

Appendix B – Recent Research Final Reports: March 2021 – Present

The following list provides the following information in order: 1) contract number, 2) PI, 3) title, and 4) completion date.

Health

- 17RD011 – Schelegle, Edward. *Combined Exposures to Ultrafine Particulate Matter and Ozone: Characterization of Particular Deposition, Pulmonary Oxidant Stress and Myocardial Injury* (January 2022)
- 17RD021 – Ericsson, Marianne. *Characterization of Air Toxics and GHG Emission Sources and Their Impacts on Community-Scale Air Quality Levels in Disadvantaged Communities* (March 2021)
- 17RD035 – Morello-Frosch, Rachel. *Integrating a Community Cumulative Impacts Framework in the Implementation of Assembly Bill 617 and Senate Bill 673 - Joint Agreement with DTSC* (April 2021)
- 18RD018 – Morello-Frosch, Rachel. *Characterizing the Potential Health and Equity Impacts of Oil and Gas Extraction and Production Activities in California* (January 2022)
- 18RD021 – Ong, Paul. *Screening Method and Map for Evaluating Transportation Access Disparities and Other Built Environment-related Social Determinants of Health* (January 2022)
- 19RD003 – Hammond, Katherine. *Air Pollution Measurements, Exposure Assessment, and Evaluation of the Sources of Particulate Matter in Fresno, CA* (April 2024)
- 19RD004 – Su, Guangquan (Jason). *Sources of On-Road Vehicle Emissions and their Impacts on Respiratory Disease Symptoms in California* (March 2022)
- 19RD005 – Miller, Lisa. *Health Impacts of California Wildfire PM_{2.5} Across the Lifespan: Wildfire Exposure to Rhesus Monkeys* (April 2024)
- 19RD006 – Meng, Ying-Ying. *Particulate Matter 2.5 Acute Health Impacts on Work Loss Days* (January 2023)
- 19RD013 – Modera, Mark. *Improving Indoor Air Quality, Energy Efficiency, and Greenhouse Gas Reductions through Multifamily Unit Compartmentalization* (April 2023)
- 19RD015 – Jerrett, Michael. *A Scenario Tool for Assessing the Health Benefits of Conserving, Restoring, and Managing Natural and Working Lands in California* (February 2024)
- 19RD029 – Reynolds, Peggy. *Impact of Air Pollution on COVID-19 Cases and Death Risk in California* (April 2022)

- 19RD030 – Jerrett, Michael. *Ambient Air Pollution and COVID-19 Disease Severity or Death among Confirmed Cases in Southern California* (April 2022)
- 20RD012 – Noth, Elizabeth. *Total Exposures to Air Pollutants and Noise in Disadvantaged Communities* (March 2025)
- 20RD013 – Cohen, Ronald. *An Integrated Framework to Guide Improvements in Air Quality at Community, Urban, and Regional Scales* (September 2022)
- 20RD015 – Vieira, Veronica. *HIFIVE - Health Impacts of Filtration Improvements in Elementary Schools* (May 2025)
- 20RD016 – Su, Jason. *Impacts of Train and Port Pollution and Air Toxics on Respiratory Symptoms and ED Visits within Vulnerable Communities in Southern California* (May 2023)
- 21RD005 – Jerrett, Michael. *Improved Assessment and Tracking of Health Impacts for California Communities Most Burdened by Pollution* (March 2025)
- 21RD014 – Lo, David. *CARB Salton Sea 105 Grant* (August 2022)
- 22RD003 – Cappa, Christopher. *White Paper: Air Pollutant Emissions and Possible Health Effects Associated with Electronic Air Cleaning Devices* (September 2023)
- 22RD018 – Hopfer, Suellen. *Community Wildfire & Capacity Building Webinar* (March 2024)
- 22RD025 – Benmarhnia, Tarik. *White Paper: Health Impacts by Race/Ethnicity in Air Pollution Studies in California* (March 2025)
- 22RD037 – Benmarhnia, Tarik. *White Paper: Analysis of Race/Ethnicity in Social Determinants of Health and Climate Change Vulnerability* (December 2024)

Air Quality

- 17RD022 – Wexler, Anthony. *Design and Development of an Instrument for Toxic-metal Aerosol Real Time Analysis* (April 2022)
- 18RD009 – Cocker, David R. *Environmental Chamber Experiments to Improve Secondary Organic Aerosol Model Prediction* (Mar 2023)
- 19RD008 – Goldstein, Allen. *Understanding and Mitigating Wildfire Risk in California* (Dec 2023)
- 19RD012 – Kleeman, Michael. *Direct Measurements of Ozone Sensitivity to Oxides of Nitrogen and Volatile Organic Compounds in the South Coast Air Basin* (August 2023)
- 20RD002 – Gilman, Jessica. *Measurements of VOCs in the SoCAB: Chemical Characterization and Impacts on Potential Ozone and PM Formation* (March 2024)

- 20RD003 – Goldstein, Allen. *Airborne Flux Measurement of Volatile Organic Compounds and Oxides of Nitrogen in California* (Sept 2023)
- 20RD008 – Delmas, Magali. *Decision Drivers to Facilitate Lower-Polluting Product Choices by Consumers*. (December 2023)
- 21RD011 – Ivey, Cesunica E. *Framework for Collecting and Updating Time-Activity Patterns*. (January 2024)
- 21RD017 – Seinfeld, John. *Analysis of Particulate Matter Composition Measured in Los Angeles during RECAP-LA* (June 2024)
- 21RD020 – Wexler, Anthony. *TARTA-XACT Comparison* (April 2024)

Climate

- 17RD017 – Mitloehner, Frank. *Benchmarking of Post-Alternative Manure Management Program (AMMP) Dairy Emissions and Prediction of Related Long-Term Airshed Effect* (April 2022)
- 17RD018 – Kebreab, Ermias. *Strategies to Reduce Methane Emissions from Enteric and Lagoon Sources* (April 2021)
- 17RD030 – Sander, Stanley P. *Quantifying Trends in Methane Emissions in the Los Angeles Basin Using Remote Sensing Spectroscopy at California Laboratory for Atmospheric Remote Sensing* (May 2021)
- 18RD022 – Anderson, Michael. *Estimating Induced Travel from Capacity Expansions on Congested Corridors* (March 2021)
- 18RD027 – Tal, Gil. *White Papers on California's Changing Transportation Landscape* (March 2021)
- 18RD031 – Abell, Jeffrey. *Trinidad Head, CA: Continued Ozone-Sonde and Surface Ozone Measurements* (February 2021)
- 18RD033 – Stock, Michael. *Los Angeles Megacities Project Support (Measurement Science for Urban Domes) - Phase II* (May 2021)
- 19RD008 – Goldstein, Allen. *Understanding and Mitigating Wildfire Risk in California* (December 2023)
- 19RD017 – Woodruff, Tracey. *White Paper: A Review of Emerging Technologies and Methods for Carbon Sequestration* (August 2021)
- 19RD028 – Kebreab, Ermias. *Development of the California Dairy Emissions Model* (April 2022)
- 20RD008 – Delmas, Magali. *Decision Drivers to Facilitate Lower-Polluting Product Choices by Consumers* (October 2023)

- 20RD011 - Duren, Riley. *Airborne Remote-Sensing Surveys of Methane Emissions in California* (October 2022)
- 21RD019 - Kebreab, Ermias. *Development of a Testing Standard and a Mechanistic Model for Enteric Fermentation Methane Emissions* (March 2024)
- 22RD001 - Aubrey, Andrew. *Airborne Remote-Sensing Surveys of Methane Emissions in California* (February 2024)

Mobile Sources

- 17RD008 - Durbin, Tom. *Long-term Characterization of Fine Particulate Matter Chemical Composition in the San Joaquin Valley* (January 2022)
- 17RD012 - Jerrett, Michael. *Effects of Brake and Tire Wear on Particulate Matter Composition, Reactive Oxygen Species, Placental Development, and Birth Outcomes in Los Angeles* (April 2022)
- 17RD013 - Durbin, Tom. *Activity Data of Off-Road Engines in Construction* (April 2021)
- 17RD016 - Kishan, Sandeep. *Brake & Tire Wear Emissions* (March 2021)
- 18RD006 - Sharp, Christopher. *Off-Road Diesel Low-Emission Demo for Nitrogen (NO_x), Particulate Matter (PM), and Toxics* (April 2021)
- 18RD016 - Boriboonsomsin, Kanok. *Hybridization of Full Electrification Potential in Off-Road Applications* (April 2022)
- 18RD017 - Jung, Heejung. *Real-World Tire and Brake-Wear Emissions* (April 2022)
- 19RD002 - Durbin, Tom. *Collection and Analysis of Agricultural Equipment Activity Data* (April 2024)
- 19RD007 - Jerrett, Michael. *Air Monitoring Site Selection Methodology for Particulate Matter from Brake and Tire Wear* (February 2021)
- 19RD010 - Kurani, Kenneth. *Determinants of Medium and Heavy-Duty Fleet Turnover* (February 2023)
- 19RD026 - Ritchie, Stephen. *Low-Carbon Transportation Incentive Strategies Using Performance Evaluation Tools for Heavy-Duty Trucks and Off-Road Equipment* (June 2024)
- 20RD001 - Kishan, Sandeep. *Remote Sensing Measurements of Light-Duty Vehicle Emissions at Multiple California Locations* (April 2024)
- 20RD004 - Kirchstetter, Thomas. *Plume Capture Measurement of Vehicle Emissions at the Caldecott Tunnel for Heavy-Duty Emission Program Development and Verification* (January 2025)
- 21RD018 - Durbin, Thomas. *Heavy-Duty Optional Low NO_x Vehicle Testing* (March 2024)

Sustainable Communities & Transportation

- 16RD009 - Tal, Gil. *Emerging Technology Zero Emission Vehicle Household Travel and Refueling Behavior*(April 2021)
- 17RD003 - Circella, Giovanni. *Emission Impacts of Connected and Automated Vehicle Deployment in California*(April 2021)
- 19RD009 - Shaheen, Susan. *Strategies for Incentivizing High-Occupancy, Zero-Emission, New Mobility Options*(November 2023)
- 19RD018 - Chapple, Karen. *White Paper on Anti-Displacement Strategy Effectiveness* (February 2021)
- 20RD005 - Gonzalez, Marta. *A Data Science Framework to Measure VMT by Mode and Purpose*(April 2024)
- 20RD006 - Handy, Susan. *Measuring, Analyzing, and Identifying Small-Area Vehicle Miles Traveled Reduction*(March 2024)
- 20RD009 - Manville, Michael. *White Paper: Economic Benefits of Affordable Infill Housing* (December 2021)
- 21RD008 - Taylor, Brian. *Alignment of Planned Transportation Investments with Climate and Equity Goals*(January 2025)
- 21RD015 - Jaller, Miguel. *White Paper: Improving the Efficiency of the Urban Freight System in California*(October 2024)
- 20STC008 - Handy, Susan. *Post-COVID Transportation Scenarios: Evaluating the Impact of Policies*(November 2022)
- 20STC009 - Marantz, Nicholas. *Evaluating the Potential for Housing Development in Transportation-Efficient and Healthy, High-Opportunity Areas in California*(May 2024)
- 20STC014 - Greenberg, Jonathan. *Advanced Carbon Modeling Techniques for the Forest Health Quantification Methodology*(May 2025)
- 21STC001 - Boswell, Michael. *Local California Environmental Quality Act (CEQA) Mitigation Best Practices and Lessons Learned*(December 2022)
- 21STC010 - de Kok, Erik. *Housing Scenarios for Climate and Equity*(May 2024)
- 21STC011 - Mathur, Shishir. *White Paper: Innovative Financing Tools on the Production of In-Fill Housing and Reduction in VMT*(December 2024)
- 21STC013 - Circella, Giovanni. *Assessing the Early Impacts of the Clean Miles Standard on California Ridehailing Drivers*(March 2025)

- 21STC014 – Fitch, Dillon. *Policy Briefs: Effects of Transportation and Land Use Policies and Strategies on Vehicle Use and Greenhouse Gas Emissions* (December 2024)
- 21STC015 – Appleyard, Bruce. *White Paper and Tool Development: Quantifying Potential Indirect Impacts of Transit Investment* (April 2024)
- 21STC016 – Tanvir, Shams. *White Paper: Vehicle Miles Traveled and Emission Impacts of On-Demand Delivery Services* (May 2023)
- 21STC017 – Hardman, Scott. *Understanding Travel Demand and Built Environment Factors to Optimize Increased ZEV Access in Underserved Communities* (June 2025)
- 21STC018 – Horvath, Arpad. *White Paper: Greenhouse Gas Benefits of Adaptive Reuse* (June 2023)
- 21STC020 – Metcalf, Benjamin. *White Paper: Economic and Environmental Benefits Analysis for Off-Site Construction Methods* (May 2023)
- 21STC021 – Brinkley, Catherine. *Best Practices and Capacity Building for Local Government Implementation of Climate Action Policies* (December 2024)
- 22STC003 – Koenig, Mark. *Climate Risk and Adaptation Index* (May 2025)
- 22STC009 – Chatman, Daniel. *Assessing the Quantification Methodology for the Affordable Housing and Sustainable Communities Program* (August 2025)
- 22STC010 – Barbour, Elisa. *Regional- and State-Led Strategies to Improve Local Implementation of Sustainable Communities Strategies* (March 2025)
- 22STC013 – Fitch, Dillon. *Development of Accessibility Metrics for Senate Bill 150 Program* (June 2025)
- 22STC014 – Masanet, Eric. *A Review of Embodied Carbon Data, Embodied Carbon Emissions, and Emissions Reduction Technologies and Policies for California Building Construction Materials* (February 2025)
- 22STC016 – Tal, Gil. *Research Study: State of Zero-Emission Vehicle Secondary Market and Accessibility Impacts in California's Underserved Communities* (June 2025)
- 22STC020 – Bedsworth, Louise. *Potential State Roles in Expanding Transfer of Development Rights (TDR) as a Tool for Greenhouse Gas Reduction* (June 2024)
- 23STC014 – Wong, Kama. *Quantification of Community Garden and Urban Farms* (April 2025)
- 23STC023 – Kleissl, Jan. *Microgrid Greenhouse Gas Reduction and Co-Benefits Assessment* (June 2025)
- 23STC025 – Boswell, Michael. *Assessment Report: Greenhouse Gas Inventory Preparation for Climate Action Plans – Opportunities for Support to Local Jurisdictions* (March 2025)

23STC028 – Volker, Jeremy. *Assessing Induced Travel Methodology Trends and Value of Further State Technical Guidance* (July 2025)