040 and 2045** ▪ CO: 0.0015 ▪ Ozone: 0.045 ▪ NO_2: 0.006 ▪ SO_2: 0.00008 ▪ $PM_{2.5}$: 0.00042	▶ **Total Cost**: $1,472,000 ▶ **Cost per Project:** ▪ P1: Truxtun Avenue: $510,000 ▪ P2: H Street: $130,000 ▪ P3: Green Street Corridor East Segment: $155,000 ▪ P4: Green Street Corridor West Segment: $145,000 ▪ P5: Mill Creek Park and Central Park: $155,000 ▪ P6: New Downtown Plaza: $365,000 ▪ P7: Chester & 19th Greening: $12,000 ▶ **Source**: City of Bakersfield 2024 Central City and Citywide Tree Plan	▶ California Department of Forestry and Fire Protection (CAL FIRE) Urban and Community Forestry Grants ▶ Regional Resilience Planning and Implementation Grant Program (RRGP) ▶ SGC TCC
UG-P-2	**City Tree Program** Develop a program focused on urban tree canopy to assist in sustaining a healthy, attractive, and equitable tree canopy distribution throughout the city. Dedicated staff can oversee the development and implementation of a formal tree maintenance program, supported by a citywide tree inventory and an understanding of the budget necessary to support the urban tree canopy. Key actions to implement include creating an Urban Forest Management Plan, ensuring appropriate staff are available, including at least one certified arborist, and developing and regularly completing citywide tree inventories.	▶ City of Bakersfield	▶ **2025 through 2028**: Identify and secure funding ▶ **2026**: Create and fill Lead Arborist position at City of Bakersfield ▶ **2026 through 2028:** Create and fill additional arborists positions at City of Bakersfield ▶ **2028 through 2030**: Complete a tree inventory and develop an Urban Forest Management Plan ▶ **2031 and ongoing:** Implement urban forest management practices	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2025 through 2028:** City Council approval of funds, as available	▶ Target hiring of arborists: 4 positions ▶ Tree inventory completed ▶ Urban Forest Management Plan completed ▶ Reduced tree mortality rates	▶ **2030**: Not quantified due to unknown level of program implementation in 2030 ▶ **2040**: 3,193 ▶ **2045**: 3,193	**Criteria Air Pollutants:** ▶ **2040 and 2045** ▪ CO: 128 ▪ Ozone: 46 ▪ NO_2: 14 ▪ SO_2: 5.4 ▪ PM_{10}: 60	▶ **Total Cost:** $330,000 ▶ **Source**: City of Bakersfield 2024 Central City and Citywide Tree Plan	▶ CAL FIRE Urban and Community Forestry Grants ▶ Regional Resilience Planning and Implementation Grant Program (RRGP)

Measure ID	Measure Description	Key Implementing Agencies	Implementation Timelines and Milestones	Authority to Implement and Timelines for Obtaining Authority	Metrics for Tracking Success	Annual GHG Reduction Potential ($MTCO_2e$/year)[1]	Annual Air Pollutant Reduction Potential (tons/year)[1]	Cost Estimates for Unfunded Portion of Measure and Source[1]	Potential External Funding Sources[2]
EHW-P-1	**Community Resilience Centers Program** Develop a program that builds a connected, communitywide response to hazards such as extreme heat and poor air quality. The program may identify community cooling centers throughout Bakersfield, create a maintenance and upgrade schedule, and a communication platform/protocol for informing residents and Community-Based Organizations of extreme heat and air pollution hazards and where they can seek relief. Many community centers and places of worship throughout Bakersfield operate as informal resilience centers for the communities they serve. The City would work with these organizations to identify needs for and support upgrades to equipment and filtration, as well as establish mechanisms for sharing information with community-based organizations about extreme heat and hazardous air pollution events.	▶ City of Bakersfield ▶ Kern County ▶ Community-based organizations	▶ **2026 through 2027**: Identify and develop partnerships with CBOs ▶ **2026 through 2030**: Identify and secure funding, as needed ▶ **2027 through 2028**: Inventory current resilience centers and identify upgrades and geography gaps ▶ **2027 through 2028:** Develop hazard communication protocols between City of Bakersfield, Kern County, and CBOs ▶ **2028 through 2035**: Upgrade buildings (HVAC, weatherization, air filtration), as needed ▶ **2028 and ongoing:** Implement hazard communication program	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2026 through 2030:** City Council approval of funds, as available ▶ **2027 through 2035:** Secure agreements with managers/owners of privately-owned facilities to be included in resilience center network ▶ **2028 through 2035**: Obtain appropriate construction permitting through City of Bakersfield	▶ Implementation of hazards communication protocols with CBOs ▶ Inventory of resilience center sites ▶ Upgrades completed to resilience centers ▶ Population served by resilience centers	Not quantified due to uncertainty in final project scope	Not quantified due to uncertainty in final project scope	Additional analysis and project scoping are required to develop cost estimates	▶ Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) Grant Program ▶ IRA Community Change Grants Program ▶ Regional Resilience Planning and Implementation Grant Program (RRGP) ▶ SGC TCC ▶ Valley Air AB 836 Clean Air Centers Program
EHW-P-2	**Extreme Heat Resilience Action Plan** Develop a citywide framework for proactive planning for more frequent and severe extreme heat events, and recommendations to help mitigate extreme heat through infrastructure upgrades, education, programs, and policies.	▶ City of Bakersfield ▶ Kern County	▶ **2026**: Identify and secure funding ▶ **2027 through 2028**: Plan development ▶ **2028 and ongoing:** Implement plan	▶ **2025**: City Council action on SOAR Bakersfield ▶ **2026:** City Council approval of funds	▶ Completion of plan	No direct GHG reductions	No direct air pollutant reductions	▶ **Total Cost:** $200,000 ▶ **Source**: Consultant estimate	▶ US DOE Grid Resilience and Innovation Partnerships (GRIP) Program ▶ HUD Community Development Block Grant (CDBG) ▶ IRA Community Change Grants Program ▶ Regional Resilience Planning and Implementation Grant Program (RRGP)

Notes: ADA = Americans with Disabilities Act; AMI = advanced metering infrastructure; BRT = bus rapid transit; CAL FIRE = California Department of Forestry and Fire Protection; Caltrans = California Department of Transportation; CAPK = Community Actions Partnership; CBO = community-based organization; CEC = California Energy Commission; CO = carbon monoxide; EV = electric vehicle; FEMA = Federal Emergency Management Agency; FHWA = US Federal Highway Administration; GET = Golden Empire Transit District; GHG = greenhouse gas; HVAC = heating, ventilation, and air conditioning; IRA = Inflation Reduction Act; Kern COG = Kern Council of Governments; kW = kilowatt; $MTCO_2e$ = metric tons of carbon dioxide equivalent; MW = megawatt; NO_2 = nitrogen dioxide; NO_x = oxides of nitrogen; PG&E = Pacific Gas and Electric Company; PM_{10} = particulate matter with 10 micron diameter; $PM_{2.5}$ = particulate matter with 2.5 micron diameter; PV = photovoltaic; ROG = reactive organic gases; SGC = Strategic Growth Council; SO_2 = sulfur dioxide; SOAR = Sustainable Opportunities Advancing Resilience; SO_X = oxides of sulfur; TCC = Transformative Climate Communities; US DOE = US Department of Energy; US DOT = US Department of Transportation; US FTA = US Federal Transit Administration; USBR = US Bureau of Reclamation; Valley Air = San Joaquin Valley Air Pollution Control District; VOC = volatile organic compounds.

[1] Additional detail on the calculation of cost estimates can be found in SOAR Bakersfield Appendix I Greenhouse Gas Reduction Potential; Attachment A. Cost estimates for some measures were already developed, in which case costs from these sources were used directly.

[2] An overview of funding sources and additional information on individual funding sources can be found in SOAR Bakersfield Appendix K Potential Funding Sources.