



AIR QUALITY AND ENERGY ELEMENT

A. INTRODUCTION

The purpose of this Element is to identify the goals, policies, and implementation programs that will be used to address the following:

- ✓ The impacts of air quality which does not meet state and federal standards on public health;
- ✓ State mandates to reduce greenhouse gas emissions;
- ✓ The need to provide reliable and cost efficient energy supplies for Dixon's future needs;
- ✓ Implement the 2008 City Council adopted Energy Strategic Plan.

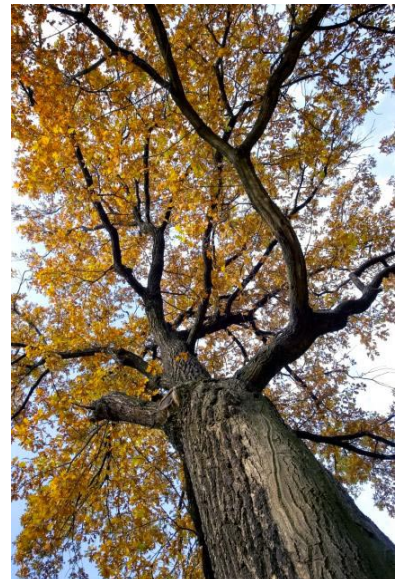
Policies and programs have been drawn from models provided by the Sacramento Metropolitan Air Quality Management District, the California Attorney General's Office, the California Air Pollution Control Officers Association (CAPCOA) and selected based on their appropriateness for a community with Dixon's population, transit system, and infrastructure network. Many of the policies and programs have cross benefits addressing air quality, greenhouse gas (GHG) emission, and energy goals. They also enhance General Plan policies and programs found in other Elements of this General Plan regarding making Dixon friendly for bicyclists and pedestrians and maintaining Dixon's small town character.

B. SETTING

THE NEED FOR AN AIR QUALITY & ENERGY ELEMENT

The City is committed to reducing energy consumption, increasing energy efficiency and improving the air quality of our community.

Addressing air quality and energy in this dedicated Element recognizes that these are important local and regional concerns. Just as issues of land use, circulation, open space, conservation, noise, housing, and safety are essential to a community's well-being, the issues of air quality and energy conservation are critical components of a vibrant, safe, and prosperous city.





The policies contained in this Element offer an effective way to reduce energy use and improve both local and regional air quality. Such policies will help improve the health and quality of life of people locally and throughout the region, and ensure that Dixon continues to thrive well into the future.

Changes in land use patterns, transportation systems, building technology, landscape design, agricultural practices, and human behavior can all lead to greater energy efficiency, resource conservation and improved air quality. This Element is therefore connected with the Land Use, Housing, Circulation, and other elements of this General Plan. This Element expands on and provides more specific direction regarding air quality, walking, biking, and energy conservation policies in the other Elements.

Greenhouse Gas Emissions and Climate Change

Several recent state laws focus on the need to reduce California's contribution to GHG emissions and climate change. These include:



- Assembly Bill 32, the Global Warming Solutions Act of 2006, requires communities to reduce GHG emissions to 1990 levels by the year 2020. This translates into a reduction of approximately 25% from what emissions would be in California under a "business as usual" scenario.
- Governor Schwarzenegger's Executive Order S-3-05 calls for further GHG cuts of 80 percent below 1990 levels by 2050. This is the level believed necessary to off-set the most significant physical impacts to the environment of climate change.
- Senate Bill 375, signed in 2008, is intended to link regional transportation plans with state GHG reduction goals. Under Bill 375, state agencies and

local metropolitan planning organizations (such as the Association of Bay Area Governments) are required to develop Sustainable Community Strategies (SCS) to cut GHG emissions.

According to the California Attorney General, transportation (primarily in private cars) represents 41 percent of the state's GHG emissions. Energy and electricity used in homes and commercial and industrial buildings are also large contributors. Land use, planning, and transportation decisions by counties and cities are therefore central to California's efforts to limit air pollution and climate change.



CAPCOA has issued their “Model Policies for GHG emissions in General Plans.” This document identifies ten top actions by local governments as being the most effective and efficient for reducing GHG emissions. These ten actions address the following:

1. Smart growth: jobs/housing balance, transit-oriented development, infill development.
2. Transit, bicycle, and pedestrian connections.
3. Energy and water efficient buildings.
4. Green procurements and alternative fuel vehicle use.
5. Alternative fuel facilities and infrastructure.
6. Renewable energy generation.
7. Energy efficiency, solid waste reduction/recycling, and energy recovery.
8. Urban forestry (tree planting) programs and requirements.
9. Public outreach/education.
10. Regional cooperation.

Air Quality in the Sacramento Region

Air quality is impacted by many of the same sources which are believed to impact GHG emission. With the Sacramento Region among the nation’s top twelve areas with degraded air quality, the need to decrease the level of air pollutants in the region’s cities is apparent. Sensitive persons such as children, seniors, and those with respiratory conditions, are vulnerable to the impacts of air pollution. For example, studies have shown that children who live in areas with heavy vehicle traffic are more likely to have reduced lung function, and are more likely to be hospitalized for asthma. The American Lung Association of California and the California Air Resources Board (CARB) estimate the following annual health impacts of air pollution:

- | | |
|--|--------------|
| • School absences | 4.7 million; |
| • Lost workdays | 1.4 million; |
| • Respiratory illnesses including asthma | 210,000; |
| • Hospitalizations | 7,700; |
| • Premature deaths | 8,800. |

Air Quality Criteria Pollutants

The United States Environmental Protection Agency (EPA) and CARB have established national and state ambient air quality standards, respectively, for pollutants generally known as “criteria air pollutants.” These pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. For some of these pollutants, notably ozone and particulate matter, the state standards are more stringent than the national standards (Figure 1).



FIGURE 1:

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15.0 µg/m ³		

Note: Partial list of pollutants is shown above
 Source: www.arb.ca.gov/research/aaqs/aaqs2.pdf.

The concentration of ground level ozone is greatest on warm, windless, sunny days, and is often accompanied by temperature inversions. Ozone forms through chemical reactions between volatile organic compounds (VOC) and oxides of nitrogen (NO_x). These reactions occur over time in the presence of sunlight. High levels of ozone create a public health concern because it increases susceptibility to respiratory infections and diseases, and increases the risk of cardiac disorders. The principal sources of VOC and NO_x are the combustion of fuels and the evaporation of solvents, paints, and fuels. In the Sacramento Region, over 70% of these ozone precursors are produced from motor vehicles. Figure 2 indicates the number of days the standards for ozone were exceeded in the last two years and the corresponding maximum readings. All the days occurred between the months of April and September, with the highest number of days between July and September, illustrating the link between warm summer temperatures and ozone.



Figure 2: Ozone readings
Days Each Year Standard Exceeded

Table with 7 columns: Year, Monitoring Station Location, State Standard (1-hr, 8-hr), National Standard (8-hr), and Max reading (1-hr, 8-hr). Rows include data for Davis and Vacaville in 2008 and 2009, plus State and National standards.

Source: AQMIS2 database www.arb.ca.gov/aqmis2.

Airborne dust contains respirable particulate matter (PM10), which consists of particles or droplets less than 10 microns in diameter. PM10 emissions are caused by road dust, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. The level of PM10 in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs causing respiratory problems and permanent lung damage. It also scatters light and significantly reduces visibility. Fine particulate matter (PM2.5) is defined as extremely small suspended particles or droplets with a diameter of less than 2.5 microns. PM2.5 consists mostly of combustion byproducts from the reaction of exhaust sulfates and nitrates, along with finer dust particles. It is more closely linked to adverse health effects, and contributes to hospital and emergency room visits and is associated with asthma, bronchitis, cardiac arrhythmia, heart attack, and premature death. According to the YSAQMD, PM 2.5 concentrations are typically highest in the late fall and winter when conditions are colder and more stagnant and thus are more conducive to the build up of PM 2.5. The increased activity from residential wood combustion may also be a contributing factor to the higher levels typically observed during the late fall, early winter season.

Toxic air contaminants (TACs) are air pollutants which may cause or contribute to an increase in deaths or serious illness, or which may pose a present or potential hazard to human health. While ambient air quality standards have not been established for the hundreds of identified TACs, exposure to these pollutants can cause or contribute to chronic health effects. Exposure to TACs during infancy or childhood could affect the development of the respiratory, nervous,



endocrine or immune systems – increasing the risk of cancer later in life. Short-term effects of TACs include irritation to the eyes, nose, throat, and lungs and can result in coughing, headache, dizziness, and nausea. Long-term contact is associated with increased risks of developing cancer, lung diseases such as asthma, damage to the immune system, and allergies. Of all the toxic air contaminants measured in CARB’s monitoring network, diesel particulate matter has been found to contribute the greatest overall statewide risk to public health; furthermore, proximity and long-term exposure to diesel emissions have been proven to increase the risk of lung cancer by as much as 40 percent. Motor vehicles are the primary source of the top three toxic air contaminants, thus contributing to the risk of developing adverse health effects in the region.

Causes of Poor Air Quality

The region’s poor air quality can largely be attributed to emissions from man-made and natural sources, the Central Valley’s geography (which tends to trap polluted air), and weather conditions. **Man-made** sources include air pollution emissions from stationary, area and mobile sources. CARB identifies the following as key man-made sources of air pollution as well as their effects and control measures.

**Figure 3
Air Pollution Sources, Effects, and Control**

Pollutant	Sources	Effects	Prevention/Control
Ozone	Burning fuel reacting w/ sunlight, solvents, petroleum processing/storage, pesticides.	Breathing difficulties, lung damage	Reduce combustion engine emissions, limit emissions from commercial operations, limit emissions from industrial sources, conserve energy.
PM₁₀	Road dust, windblown ag dust, fireplaces.	Respiratory disease, lung damage, cancer, premature death, reduced visibility.	Control dust sources, industrial PM emission, wood burning stoves/fireplaces, conserve energy.
PM_{2.5}	Fuel combustion in vehicles, equipment, industrial sources; residential/ag burning; reaction of other pollutants.	Respiratory disease, lung damage, cancer, premature death, reduced visibility.	Reduce combustion engine emissions, reduce residential/ag burning.

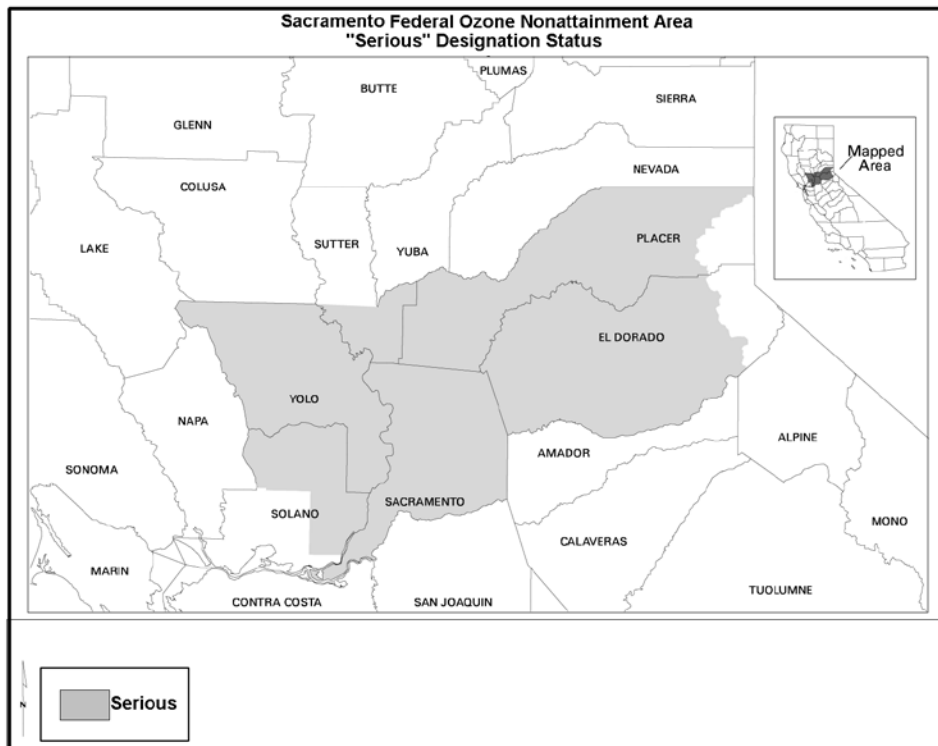
Source: www.arb.ca.gov/research/health/fs/fs2/fs2.htm.



Natural sources of poor air quality include biogenic hydrocarbons, natural wind-blown dust and wildfires. The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants in the Valley when meteorological conditions are right. The Valley itself is flat, providing a place for air pollutants to settle. In the Valley, air quality is at its worst when temperature inversions trap pollutants near the ground—usually in the warmer summertime months.

The portion of the region which does not meet the federal and/or state standards for known air pollutants is referred to as the Sacramento non-attainment area. A “nonattainment” designation indicates that a pollutant concentration has exceeded the federal standard. The Sacramento non-attainment area is classified as a “serious” nonattainment area for the federal eight hour ambient air quality standard for ozone (Figure 4), the state twenty-four hour standard for PM₁₀, and partial non-attainment for the federal twenty-four hour standards for PM_{2.5}.

FIGURE 4:





City of Dixon Energy Strategic Plan

The City is addressing citywide energy use and conservation through a citywide Energy Strategic Plan adopted in 2008. The Plan addresses energy efficiency, GHG reduction, renewable energy resources, transportation efficiency and water conservation. The vision of the Energy Strategic Plan is to work with public and private agencies to provide energy independence and reduce the City’s environmental impact while providing jobs and reducing costs.

The policies in the Energy Strategic Plan are intended to support and reinforce the community-wide goals contained in the General Plan. This Element provides policies and implementation tasks to conserve and produce energy, and establishes the framework for community focus on this issue. The City will lead the way by increasing the efficiency of municipal operations. However, municipal operations represent only a small percentage of total energy use in Dixon. Therefore, community-wide efforts in both the public and private sectors are needed to achieve meaningful reductions overall in energy use.

Renewable Energy

The City is committed not only to saving energy, but also to producing renewable energy locally in order to lower the cost of government and business operations and reduce our impact on the environment.

Renewable energy sources capture energy from on-going natural processes such as sunlight, wind, flowing water, biological processes, and geothermal heat. In contrast, most energy used in the US today comes from nonrenewable sources such as coal, oil, and natural gas.



◀ **Solar panels on carport roof.**

Although only a small percentage of the nation’s energy needs are currently met by renewable sources, there is growing interest in renewable energy. The wind farms south of Dixon are one example of a recent renewable energy installation; the installation of solar panels on the roofs of private homes and businesses is another.

C. PROJECTIONS

Continued development will increase the amount of air pollutants and GHGs created in Dixon and the region, including emissions from stationary and mobile sources.



The major source of emissions within the City will continue to be the operation of motor vehicles. Land use planning measures can reduce emissions from such sources by reducing the length and number of vehicle trips and by encouraging residents to use alternative forms of transportation.

For stationary sources (homes and businesses), energy conservation measures can reduce GHG emissions and the City's contribution to climate change by reducing the use of energy generated from fossil fuels. The use of renewable energy sources, which generally do not emit GHGs, will also help reduce Dixon's contribution to climate change.

The completion of a Climate Change Action Plan, recommended as an implementation program, will provide more specific data on the sources of GHG and programs to reduce emissions. The Plan will require periodic review and updating to ensure goals are met.

C. ISSUES

IMPORTANCE OF AIR QUALITY

The quality of the air we breathe directly affects our health, environment, economy and quality of life. The Federal Clean Air Act of 1977 directed the Environmental Protection Agency to establish national ambient air quality standards (NAAQS). Primary standards protect public health. Secondary standards protect public welfare associated with the presence of contaminants in the ambient air.

Although air quality is a regional issue, there are steps that Dixon can take to improve air quality and to avoid adverse localized air pollution impacts. Local efforts over the past two decades have contributed to the improvement in air quality, and will continue to play an important role in achieving federal and state air quality standards.

IMPORTANCE OF ENERGY CONSERVATION AND EFFICIENCY

Energy conservation and efficiency means using energy more wisely. There are many opportunities to do so, including developing compact and walkable land use patterns, using green building technologies, and implementing water conservation measures, the enforcement of policies in areas such as land use, building and transportation and incentives to promote energy efficiency will be critical to achieving the City's goals.

Programs which aim to reduce GHG emissions through energy efficiency and conservation measures often have the dual benefit of reducing customer costs. Using energy more wisely will save residents and businesses money and will lead to a healthier environment.



Programs promoting renewable energy alternatives also help to create a more diverse and sustainable source of energy to meet the Dixon's long-term needs.

E. GOALS, POLICIES AND IMPLEMENTATION

AIR QUALITY (AQ)

AQ Goal 1: To comply with State law regarding the reduction of green house gas emissions.

AQ Policy 1-1: Determine existing GHG emission levels, track to evaluate effectiveness of programs, and update programs as necessary to meet goals.

Implementation Program (IP) 1-1-1: Prior to or as part of the next update of the Land Use Element or any annexation exceeding 10 acres, and no later than July 1, 2012, the City will adopt a Climate Action Plan. The Climate Action Plan shall include a GHG emissions inventory to establish baseline emissions levels from all sources, emission reduction targets and deadlines, enforceable GHG emissions reductions measures, and regular progress review.

AQ Policy 1-2: Support land use, transportation management, infrastructure and environmental planning programs that reduce vehicle emissions and improve air quality by reducing the number and length of motor vehicle trips, and that encourage alternative modes of travel such as walking, bicycling, and transit.

IP 1-2-1: As part of the next update of the Land Use Element and any future annexation application review, evaluate the need for additional Neighborhood Commercial land uses and ensure facilities are within one-half mile walking and biking distance for most citizens' daily needs.

AQ Policy 1-3: Support the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) at major employment centers to help reduce midday vehicle trips.

IP 1-3-1: See IP 1-2-1. Also review Conditions of Approval and proposed mitigation measures for new development to incorporate ancillary employee services.



- AQ Policy 1-4:** Promote mixed-use developments that include homes, schools, civic uses, retail and commercial services, and daycare facilities within walking distance of each other.
- IP 1-4-1:** *With next Housing Element update, and any update of the Land Use Element, evaluate need and appropriate locations for mixed use zoning designation.*
- AQ Policy 1-5:** Promote compact development within one-half (1/2) mile of rail transit stations and bus transit stops (intercity and local once fixed-route service is available) once said services are available.
- IP 1-5-1:** *Once said services are available, evaluate with the next Housing Element and Land Use Element Update the need for zoning modifications.*
- AQ Policy 1-6:** Promote growth within existing urban areas (infill) as a priority over urban expansion, where appropriate.
- IP 1-6-1:** *See Urban Development and Public Services Elements regarding avoiding premature development and extension of infrastructure.*
- AQ Policy 1-7:** Identify and adopt incentives for planning and implementing infill development projects within urbanized areas near job centers and transportation nodes.
- IP 1-7-1:** *Continue Redevelopment Agency programs to promote investment within Redevelopment District. See Housing Element regarding programs to preserve existing housing inventory and mixed use development in the downtown area.*
- AQ Policy 1-8:** Encourage developments and street systems that support the use of Neighborhood Electric Vehicles (NEV).
- IP 1-8-1:** *Consistent with other traffic calming policies such as 1-9 and the existing street network, streets with speed limits at or below 35 miles per hour should be utilized unless necessary to comply with existing Transportation Element Policies regarding Level of Service (LOS).*
- AQ Policy 1-9:** Promote street design, including designation of dedicated bicycle lanes and improvement of the sidewalk network, which provides an environment which encourages biking and walking.



IP 1-9-1:

Evaluate Engineering Standards for the following: (1) opportunities to improve pedestrian and bicycle safety and access, such as traffic signal crosswalk activation buttons at the back of curbs, curb “bulb-outs” to reduce pedestrian/vehicle conflicts, lighted crosswalks, pedestrian refuge islands, and pedestrian countdown heads on signal lights as part of new development areas and where feasible in existing development, and (2) compliance with “complete street” regulatory requirements to ensure streets accommodate the travel of all modes of traffic and users, including bicycles, pedestrians, the disabled, vehicles, and, where appropriate, trucks.



◀ **Pedestrian safety is affected by street width, traffic speed and volume.**

AQ Policy 1-10: Ensure that, wherever feasible, public transit is a viable alternative to the use of single occupant motor vehicles.

IP 1-10-1:

Evaluate need for fixed route transit service as part of the City’s Transit Plan Update and at least every five years thereafter. Identify potential route with locations for “stops.”

AQ Policy 1-11: Preserve and ensure the dedication of rights-of-way and station sites for future transit stops, where necessary.

IP 1-11-1:

Based on updated Transit Plan, include locations for future stops as part of new development analysis and potential need for right-of-way dedication.

AQ Policy 1-12: Conduct public outreach to educate the public regarding options for reducing air pollution through daily activities.

IP 1-12-1:

Conduct outreach to business community to encourage employers to participate in Napa-Solano Commuter Information public education programs to provide employees with information on alternatives to single-occupancy driving (e.g., offer literature to support carpooling, biking, transit).

IP 1-12-2:

The City of Dixon shall provide employees with information on alternatives to single-occupancy driving (e.g., offer literature to support carpooling, biking, transit) on at least a bi-annual basis.



- IP 1-12-3:** *Continue to provide air quality information through the City’s website and linking to the YSAQMD website.*
- IP 1-12-4:** *Continue support of Solano-Napa Commuter Information programs through membership in the Solano Transportation Authority.*
- IP 1-12-5:** *Train City employees on “green” construction and maintenance practices including energy conservation at City facilities, new construction design, dust control, storm water mitigation through low impact design, etc.*
- IP 1-12-6:** *Develop a brochure to educate the public regarding air pollution sources within the home and mitigation measures. Make the information available using a variety of methods including newspapers, utility and garbage bills, and websites.*
- AQ Goal 3:** **Reduce the levels of Ozone, PM₁₀, and PM_{2.5} to comply with State and Federal Standards.**
- AQ Policy 3-1:** All new development projects which have the potential to result in substantial air quality impacts should incorporate design or operational features that result in a reduction in emissions to a level below the significance thresholds listed in the Yolo-Solano Air Quality Management District (YSAQMD) Handbook for Assessing and Mitigating Air Quality Impacts.
- IP 3-1-1:** *Use the YSAQMD Handbook for “Assessing and Mitigating Air Quality Impacts” or comparable public agency resource, such as CARB “Air Quality and Land Use Handbook: A Community Health Perspective” when reviewing development applications for potential air quality impacts and the need for land use separations from sensitive receptors. Consult LEED guidelines and YSAQMD for possible mitigation measures. Where onsite mitigation measures are not feasible off-site measures, such as tree plantings or funding programs for reduced emission vehicles, should be implemented to the maximum extent feasible.*
- IP 3-1-2:** *Continue practice of sending Notice of Preparation for all Environmental Impacts Reports to YSAQMD inviting their input on potential projects.*



AQ Policy 3-2: Coordinate with YSAQMD to enforce CARB mandated limits on the amount of time diesel-powered trucks, buses, and other heavy vehicles may idle.

IP 3-2-1: *Support enforcement of existing CARB policy limiting diesel idling time through Environmental Impact Report mitigation measures, conditions of approval for new development, and membership on the YSAQMD Board.*

AQ Policy 3-3: Encourage employers to provide transit subsidies, bicycle facilities, and alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking for carpools/vanpools.



◀ **Vanpool waiting for passengers**

IP 3-3-1: *Update Zoning Ordinance or Design Review Guidelines to use LEED guidelines, or comparable, for recommended bicycle storage and priority parking standards for new development.*

AQ Policy 3-4: Encourage business owners to schedule deliveries at off-peak traffic periods and allow for rideshare and carpooling programs for their employees.

IP 3-4-1: *Coordinate with the Chamber of Commerce and Napa-Solano Commuter Information Service to encourage employers with more than 100 employees to develop a transportation trip reduction plan.*

IP 3-4-2: *Analyze requiring businesses owners to schedule deliveries at off-peak traffic periods or provide delivery service as potential Conditions of Approval for Use Permits or mitigation measures in Environmental Impact Reports.*



AQ Policy 3-5: Support infrastructure and programs that encourage children to safely walk or ride a bicycle to school.

◀ **A path separated from vehicle traffic encourages bicycle and pedestrian travel.**

IP 3-5-1: *Coordinate with the Dixon Unified School District and operators of private schools to site*



schools within neighborhoods with safe routes to walk and bike to school. Incorporate Safe Routes to Schools measures per the plan adopted by the Solano Transportation Authority (STA). Complete implementation of Safe Routes to Schools evaluation for existing schools utilizing guidelines adopted by STA. Incorporate recommendations where feasible. Pursue grant funding to supplement local resources.

IP 3-5-2: *Coordinate with the Dixon Unified School District and operators of private schools to develop a transportation plan for schools to reduce congestion and promote ride sharing, walking, and bicycling. Possible programs include promoting car-free days at the high school level, staggering school start times, establishing elementary school enrollment boundaries, or mitigation fees to expand or reinstate school bus service.*

AQ Policy 3-6: Encourage programs at City and YSAQMD level which reduce ozone, PM₁₀, and PM_{2.5} including dust control enforcement, lawnmower exchange programs, wood burning fireplace and stove replacement programs, “spare the air,” “don’t light tonight,” and tree planting programs.



◀ **Replacing small combustion equipment, such as lawnmowers, with a battery charged version is a low cost option for reducing air pollution.**

IP 3-6-1: *Standard construction mitigation measure should include prohibiting visible dust emissions beyond the property line and implementation of Best Available Control Measures (BACM) for sources so that visible emissions do not exceed limit 100 feet from the point of earth-moving activities. Incorporate other YSAQMD measures as appropriate.*

IP 3-6-2: *Use BACM for maintenance of vacant City lots and unpaved streets or alleys. Modify maintenance practices to reduce dust generation during weed abatement and lot grading activities. Stabilize soils to reduce dust generation due to wind when sites are inactive. Apply gravel or dust suppressant if necessary.*

IP 3-6-3: *As part of development design review, incorporate stormwater Best Management Practices (BMPs) for dust control to reduce dust generation from outdoor material storage piles.*



AQ Policy 3-8: Replace City fleet vehicles and gas powered equipment with lower emission options, as funding and utility allows.

IP 3-8-1: *Implement existing City Policy (Resolution 00-086 or as amended) and provide analysis of alternatives to City Council for consideration during annual operating budget hearing process.*

AQ Policy 3-9: Encourage lowest emission technology buses in public transit, garbage collection, and street sweeping fleets.

IP 3-9-1: *Pursue grants, including those available annually through YSAQMD, for funding vehicle and large equipment upgrades with lower emissions.*

IP 3-9-2: *Review City contracts for services, such as garbage collection and street sweeping, to incorporate language to use reduced emission vehicles. Require new street sweepers be certified as PM₁₀ efficient.*

IP 3-9-3: *Pursue construction of an alternative fuel station in Dixon through grant funding or as mitigation for proposed development.*

AQ Policy 3-10: Maximize air quality benefits through selective use of landscaping vegetation which is low in emissions of volatile organic compounds and through re-vegetation of vacant lands.

IP 3-10-1: *Utilize the Sacramento Tree Foundation's list, or comparable, when selecting trees for City facilities utilizing species with the highest air quality benefit to the extent practical.*

IP 3-10-2: *Update the City's Street Tree List and landscaping standards to encourage the use of trees with the highest air quality benefit and to the extent practical discourage the use of varieties of turf which require mowing.*

AQ Goal 4: To protect the public from existing sources of nuisance odors and air pollution.

AQ Policy 4-1: The establishment of wind breaks along the south and western boundaries of the City is encouraged to reduce the impacts of wind-carried pollutants on residents.

AQ Policy 4-2: Use landscaping to screen pollutants particularly near large sources of dust (vacant land or agricultural uses), along transportation corridors (railroad, I-80, and SR 113) or to mask odors (such as certain agricultural, commercial or industrial operations).

IP 4-1-1: Update Zoning or design review standards to address landscaping as a means of mitigating air pollution, including odors, between land uses.

ENERGY (E)

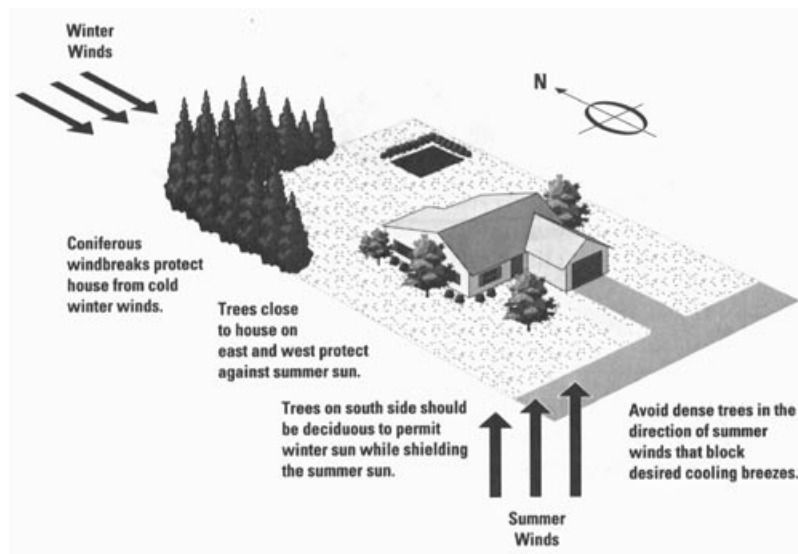
E Goal 1: Reduce the per capita energy consumption level in residential areas of the City of Dixon and the per acre energy consumption level in all non-residential areas.

E Policy 1-1: In all development and redevelopment projects, encourage the use of building materials and methods that increase efficiency beyond State Title-24 standards.

IP E1-1-1: Adopt a Green Building Ordinance or other enforceable regulation by June 1, 2012 to encourage Energy Star, California Green Builder, or Green Point Rated designation for new construction (typically require 15% energy savings above Title 24 for residential, 25% above for commercial).

E Policy 1-2: Encourage the implementation of cost-effective and innovative emission-reduction technologies in building components and design such as passive solar orientation and the Lawrence Berkeley National Laboratory Heat Island Group’s Guidelines for landscaping to reduce energy consumption.

IP E1-2-1: Utilize Subdivision Ordinance guidelines for solar orientation in new developments and future City facilities.



◀ Selective landscaping and solar orientation can reduce energy consumption.

IP E1-2-2: Future City facilities, and major renovations of existing facilities, shall incorporate landscaping design to shield buildings from northern winter winds and shade east and west sides from summer sun while avoiding blockage of the Delta breeze.



E Policy 1-3: Use “cool roof”, “cool pavement”, and shading requirements to reduce energy demands of structures and impervious surfaces.

IP E1-3-1: *Evaluate the Zoning Ordinance criteria for all new parking lots to include tree plantings that will result in 50% shading of parking lot surface areas within 15 years. Allow “cool pavement” or “cool roof” alternatives when tree planting is not practical given the site use.*

IP E1-3-2: *Reroofing of City facilities should examine the feasibility of utilizing cool roof materials as utilize to the extent practical.*

IP E1-3-3: *New City facilities and repaving of existing facilities should utilize cool pavement materials to the extent practical.*

E Policy 1-4: All new and remodeled City facilities should incorporate energy-conserving design and construction techniques, such as those found in the LEED Resource Guide, to the extent feasible.

IP E1-4-1: *See IP E1-1-1, regarding Green Building Ordinance, and apply requirements to City Facilities.*

E Policy 1-5: Reduce annual energy consumption from non-renewable sources at existing City facilities.

IP E1-5-1: *Conduct energy audits and water consumption audits at all City facilities, including parks, at least once every five years.*

E Goal 2: Encourage the use of renewable energy sources such as wind and solar.

E Policy 2-1: City facilities should utilize energy from renewable sources to the extent feasible.

IP 2-1-1: *New facilities and major renovations should incorporate solar or wind energy where feasible. Pursue grant funding or public/private partnerships where available.*

E Policy 2-2: Encourage the use of renewable energy sources on new residential, commercial, and industrial development.

IP 2-2-1: *Review Zoning Ordinance and update as appropriate to allow small wind turbines where compatible with adjacent land uses.*

IP 2-2-2: *See IP E1-1-1: through Green Building Ordinance encourage the use of renewable energy features in new development to reduce energy use from non-renewable sources.*



- IP 2-2-3:** *Evaluate Zoning Ordinance and Design Review criteria to allow reduced shading requirements for projects with solar collection devices.*

E. RESOURCES

Land Use:

Best Practices Framework, Version 5.0, Institute for Local Government, California Climate Action Network, www.ca-ilg.org/climatechange.

Getting to Smart Growth II, 100 More Policies for Implementation, Smart Growth Network, ICMA, www.icma.org.

Green Building & Sustainability Resources, California Department of Housing and Community Development, http://www.hcd.ca.gov/hpd/green_build.pdf.

Leadership in Energy and Efficient Design (LEED) for Neighborhood Development, Pilot Program, U.S. Green Building Council (USGBC), Congress for New Urbanism, and Natural Resources Defense Council, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>.

http://www.extension.org/pages/Efficacy_of_Vegetative_Environmental_Buffers_to_Mitigate_Emissions_from_Tunnel-Ventilated_Poultry_Houses.

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