



San Bernardino Associated Governments

INFORMATIONAL SUMMARY

DATE: November 28, 2012

FROM: San Bernardino Associated Governments (SANBAG), Department of Planning, 1170 W. 3rd Street, 2nd Floor, San Bernardino, CA 92410-1715

TO: Interested Agencies, Organizations, and Individuals

SUBJECT: Description of Greenhouse Gas Emission Reduction Measures within the San Bernardino County Regional Greenhouse Gas Inventory and Reduction Plan

The Purpose of the Plan is to reduce Greenhouse Gas (GHG) emissions within the region. To fulfill that purpose, the Partnership has developed the following reduction measures that will reduce GHG emissions associated with the Partnership cities and its regional (or countywide) activities as a whole:

ENERGY RELATED REDUCTION MEASURES:

Energy-1: Promote Energy Efficiency for Existing Buildings

Measure Description: Promote energy efficiency in existing residential buildings and commercial buildings, and remove funding barriers to energy-efficiency improvements. The following implementation strategies can be used to help achieve these goals:

- Promote energy efficiency in *residential* buildings:
 - Implement a low-income weatherization program.
 - Partner with community services agencies, utilities, nonprofits, and other entities to incentivize energy-efficiency projects, including HVAC, lighting, water heating equipment, insulation, and weatherization for low income residents. Residential energy-efficiency projects can be financed through programs such as PACE or California First, which allow property owners to finance improvements that are repaid through an assessment on their property taxes for up to 20 years. Incentives, such as those available from California Energy Upgrade, can also assist. These and similar programs are often administered through the participating local government entity.
 - Launch energy-efficiency campaigns targeted at residents. Provide public education on the need for energy efficiency and emissions reduction programs and incentives.
 - Promote Smart Grid.
- Promote energy efficiency in *commercial* buildings:
 - Incentivize schedule energy-efficiency “tune-ups” of existing buildings. Energy audit and tune-up programs are typically run by the local utility. Cities would work with utilities to take advantage of energy audit programs for municipal buildings and promote awareness of these programs for private commercial buildings.

- Promote individualized energy management services for large energy users. Cities would work with utilities to take advantage of energy audit programs for municipal buildings and promote awareness of these programs for private commercial buildings.
- Partner with utilities to leverage the Savings by Design incentive program for commercial projects. Savings by Design incentive requires 10% better than Title 24 standards in order to qualify; up to \$200K in performance rebates per project are available.
- Remove funding barriers to energy-efficiency improvements. For example, leverage federal tax credits or local rebates, such as those offered by Southern California Edison. Participate in programs (national, state, or regional) that provide innovative, low-interest financing for energy-efficiency and alternative energy projects. Promote incentives to encourage the use of energy-efficient equipment and lighting. Provide financial incentives for adoption of identified efficiency measures.
 - Launch energy-efficiency campaigns targeted at business. Provide public education on the need for energy efficiency and emissions reduction programs and incentives. Outreach programs can be sponsored by individual cities or by a region-wide consortium.
 - Remove funding barriers to energy-efficiency improvements. For example, leverage federal tax credits or local rebates, such as those offered by Southern California Edison. Identify funding sources to assist affordable housing managers in incorporating energy-efficient designs and features.
- Participate in PACE programs such as California First or similar, as feasible. These programs allow property owners to finance improvements that are repaid through an assessment on their property taxes for up to 20 years. These and similar programs are often administered through the participating local government entity.

Entity Responsible for Implementation: This measure would be implemented by individual city governments and in part by utilities. It would also involve collaboration between cities (sub-regional implementation).

Measure Implementation Details: SANBAG is supporting potential PACE-style funding district development in San Bernardino for interested cities. To implement this measure, the city governments can leverage external funding sources, develop educational campaigns, and other strategies outlined in the measure description. Implementation of this measure would be gradual through 2020 as residents change their energy consumption behavior and as existing buildings undergo energy-efficiency improvements. Implementation would vary by city.

Level of Commitment: The cities selecting this measure would retrofit a portion of existing homes and nonresidential buildings by 2020 based on their selected levels of commitment.

Co-Benefits: Reduced energy use, reduced air pollution increased property values, public health improvements, and increased quality of life.

Energy-2: Outdoor Lighting

Measure Description: Adopt outdoor lighting standards in the zoning ordinance to reduce electricity consumption above and beyond the requirements of AB 1109. This could be achieved by requiring 50% of outdoor lighting fixtures to use LED bulbs and 100% of traffic signals to use LED bulbs by 2020

(California Air Pollution Control Officers Association 2009 and 2010; California Attorney General's Office 2010). The lighting standards could also include the following provisions.

- Encourage lighting along the urban-rural edge, not to exceed one-half the current maximum lighting standard.
- Prohibit continuous all night outdoor lighting in parks, sport facilities, construction sites, and other relevant areas (unless it compromises safety).
- Implement or exceed CALGreen's nonresidential voluntary mandatory measures related to outdoor lighting controls and equipment (Section A5.209.3) and outdoor lighting (Section A5.209.4), (i.e., achieve Calgreen Tier 1 lighting standards or otherwise demonstrate that energy efficiency of lighting fixtures exceeds mandatory Title 24 by a minimum 15%).

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can adopt outdoor lighting standards in their zoning ordinances. Implementation would be gradual through 2020 as an increasing number of outdoor lighting fixtures are replaced with energy-efficient fixtures.

Level of Commitment: Each city selecting this measure would require 50% of all residential outdoor lighting to be CFL lights, 50% of all commercial outdoor lighting to be halogen/LED lights, and 100% of all traffic signals to be LED lights.

Co-Benefits: Reduced energy use, reduced air pollution, increased property values, and increased quality of life.

Energy-3: Green Building Ordinance for New Buildings

Measure Description: Adopt a green building ordinance that exceeds Title 24 standards (or any subsequent standards that replace the current Title 24 standards) by achieving at least Tier 1 voluntary standards within CALGreen1 (California Air Pollution Control Officers Association 2010; California Attorney General's Office 2010). Tier 1 and 2 measures are not mandatory unless adopted by cities as part of the code. Residential voluntary measures related to energy efficiency in Tier 1 and Tier 2 include the following.

- Use of exterior window shading (A4.205.2).
- Use of innovative HVAC systems such as radiant, hydronic, ground source, or others (A4.207.1).
- Use of Energy Star® rated appliances (A4.210.1).
- Use of electric heat pumps with Heating Seasonal Performance Factor of 8.0 or higher (A4.207.6).
- Solar water heating systems (A4.211.2).
- Duct leakage and location requirements (A4.207.8 and A4.207.7).

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: The city governments can each adopt a green building ordinance. This measure would be implemented when each city adopts an ordinance. Benefits from the measure would be gradual as new houses are constructed according to the ordinance. SCE has programs and incentive funding, such as rebates, for energy efficient appliances, lighting, heating, and home energy performance.

Level of Commitment: Each city selecting this measure would require new buildings to exceed Title 24 standards (or any subsequent standards that replaces the current Title 24 standards) by 15% in 2020 (CALGreen Tier 1).

Co-Benefits: Reduced energy use, reduced air pollution, resource conservation, increased property values, public health improvement, and increased quality of life.

Energy-4: Solar Installation in New Housing Developments

Measure Description: Establish a goal for solar installations on new homes to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010). Potential goals might be:

- Aggressive—50% of new units have solar installations.
- Medium—25% of new units have solar installations.
- Low commitment—10% of new units have solar installations.

The selected goal could be achieved in part through programs such as the California Energy Commission's New Solar Homes Partnership (this program provides rebates to developers of six units or more who offer solar power in 50% of new units). Other, similar programs with solar power requirements equal to or greater than those of the California Energy Commission's New Solar Homes Partnership could also be accessed, including private funding from SunRun, SolarCity, or other solar lease Power Purchase Agreements (PPAs). Additionally, nonfinancial incentives and streamlined permitting at the local level can support this goal. The cities may also act as resources for connecting project proponents with funding opportunities. This measure could complement voluntary CALGreen measures related to solar photovoltaic systems.

Entity Responsible for Implementation: The individual city governments, in coordination with external funding programs and/or private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can work with residential developers, state funding programs, and private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as new housing developments are constructed and equipped with solar installations.

Level of Commitment: Each city selecting this measure would require a certain percentage of new single-family homes to install solar.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

Energy-5: Solar Installation for New Commercial/Industrial Development

Measure Description: Establish a goal for solar installations on new commercial and industrial development to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010). Potential goals might be:

- Aggressive—30% of energy requirements for new development supplied with onsite or offsite renewable power.
- Medium—15% of energy requirements for new development supplied with onsite or offsite renewable power.
- Low commitment—5% of energy requirements for new development supplied with onsite or offsite renewable power.

These goals could be supported through nonfinancial incentives or streamlined permitting through the cities. Primary funding would likely be through state- or utility-level programs or through private funding such as a PPA. Cities may also act as a resource for connecting project proponents with funding opportunities.

Entity Responsible for Implementation: The individual city governments, in coordination with various private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can work with private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as new commercial and industrial developments are constructed and equipped with solar installations.

Level of Commitment: Each city selecting this measure would require new commercial/industrial buildings to install solar to provide a minimum percentage of the building's onsite energy needs.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

Energy-6: Onsite Solar Energy for New and Existing Warehouse Space

Measure Description: Promote and incentivize solar installations on existing and new warehouse space through partnerships with SCE and other private sector funding sources including SunRun, SolarCity, and other solar lease or PPA companies. Establish a goal that all new warehousing projects install solar to provide a minimum of 25% of the project's new onsite energy needs and that all existing warehousing install solar to offset 25% of power needs with solar. This goal could be supported through nonfinancial incentives or streamlined permitting. Cities may also act as a resource for connecting project proponents with funding opportunities.

Entity Responsible for Implementation: The individual city governments, in coordination with various private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can work with private companies and utilities to provide funding for solar energy projects. Implement of this measure

would be gradual through 2020 as new warehouse spaces are constructed and equipped with solar installations and existing warehouse spaces are retrofitted.

Level of Commitment: Each city selecting this measure would require a percentage of new and incentivize a percentage of existing warehouses to install solar to provide a minimum of 25% of the building's onsite energy needs.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values

Energy-7: Solar Installation for Existing Housing

Measure Description: Establish a goal for solar installations on existing commercial and industrial development to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010) Potential goals might be:

- Aggressive—30% of energy requirements for existing development supplied with onsite or offsite renewable power.
- Medium—20% of energy requirements for existing development supplied with onsite or offsite renewable power.
- Low commitment—10% of energy requirements for existing development supplied with onsite or offsite renewable power.

These goals could be supported through nonfinancial incentives or streamlined permitting through the cities. Primary funding would likely be through state- or utility-level programs or through private funding such as a PPA. Cities may also act as a resource for connecting project proponents with funding opportunities.

Entity Responsible for Implementation: The individual city governments, in coordination with various private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can work with private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as new commercial and industrial developments are constructed and equipped with solar installations.

Level of Commitment: Each city selecting this measure would incentivize and support a certain percentage of existing single-family homes to install solar.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

Energy-9: Solar Installation for Existing Commercial/Industrial Buildings

Measure Description: Establish a goal for solar installations on existing commercial/industrial buildings to be achieved before 2020 (California Air Pollution Control Officers Association 2009, 2010) Potential goals might be:

- Aggressive—30% of existing buildings have solar installations.
- Medium—20% of existing buildings have solar installations.
- Low commitment—10% of existing buildings have solar installations.

The selected goal could be achieved in part through private funding from SunRun, SolarCity, or other solar lease PPAs. Additionally, nonfinancial incentives and streamlined permitting at the local level can support this goal. The cities may also act as resources for connecting property owners with funding opportunities. This measure could complement voluntary CALGreen measures related to solar photovoltaic systems.

Entity Responsible for Implementation: The individual city governments, in coordination with external funding programs and/or private companies, are responsible for implementing this measure.

Measure Implementation Details: To implement this measure, the city governments can work with building owners, state funding programs, and private companies to provide funding for solar energy projects. Implementation of this measure would be gradual through 2020 as solar is installed on existing buildings.

Level of Commitment: Each city selecting this measure would incentivize a certain percentage of existing commercial and industrial buildings to install solar to provide a minimum of 15% of the building's onsite energy needs.

Co-Benefits: Reduced air pollution, waste reduction, energy diversity and security, reduced price volatility, economic development, public health improvements, and increased property values.

Energy-8: Co-Generation Facilities

Measure Description: Co-generation facilities simultaneously generate electricity and useful heat. They are typically used in district heating systems. As feasible, encourage co-generation facilities to supply 15% of building energy in new commercial and industrial facilities greater than 100,000 square feet (California Air Pollution Control Officers Association 2010; California Attorney General's Office 2010). Example facilities are university campuses or large medical centers.

Entity Responsible for Implementation: The individual city governments, in coordination with cogeneration facilities, are responsible for implementing this measure.

Measure Implementation Details: The city governments can coordinate with the co-generation facilities to encourage incremental increases in their contributions to building energy in commercial and industrial facilities. Implementation of this measure would be gradual through 2020 as building energy is increasingly provided by co-generation facilities.

Level of Commitment: Each city selecting this measure would have to require a minimum of 15% of new commercial electricity consumption be supplied by co-generation facilities by 2020.

Co-Benefits: Reduced energy use, reduced air pollution, and energy diversity and security.

ON-ROAD TRANSPORTATION RELATED REDUCTION MEASURES

On Road-1: Sustainable Communities Strategy (Regional)

Measure Description: SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. While Pavley and LCFS seek to reduce fuel consumed and reduce the carbon content of fuel consumed, SB 375 seeks to reduce VMT through land use planning. SB 375 requires regional transportation plans, developed by MPOs to incorporate an SCS in their RTPs. The goal of the SCS is to reduce regional VMT through land use planning and associated transportation patterns. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. The regional GHG reduction target for SCAG is 8% by 2020 and 13% by 2035, compared to 2005 GHG emissions on a per capita basis. SCAG's 2012–2035 RTP/SCS, if fully implemented would successfully achieve the targets set by CARB.

Entity Responsible for Implementation: The Partnership cities and SCAG are responsible for implementing this measure. SANBAG plays a supporting role in enabling transportation improvements, such as extension of the Metrolink line to Redlands and Bus Rapid Transit improvements in San Bernardino County.

Measure Implementation Details: Each city would need to determine which strategies would be implemented in its jurisdiction. Implementation of this measure would also require coordination between multiple entities (such as on transit improvements) and would be gradual through 2020 (and would continue beyond 2020).

Level of Commitment: This measure depends on the degree to which each city decides to implement the land use planning strategies of SCAG's 2012 RTP/SCS. The SCS is not a mandatory land use plan and thus local cities, as the land use authority, have choices of which strategies to follow in their land use planning. This measure would have different effectiveness in each city, depending on what actions are feasible and selected. Cities choosing this measure would need to implement strategies similar to those included in the SCS, such as transit oriented development, infill housing, mixed use development, and public transit expansion, for example. No city would likely be able to implement all strategies. This measure allows for flexibility in how the cities participate in the SCS. Cities may be able to implement the SCS strategies partially, but perhaps not to the full degree called for in the SCS. Some strategies contained within the SCS are presented in the following section.

Co-Benefits: Reduced energy use, reduced air pollution, public health improvements, energy security, increased quality of life, and smart growth.

Specific Local Measure Options Consistent with the SCS

The following measures are consistent with the strategies included in the SCS. They are included below because they represent individual transportation measures that the cities can implement as part of the SCS.

On-Road-1.1: Improve Transit Travel Time and Connectivity (Regional)

Measure Description: To the extent feasible, reduce transit passenger travel time through reduced headways and increased speed. In addition, improve intermodal connectivity among transit systems. These goals could be pursued in connection with, and in addition to, adoption of SANBAG's LRTP.

On-Road-1.2: Other Transit Improvements (Regional)

- **Measure Description:** Work with local and regional transit agencies to secure the following services. Additional Bus Rapid Transit routes, and other transit choices such as shuttles and rail, beyond what is outlined in the SANBAG LRTP.
- Convenient feeder service from multimodal transit center to downtown employment centers.
- Region-wide bus/transit passes.
- Park-and-ride lots.
- New opportunities to finance further transit service for the elderly, handicapped, and recreational purposes.
- Shuttle service to transport facilities (e.g., park-and-ride lots).
- Idling limits for transit fleets.

On-Road-1.3: Public Transit Funding (Regional)

Measure Description: Collaborate with a broad range of agencies and organizations to improve and expand funding for public transit infrastructure and operations.

On-Road-1.4: Adopt Land Use Patterns to Favor Transit-Oriented Development (Local Regional)

Measure Description: This strategy would involve changes to local general plans to further prioritize transit-oriented development along existing and planned transit facilities. This strategy could build on one of the alternatives considered in the LRTP alternative, which redistributes population and employment growth to transit corridors, and promotes transit oriented development at station areas.

On-Road-1.5: Nonmotorized Zones (Local)

Measure Description: Create urban nonmotorized zones in downtown areas where feasible. Consider establishing a goal for conversion of downtown roadway miles to transit, linear parks, or other nonmotorized zones (California Air Pollution Control Officers Association 2010) and provide for the following services.

- Monitor traffic and congestion to determine roadways that should be targeted for improvements.
- Evaluate potential efficiency gains from further signal synchronization. Synchronize traffic signals throughout the city and with adjoining cities while allowing free flow of mass transit systems. Require continuous maintenance of the synchronization system
- Allow for more-efficient bus operation, including possible signal preemption, and expand signal timing programs where air quality benefits can be demonstrated.

On-Road-1.6: Traffic Calming (Local)

Measure Description: Provide traffic calming measures to encourage people to walk or bike instead of using a vehicle.

On-Road-1.7: Traffic Signal Synchronization (Local)

Measure Description: Improve travel speed by enhanced signal synchronization.

On-Road-1.8: Parking Policy (Local)

Measure Description: As part of the parking policy, consider designating a percentage of downtown parking spaces for ride-sharing vehicles, while reducing the available downtown parking spaces for private vehicles (California Air Pollution Control Officers Association 2009, 2010) (*Supporting General Plan policies: Trans-4*). The following implementation strategies can be used to help achieve these goals.

- Use parking pricing to discourage private vehicle use, especially at peak times.
- Create parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities. Parking districts should be encouraged throughout the county, but they should be concentrated in high traffic areas, including downtowns.
- Provide convenient pathways through parking for pedestrians; provide shade trees for parking.
- Encourage larger parking spaces to accommodate vans used for ride-sharing, as well as adequate passenger loading and waiting areas.

On-Road-1.9: Trip Reduction Ordinance (Local)

Measure Description: Implement a voluntary trip reduction ordinance that promotes the preparation and implementation of a trip reduction plan (TRP)² for large employers (100 employees or more). Possible performance targets for the TRPs could be a reduction of the vehicle trips per employee by 15% in 5 years and 25% in 10 years (California Air Pollution Control Officers Association 2010). The TRP could also consider:

- Limiting the hours when deliveries can be made to off-peak hours in high traffic areas.
- Conducting annual employee commute surveys to help inform trip reduction goals and focus implementation strategies.

On-Road-1.10: Employer Provided Fringe Benefits (Local)

Measure Description: Encourage use of telecommuting and alternative work schedules for employees. Encourage other employer benefits to reduce VMT, including a Guaranteed Ride Home Program.³

On-Road-1.11: Pedestrian Bicycle Lanes (Local/Regional)

Measure Description: Create bicycle lanes directed to the location of schools and major employment districts.

On-Road-1.12: Pedestrian and Bicycle Network Improvements (Local/Regional)

Measure Description: Provide improvement to the existing pedestrian and bicycle network as follows:

- Encourage the development of bicycle stations⁴, attended parking, and other attended bicycle parking support facilities at intermodal hubs.
- Establish a network of multiuse trails to facilitate safe and direct off-street bicycle and pedestrian travel. Provide bike racks along these trails at secure, lighted locations.
- Evaluate and consider free bicycles for public use and/or charge a nominal fee for their use.
- Amend or implement a development code to include standards for provision of safe pedestrian and bicyclist accommodations, including “Complete Streets” policies that foster equal access by all users, including pedestrians and bicyclists. Include standards in the design of roadways. As appropriate, require new development and redevelopment projects to address bicycle and pedestrian access internally and to other areas through easements; safe access to public transportation and construction of paths that connect with other nonmotorized routes; and safe road crossings at major intersections for school children and seniors.
- Apply for regional, state, and federal grants for bicycle and pedestrian infrastructure projects. Consider using state gas tax subventions, sales tax funds, other funding sources, and development exactions/impact fees to provide bicycle and pedestrian facilities.
- Prohibit projects that impede bicycle and walking access, e.g., large parking areas that cannot be crossed by nonmotorized vehicles, and new residential communities that block through-access on existing or potential bicycle and pedestrian routes.
- Develop and implement a bicycle safety education program to teach drivers and bike riders the laws, riding protocols, routes, safety tips, and emergency maneuvers to increase confidence, safety, and frequency of use for new and existing bike riders.

On-Road-1.13: Alternative Fuel Infrastructure (Local/Regional)

Measure Description: Promote the necessary facilities and infrastructure to encourage the use of privately owned low- or zero-emission vehicles such as electric vehicle charging facilities and conveniently locate alternative fueling stations. Convert public transit, street sweeping, and refuse fleets to alternative fuels and provide supporting infrastructure. Examine the use of smaller, more fuel-efficient taxicabs and offering incentives to taxicab owners to use gas-electric hybrid vehicles.

On-Road-1.14: School Programs and Outreach (Local)

Measure Description: Collaborate with local public schools districts to expand school bus services and routes. Encourage ridesharing programs in private schools to match parents by geographical location for student transport including the following.

- Continue to provide public education and information about options for reducing motor vehiclerelated GHG emissions. Include information on trip reduction; trip linking; public transit; biking and walking; vehicle performance and efficiency (e.g., keeping tires inflated); low- or zeroemission vehicles; and car and ride sharing.

On Road-2: “Smart Bus” Technology (Regional)

Measure Description: Collaborate with Omnitrans to implement “Smart Bus” technology, global positioning system (GPS), and electronic displays at all transit stops by 2020 to provide customers with “real-time” arrival and departure time information⁵ (California Air Pollution Control Officers Association 2009). Smart Bus Technologies include Automatic Vehicle Location (AVL) systems and real-time passenger information at bus stations. Omnitrans plans to implement these technologies system-wide on all bus routes serving San Bernardino Valley (Omnitrans service area) to enable information sharing, enhance rider services, and attract potential riders. The AVL system has already been implemented. The Bus Arrival Prediction Information System (BAPIS) would be installed in two phases. In Phase I, real-time rider information would be available via text messaging, Quick Response (QR), website, Interactive Voice Response (IVR), and mobile phone devices. Completed implementation is slated for December 2012. In Phase II, Omnitrans will install electronic signs at all major transit hubs and provide General Transit Feed Specification (GTFS) data to the general public to build apps for mobile devices like smartphones and tablet computers. Phase II completion is slated for December 2013. GHG emissions are expected to decrease because the AVL technologies could lead to more fuelefficient bus operations for Omnitrans and the BAPIS technologies could potentially attract more transit riders who may switch modes from automobiles. Omnitrans' Demand Response Services, OmniLink and Access, do not operate on a fixed schedule or route and are not included in this analysis.

Entity Responsible for Implementation: Omnitrans is primarily responsible for this measure. The Partnership cities and individual city governments would coordinate with Omnitrans as appropriate.

Measure Implementation Details: To implement this measure, the Partnership cities would coordinate with Omnitrans in the region to utilize “Smart Bus” and similar technology. Implementation of this measure would most likely be achieved in increments as the technology is expanded throughout the region.

Level of Commitment: Omnitrans plans to implement these technologies system-wide on all bus routes serving San Bernardino Valley. Therefore, no local action is required from the cities.

Co-Benefits: Reduced air pollution, public health improvements, and increased quality of life.

OFF-ROAD EQUIPMENT RELATED REDUCTION MEASURES

Off-Road Equipment-1: Construction Equipment

Measure Description: Establish a goal such that a percentage of construction equipment utilizes electric equipment (California Air Pollution Control Officers Association 2010). Potential goals might be to require 5% to 25% of equipment on annual projects occurring within the cities to be electrically-powered. Achieving the goal would require close coordination with the air district that sets air quality related requirements on construction vehicles and also provides mitigation options related to construction vehicles through Voluntary Emission Reduction Agreement (VERA) programs, which may overlap with this measure.

Entity Responsible for Implementation: Partnership cities, SCAQMD, and the Mojave Desert Air Quality Management District could all share in implementing this measure.

Measure Implementation Details: Because the air districts sometimes have mitigation programs for air quality that focus on construction equipment and sometimes have funding to assist with equipment swap-out, cities choosing this measure would benefit from coordinating with the air districts in implementing this measure. Once the goals are adopted, implementation of this measure would be complete, and benefits would be achieved.

Level of Commitment: Cities choosing this measure have identified goals of between 10% to 30% of construction equipment for this measure

Co-Benefits: Reduced air pollution, public health improvements, and increased quality of life.

Off-Road Equipment-2: Idling Ordinance

Measure Description: Adopt an ordinance that limits idling time for heavy-duty construction equipment beyond CARB or local air district regulations and if not already required as part of CEQA mitigation. Recommended idling limit is 3 minutes (California Air Pollution Control Officers Association 2010). As part of permitting requirements or city contracts, encourage contractors to submit a construction vehicle management plan that includes such things as idling time requirements; requiring hour meters on equipment; and documenting the serial number, horsepower, age, and fuel of all onsite equipment. California state law currently requires all off-road equipment fleets to limit idling to no more than 5 minutes.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: The city governments can adopt ordinances restricting idling time. Implementation of this measure would be a one-time action. Once the ordinance is adopted, the measure would begin to yield benefits.

Level of Commitment: Each city choosing this measure would have to adopt an ordinance that limits idling time for heavy-duty construction equipment to 3 minutes.

Co-Benefits: Reduced energy use, reduced air pollution, and public health improvements.

Off-Road Equipment-3: Landscaping Equipment

Measure Description: Adopt an ordinance that reduces gasoline-powered landscaping equipment use and/or reduces the number and operating time of such equipment. Require 75% of the cities' landscaping equipment be electric by 2020 and 100% by 2030 (California Air Pollution Control Officers Association 2010). Cities would work in close cooperation with the air district in drafting an ordinance or developing outreach programs to be consistent with current air district rules and CEQA guidelines. The ordinance could also include the following provisions for community landscaping equipment.

- Sponsor a lawnmower exchange program that allows residents to trade in their gasoline powered mower for an electric mower at a low or discounted price.
- Require exterior electrical outlets on all new building developments.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: The city governments can each adopt an ordinance that would result in compliance with the measure by 2020. Implementation of this measure would be gradual through 2020 and 2030 as residents exchange equipment, and as the Cities swap old equipment for new equipment.

Level of Commitment: Each city choosing this measure would require a certain percentage of all landscaping equipment in the cities be electric-powered by 2020.

Co-Benefits: Reduced air pollution, public health improvements, and increased quality of life.

AGRICULTURAL RELATED REDUCTION MEASURES

Agriculture-1: Methane Capture at Large Dairies

Measure Description: This is a voluntary measure to be undertaken by large dairies and encourages the installation of methane digesters to capture methane emissions from the decomposing manure. The methane could be used onsite as an alternative to natural gas in combustion, power production, or as a transportation fuel. Further, individual project proponents may be able to sell GHG credits associated with these installations on the voluntary carbon market.

Entity Responsible for Implementation: Large dairies within the Partnership cities are responsible for implementing this measure.

Measure Implementation Details: Dairies would need to install methane capture and control equipment at their facilities and employ other best-management practices for reducing fugitive methane emissions. Chino and Ontario, along with the air district, can collaborate with the dairies to achieve this. The installation of equipment is a one-time event, and implementation would be complete once the equipment begins operating.

Level of Commitment: Chino and Ontario would have to collaborate with the relevant dairies to help establish methane recovery systems.

Co-Benefits: Reduced air pollution and public health improvements.

4.7.2 Agriculture-2: Utilize Methane Captured at Dairies

Measure Description: Implement a voluntary program to reuse biogas (methane from manure) captured at animal operations facilities in the city. This biogas could be destroyed onsite, transported for offsite use (e.g., through a gas distribution or transmission pipeline), or used to power vehicles. Using captured biogas could potentially offset natural gas use or off-road fuel use in the city (reductions may be achieved in the building energy sector and/or the off-road sector).

Entity Responsible for Implementation: Large dairies within the Partnership cities are responsible for implementing this measure.

Measure Implementation Details: Dairies would need to install methane combustion and reuse equipment at their facilities. Chino and Ontario, along with the air district, can collaborate with the dairies to achieve this. The installation of equipment is a one-time event, and implementation would be complete once the equipment begins operating.

Level of Commitment: Chino and Ontario would have to collaborate with the relevant dairies to help establish methane reuse systems.

Co-Benefits: Reduced energy use and reduced air pollution.

OTHER LAND USE RELATED REDUCTION MEASURES

Land Use-1: Urban Forestry

Measure Description: Establish a city-wide tree planting goal or tree preservation goal. Possible implementation mechanisms might include a requirement to account for trees removed and planted as part of new construction and/or establishing a goal and funding source for new trees planted on city property. This measure will reduce energy consumption and associated GHG emissions in the building energy sector by reducing the heat island effect.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: The city governments can require trees to be planted as part of new construction, possibly as part of CEQA review and approval of new projects. Implementation of this measure would be gradual as new developments are constructed with accompanying trees.

Level of Commitment: Each city selecting this measure is assumed to plant three trees per non open space acre by 2020.

Co-Benefits: Reduced energy consumption, reduced air pollution, increased quality of life, and reduced urban heat island effect.

Land Use-2: Promote Rooftop Gardens

Measure Description: Establish a goal for 5% of new residences and 15% of new commercial facilities over 100,000 square feet to construct rooftop gardens. Rooftop green space insulates the building underneath, increasing energy efficiency. Rooftop gardens also cool the surrounding area through moisture retention and surface reflectivity. This measure could also reduce energy consumption and associated GHG emissions in the building energy sector (California Air Pollution Control Officers Association 2010). This measure could be implemented through the following incentives.

- Consider offering nonfinancial incentives, as feasible, to encourage rooftop gardens.

- Consider providing informational materials to contractors, homeowners and businesses about the benefits of and incentives for rooftop gardens.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: The city governments can set goals for new residences and commercial facilities to have rooftop green space. Implementation of this measure would be gradual as new developments are constructed with rooftop gardens.

Level of Commitment: Each city selecting this measure would require 5% of new residences and 15% of new commercial facilities over 100,000 square feet to construct rooftop gardens.

Co-Benefits: Reduced energy consumption, and increased quality of life.

SOLID WASTE RELATED REDUCTION MEASURES

Waste-1: Install Methane Capture, Especially LFGTE and Direct Gas Projects

Measure Description: As appropriate, install methane capture technology and associated monitoring systems on landfills without methane capture, with a goal of increasing the facility-level methane capture to the highest feasible rate (i.e., approaching 100%). While flaring, landfill-gas-to-energy (LFGTE), and direct gas projects all offer GHG reduction opportunities in the form of methane reduction, LFGTE and direct gas projects offer additional GHG reductions by offsetting fossil fuel energy use. A list of disposal sites that do not currently have landfill gas projects can be found in EPA's Landfill Methane Outreach Program database at <http://www.epa.gov/lmop/> (California Air Pollution Control Officers Association 2010). Often, the city may not have complete operational control over a landfill and implementation may be the responsibility of a private waste services company with whom the city coordinates.

Entity Responsible for Implementation: The City of Redlands would be responsible for implementing this measure at the California Street Landfill.

Measure Implementation Details: The California Street Landfill would need to upgrade equipment as necessary to increase and utilize the captured methane gas. The installation of equipment is a one-time event, and implementation would be complete once the equipment begins operating.

Level of Commitment: The City of Redlands would install methane capture technology and associated monitoring systems on the California Street Landfill.

Co-Benefits: Reduced energy use, reduced air pollution, and reduced energy price volatility.

Waste-2: Waste Diversion

Measure Description: Exceed the waste diversion goal (50%) recommended by Assembly Bill 939 and CALGreen by adopting citywide waste goals of at least 75% of waste diversion (California Air Pollution Control Officers Association 2010). In instances where cities operate their own waste services programs, they will have responsibility to expand or establish composting, recycling, and yard waste programs to residences and businesses. Cities would work with waste providers to identify baseline, opportunities, and achievable diversion goals before a certain time period, all of which can be incorporated into the waste provider's contract with a jurisdiction. This measure could include:

- Expand educational programs to inform residents about reuse, recycling, composting, waste to energy, and zero waste programs. Encourage local recycling and composting initiatives at the neighborhood level.
- Adopt a construction and demolition waste recovery ordinance that meets the CALGreen voluntary guidance of a 65% to 75% reduction in nonhazardous construction and demolition waste.
- Encourage local businesses to expand their recycling and composting efforts and to reduce packaging of products manufactured in the cities.
- Establish a reuse/recycling center where furniture, appliances, building materials, and other useful, nonhazardous items may be dropped off or purchased for a nominal fee.
- Enhance regional coordination on waste management, to take advantage of economies of scale of recycling, composting, and other diversion programs.

Entity Responsible for Implementation: The individual city governments along with waste service providers are responsible for implementing this measure.

Measure Implementation Details: City governments that operate their own waste services programs can develop educational programs to encourage residents to reduce waste. City governments that utilize a private contractor for waste collection can work with that contractor to expand education and outreach programs. Waste diversion generally increases gradually on an annual basis.

Level of Commitment: Each city selecting this measure would require 75% diversion of waste from landfills.

Co-Benefits: Reduced air pollution and resource conservation.

WASTEWATER TREATMENT RELATED REDUCTION MEASURES

Wastewater-1: Methane Recovery

Measure Description: Work with the IEUA or other local wastewater treatment providers (small or large) to identify funding and cooperating agencies for establishing methane recovery systems at all WWTPs that service San Bernardino Partnership cities residents by 2020, as appropriate. WWTPs in the region operated by IEUA, City of San Bernardino, VVWA, City of Redlands and Yucaipa Valley Water District already capture and flare methane at a minimum. Several also utilize waste heat on site or methane powered generators to power various facilities, offsetting approximately 30% of their power needs in the case of IEUA. Cities serviced by these providers would not benefit from this measure (unless the capture system was installed after 2008), only plants that have not yet installed methane

capture. For plants that only capture and flare, additional benefits could be achieved by using the methane for electricity or heating onsite. Operators of these facilities would work with SANBAG, regional power providers, Partnership cities or other entities to identify funding for this installation. Install equipment for the combustion of digester gas at all WWTPs by 2020 (California Air Pollution Control Officers Association 2010).

Entity Responsible for Implementation: The WWTPs that serve the region are responsible for implementing this measure. However they may be funded through public private partnership as will IEUA's Ontario WWTP fuel cell project.

Measure Implementation Details: This measure would require the individual WWTPs to install methane recovery equipment. The installation of equipment is a one-time event, and implementation would be complete once the equipment begins operating.

Level of Commitment: Each city selecting this measure would have to collaborate with the IEUA or other local wastewater treatment provider to establish methane recovery systems.

Co-Benefits: Reduced energy use and reduced energy price volatility.

Wastewater-2: Equipment Upgrades (Regional)

Measure Description: Work with IEUA or other local wastewater treatment provider to upgrade and replace wastewater treatment and pumping equipment with more energy-efficient equipment, as is financially feasible, at the existing facilities by 2020. Require all pumping and treatment equipment to be 25% more energy efficient at the time of replacement. Utilize best management practices for the treatment of waste (California Air Pollution Control Officers Association 2009). This measure could also include the following. WWTPs may already have energy efficiency upgrades scheduled as part of their capital improvements program.

- Assess the feasibility of using advance treatment of recycled water with microfiltration or reverse osmosis for future potable water use. Assess associated energy/GHG tradeoffs vs. out of basin water supply.

Entity Responsible for Implementation: The WWTPs that serve the region are responsible for implementing this measure.

Measure Implementation Details: This measure would require the individual wastewater treatment plants to upgrade pumping and treatment equipment. The upgrade of equipment is a onetime event, and implementation would be complete once the upgraded equipment begins operating.

Level of Commitment: Each city selecting this measure would have to collaborate with the IEUA or other local wastewater treatment provider (if serviced by a regional entity) to upgrade pumping and treatment equipment.

Co-Benefits: Reduced energy use and reduced air pollution.

Wastewater-3: Recycled Water

Measure Description: Establish a goal that 50% of all water used for non-potable sources (such as landscaping irrigation, dust control, or fire suppression) be recycled (and treated) wastewater. Consider requiring all new parks, schools, and other public facilities to use 100% recycled water for non-potable outdoor uses as a first step, as feasible depending on existing and planned recycled water infrastructure. Develop public education materials that support and encourage the use of recycled water. Adopt a municipal goal of 100% use of recycled water for non-potable sources (California Air Pollution Control Officers Association 2010). Implementation will likely require coordination with regional WWTPs and recycled water providers. This measure would also include development of an inventory of non-potable uses of water in the cities for potential to substitute recycled water.

Entity Responsible for Implementation: To implement this measure, the individual city governments would coordinate with regional water providers and regional WWTPs.

Measure Implementation Details: This measure would most likely be implemented in incremental steps as each city utilizes recycled water for its municipal purposes. Recycled water would also be gradually employed through 2020 as new parks and schools are constructed and as recycled water distribution systems expand.

Level of Commitment: Each city selecting this measure would have to require 50% of all water used for non-potable sources (such as landscaping irrigation, dust control, or fire suppression) to be recycled (and treated) wastewater.

Co-Benefits: Reduced energy use, reduced air pollution, and resource conservation.

WATER CONVEYANCE RELATED REDUCTION MEASURES

Water-1: Require Adoption of the Voluntary CALGreen Water Efficiency Measures for New Construction

Measure Description: Require adoption of the voluntary CALGreen water efficiency measures (at least Tier 1) for new construction. CALGreen voluntary measures recommend use of certain water efficient appliances, plumbing and irrigation systems, as well as more aggressive water-savings targets. Update building standards and codes for new buildings to require adoption of these voluntary measures, including:

- Use of low-water irrigation systems.
- Installation of rainwater and gray water systems.
- Installation of water-efficient appliances and plumbing fixtures, as well as composting toilets.
- A 30–40% reduction over baseline in indoor water use, and a 55–60% reduction in outdoor potable water use (CALGreen Tier 1 or 2).

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure working.

Measure Implementation Details: The city governments can choose to include the voluntary CALGreen measures in their building codes. Implementation would be gradual through 2020 as new buildings are constructed with water-efficient fixtures.

Level of Commitment: Each city selecting this measure would have to require adoption of the voluntary CALGreen water-efficiency measures (at least Tier 1) for new construction.

Co-Benefits: Reduced energy use, reduced air pollution, resource conservation, and increased property values.

Water-2: Implement a Program to Renovate Existing Buildings to Achieve Higher Levels of Water Efficiency

Measure Description: Implement a program to renovate existing buildings to achieve higher levels of water efficiency (California Air Pollution Control Officers Association 2010; California Attorney General's Office 2010). Education and outreach programs can help educate individuals on the importance of water efficiency and how to reduce water use. Rebate programs can help promote installation of water-efficient plumbing fixtures. The program could address:

- Development plans to ensure water conservation techniques are used (e.g. rain barrels, drought tolerant landscape).
- Water-efficiency upgrades as a condition of issuing permits for renovations or additions to existing buildings.
- Adopt water conservation pricing, such as tiered rate structures, to encourage efficient water use.
- Incentives for projects that demonstrate significant water conservation through use of innovative water consumption technologies.

Entity Responsible for Implementation: The individual city governments are responsible for the implementing this measure in concert with water retailers.

Measure Implementation Details: The city governments can develop educational programs to encourage water conservation among residents. The city governments can also create rebate programs to encourage residents to upgrade to more water-efficient fixtures in homes. Implementation would be gradual through 2020 as older water fixtures are replaced and as residents adopt new water consumption behaviors.

Level of Commitment: Each city selecting this measure would have to implement a program to renovate existing buildings to achieve higher levels of water efficiency.

Co-Benefits: Reduced energy use, reduced air pollution, resource conservation, and increased

Water-3: Encourage Water-Efficient Landscaping Practices

Measure Description: Encourage water-efficient landscaping practices. Adopt a landscaping water conservation plan that exceeds the requirements in the Model Landscape Ordinance (AN 1881). The conservation plan could include provisions for any of the following.

- Further reducing the ET Adjustment factor listed in the Model Ordinance.
- Limiting turf grass areas.
- Providing approved plant lists.
- Implement a public education and outreach campaign to promote water conservation. The program should highlight specific water-wasting activities to discourage, such as the watering of nonvegetated surfaces and using water to clean sidewalks and driveways, as well as educate the community about the importance of water conserving techniques. Water efficiency training and certification for irrigation designers, installers, and property managers should also be offered.
- Encourage alternatives to lawns and turf uses, except for parks, playing fields, children's play areas, and other specialized uses.
- Promote underground irrigation techniques.
- Encourage extensive use of mulch in landscape areas to improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
- Require drought-tolerate landscape plantings for all municipal buildings.
- Establish landscape maintenance districts along streets for water conservation purposes.
- Promote installation of dual plumbing in all new development, allowing gray water to be used for landscape irrigation.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure in concert with water retailers.

Measure Implementation Details: The individual city governments can adopt water conservation plans that surpass the requirements of the Model Landscape Ordinance. Implementation would be gradual through 2020 as residents adopt new water conservation behaviors, and as new developments utilize less water-demanding plants, alternatives to lawns, and gray water

infrastructure.

Level of Commitment: Each city selecting this measure would have to adopt a landscaping water conservation plan that exceeds the requirements in the Model Landscape Ordinance (AN 1881).

Co-Benefits: Reduced energy use, reduced air pollution, and resource conservation.

GHG PERFORMANCE STANDARD FOR NEW DEVELOPMENT

PS-1: GHG Performance Standard for New Development

Measure Description: Individual cities may adopt a GHG Performance Standard for New Development (PS) that would provide a streamlined and flexible program for new projects to reduce their emissions.

The PS would be a reduction standard for new private developments as part of the discretionary approval process under CEQA. Under the PS, new projects would be required to quantify project-generated GHG emissions and adopt feasible reduction measures to reduce project emissions to a level that is a certain percent below BAU project emissions. The PS does not require project applicants to implement a pre-determined set of measures. Rather, project applicants are allowed to choose the most appropriate measures for achieving the percent reduction goal, while taking into consideration cost, environmental or economic benefits, schedule, and other project requirements. SCAQMD does not have CEQA significance thresholds for new nonindustrial development at this time. One potential PS reduction goal could be 29%, based on San Joaquin Air Pollution Control District's recommended CEQA significance threshold and based on the calculations of reductions necessary at the state level to meet AB 32 at the time of the Scoping Plan (29% below forecasted 2020 levels = 1990 levels based on data available at that time). Another potential minimum goal could be 20% to 22% based on the most recent 2020 forecast data from CARB. San Bernardino County adopted a performance standard of 31% for certain discretionary projects within the unincorporated county with emissions more than 3,000 MTCO_{2e}/year. Projects with less than 3,000 MTCO_{2e}/year are still required to meet certain specified performance measures that also result in GHG emission reductions.

Entity Responsible for Implementation: The individual city governments are responsible for implementing this measure.

Measure Implementation Details: Implementation of the performance standard would reduce GHG emissions attributable to new discretionary development projects at least 20% to 29% by 2020 (or more if selected by a city). Measurable reductions of GHG emissions would be achieved through each city's review and discretionary approval of residential, commercial, and industrial development projects. It is expected that project proponents would often include energy-efficiency and alternative energy strategies to help reduce their project's GHG emissions because these are often the most cost-effective approach to reducing GHG emissions, but are free to propose any valid measures that would achieve the overall reduction goal. In order to calculate the reductions from this measure, state measures and local mandatory measures were quantified for new development for each city. These measures achieve a certain portion of the PS goal, depending on the city. The PS contributes the remaining percent reduction required to achieve the PS goal in new developments. The reduction amounts for each individual project within each city from state or other local measures would vary; however, state and local mandatory measures are still expected to result in the largest share of the burden in meeting the PS reduction target for all cities. Some cities already require discretionary projects, through the CEQA process, to identify their GHG emissions and to mitigate those emissions when feasible mitigation is available and there are no overriding circumstances.

Level of Commitment: Each city selecting this measure would have to adopt a GHG Performance Standard for New Development, requiring at least 20% to 29% reduction in new development emissions within the cities.

Co-Benefits: Co-benefits would depend on the exact measures selected by individual project proponents, but would be the same as the corresponding strategies described for the other measures (e.g., if a project proponent were to select energy efficiency measures as part of meeting project reductions, the benefits would be similar in character to those described for energy efficiency retrofits).