# TRANSPORTATION + LAND USE

This page is intentionally left blank

# Transportation + Land Use

Transportation comprises nearly one-third of total U.S. emissions and close to 40 percent of California emissions (U.S. EPA, 2008). In Benicia, it is the second largest contributor of greenhouse gas emissions, representing a little over four percent of the community's total emissions. Transportation related emissions are linked to the mode of transportation (vehicle, bicycle, etc.), trip length, number of trips, efficiency of vehicles, and from land use and development patterns.

Land use is closely related to transportation related greenhouse gas emissions. Sprawling development patterns foster dependence on motor vehicles and increases greenhouse gas emissions. In contrast, an integrated and connected street network increases the viability of alternative modes of transit, such as walking, biking, access to public transit; lowers automobile dependency; and reduces trip lengths, resulting in lower greenhouse gas emissions. Benicia has opportunities for infill development, which is key to achieving reductions in VMT.

Tracking transportation related emissions at a local level is challenging. Sources are widely distributed and determined by numerous transportation decisions made by community residents.

Additionally, many transportation policies, such as fuel efficiency and vehicle emissions standards, are enacted at the federal, state, and regional levels. However, the City can lower transportation related emissions by implementing strategies that decrease vehicle miles traveled (VMT), retrofitting the municipal fleet and local infrastructure, and implementing policies to reduce travel demand.

This chapter groups strategies into three major categories:

- Municipal Transportation
- Alternative Transportation
- Land Use

| Transportation + Land Use Objective Table | Emissions Reduction Type | Emissions Reduction |
|---|---|---|
| Objective T-1: Reduce Municipal Fleet Related Emissions 20% by 2020 | City | |
| Objective T-2: Reduce Municipal Transportation Infrastructure Related Emissions 50% by 2020 | City | |
| Objective T-3: Increase Bicycle and Pedestrian Mode Share by 2020 | Community | |
| Objective T-4: Increase Public Transit Ridership 10% by 2020 | Community | |
| Objective T-5: Reduce Benicia Breeze Vehicle Emissions 50% by 2020 | City | |
| Objective T-6: Increase the Use of Rail & Water Transportation | Community | |
| Objective T-7: Increase Carpooling to 15% of Mode Share by 2020 | Community | |
| Objective T-8: Reduce Reliance on Conventional Automobile Travel | Community | |
| Objective T-9: Reduce VMT 1% by Increasing Compact Mixed-Use Development | Community | |

## Adaptation

As the sea level rises, erosion will occur more frequently with more severity, threatening low-lying coastal structures and transportation infrastructure. In addition, sea level rise may result in increased river flooding (Sacramento and San Joaquin waterways) and runoff due to its negative impact on the drainage rate of water. Roadways, trails, transit facilities, and structures along the Carquinez shoreline may need to be protected, realigned, elevated, or relocated. Extreme temperatures may damage roadways and transit facilities, resulting in increased maintenance.

### Co-Benefits of Transportation Objectives

- Improved air quality
- Reduced traffic congestion
- Improved public health
- Reduced dependency on foreign oil
- Reduced expenditures on fuel
- More efficient utilization of existing infrastructure
- Increased community interaction

**Objective T-1: Reduce Municipal Fleet Related Emissions 20% by 2020**

# MUNICIPAL TRANSPORTATION

This section addresses City government emissions from transportation and transportation infrastructure. In 2005, emissions from the vehicle fleet, employee commute, and streetlights accounted for approximately 34 percent of emissions from the City government's operations.[19] Actions and strategies for reducing City government emissions include decreasing vehicle related emissions for the municipal fleet and emissions associated with transportation infrastructure.

## Municipal Fleet

Emissions related to the municipal fleet account for approximately 18 percent of the City's total transportation related emissions.[20] The municipal fleet includes police and fire vehicles, parks and public works equipment and vehicles, and the Benicia Breeze public transit buses. Opportunities exist to reduce emissions within the fleet by purchasing cleaner operating vehicles, downsizing to more compact vehicles, where appropriate, and by identifying alternatives to vehicle travel.

## Existing Actions

As of July 2009, the City of Benicia had seven hybrid vehicles (three Toyota Priuses and four Ford Escapes) in the fleet and had retrofitted 3 diesel municipal fleet vehicles out of 7 to meet State requirements. In 2009, the Valero Refinery purchased two new Toyota Prius hybrids for the City, which were converted to plug-in hybrids. By December 2010, City staff will retrofit the final three diesel fleet vehicles (out of seven) to meet state requirements. The City has plans to obtain additional fuel-efficient vehicles during the fiscal years 2009-2011. The City developed a Benicia Air Friendly Vehicle Policy for fiscal years 2009-2011. The objective is to replace two sedans, two light-duty pickup trucks and one off-road piece of construction equipment with vehicles that best fulfill the green fleet purpose of reducing air pollution and fuel consumption while maintaining vehicle function.

### ◆ Strategy T1.1. Establish Mandatory Criteria for New Fleet Vehicles

When purchasing new fleet vehicles, give priority to low emission and fuel-efficient vehicles, including plug-in-hybrid, electric, compressed natural gas, biodiesel, and neighborhood electric vehicles (NEV). [21]

Implementation Action

- Prepare low emission and fuel-efficient vehicle procurement standards.

CO2EMT Reduction Range

- 100% of Objective T1.

19) City of Benicia. (2008). City of Benicia greenhouse gas emissions inventory report page 5.
20) Ibid.
21) A NEV is defined by the United States Department of Transportation as an electric four-wheeled motor vehicle that weighs less than 3,000 pounds and has a maximum speed of 25 miles per hour.

*Electric vehicle charging at City Hall (2008).*

### ◆ Strategy T-1.2. Municipal Bicycle Program

Provide bicycles for City staff, police, and parking enforcement to use during work hours for site visits, city purposes and special events.

Implementation Actions

- Purchase bicycles for the City bicycle fleet;
- Purchase weather protected bicycle storage racks at municipal buildings and facilities.

CO2EMT Reduction Range

- Unknown Reductions.

**Objective T-2: Reduce Municipal Transportation Infrastructure Related Emissions 50% by 2020**

## Infrastructure

The City provides and maintains transportation infrastructure, including streets, streetlights, and sidewalks. Opportunities for emission reductions in this area include energy-efficient lighting and utilizing recycled content in street surfaces.

## Existing Actions

For nearly 20 years Benicia has used high pressure sodium light bulbs in streetlights. The City has retrofitted 9 of 10 traffic signals from incandescent lights to light emitting diodes (LED), along with 3 out of 10 intersection walk signals. These actions have reduced energy consumption and associated greenhouse gas emissions.

### ◆ Strategy T-2.1. Increase the Efficiency of Streetlights

Replacing existing streetlights with high efficiency alternatives, such as LED or induction lighting, is an important energy and cost savings measure. The City currently expends approximately $144,000 annually on energy to power streetlights. Efficient infrastructure is capable of reducing consumption and cost by 35-50%.[22]

Implementation Actions

- Evaluate the cost and time frame for purchasing energy efficient streetlight technologies;
- Develop a replacement schedule and budget.

CO2EMT Reduction Range

- 8%-9% of Objective T2.

### ◆ Strategy T-2.2. LED Lighting for Intersection Walk Signals

LED lighting is the most energy-efficient technology for intersection walk signals available at this time. Installing LED lighting in the remaining 7 intersection's walk signals will save energy and reduce emissions.

Implementation Action

- Replace walk signals at the remaining 7 intersections with LED lighting.

CO2EMT Reduction Range

- Unknown Reductions.

*First Street (Northern Perspective) (2008).*

22) Based on information provided by PG&E related to their LED streetlight rebate program

### ◆ Strategy T-2.3. Recycled Content in Street Surfaces

The net energy expenditure to re-use materials is much lower than the energy required to manufacture and transport un-recycled resources. Integrating recycled rubberized additives when resealing street surfaces can help reduce the City's greenhouse gas emissions.

Implementation Action

- Use recycled content in street surface construction, where appropriate.

CO2EMT Reduction Range

- Unknown Reductions.

### ◆ Strategy T-2.4 Traffic Signal and Stop Sign Optimization

Synchronize traffic signals and limit uphill stop signs, to improve traffic flow and minimize idling, therefore reducing greenhouse gas emissions and overall travel time. According to the Institute for Transportation Engineers, comprehensive signal programs result in a 6-9% fuel savings.[23]

Implementation Actions

- Traffic signal and uphill stop sign assessment study;
- Make necessary upgrades;
- Include suggested upgrades into the Capital Improvement Plan.

CO2EMT Reduction Range

- 90% - 100% of Objective T2.


*Pedestrian and bicycle paths at the Benicia State Recreation Area (2008).*

## Objective T-3: Increase Bicycle and Pedestrian Mode Share by 2020

# ALTERNATIVE TRANSPORTATION

Substituting alternative modes of transportation, such as bicycling, walking, and public transit, in-lieu of automobile travel will reduce greenhouse gas emissions and improve our air quality. Infrastructure improvements along with a combination of public outreach and incentive programs will promote the use of alternative modes of transportation. The strategies in this section are assembled into the following three subtopics: Bicycle + Pedestrian Transportation, Public Transportation, and Travel Demand Management.

## Bicycle + Pedestrian Transportation

Bicycling and walking are two important alternatives to vehicular travel in Benicia. In addition to reducing greenhouse gas emissions, they are important facets of a healthy lifestyle. Creating a well-connected bicycle and pedestrian system, and an integrated street network with quality infrastructure will provide options for residents to bicycle and walk.

## Existing Actions

Portions of the Bay Trail are currently maintained by the City of Benicia. The Benicia General Plan includes policies and programs to create a comprehensive circulation system of pedestrian and bicycle routes. Recent successes include development of a bicycle and pedestrian lane on the Benicia/Martinez bridge. The Benicia Capital Improvement Program includes projects to improve and expand the existing bicycle and pedestrian network. This includes partnering with the Solano Transportation Authority (STA) and Caltrans to connect residential and commercial districts to the bicycle and pedestrian trails at the Benicia State Park, continue expansion of the Bay Trail, and building curb extensions and narrowing street crossing widths at major intersections. In addition, Benicia has received recognition for successful development of Safe Routes to School public infrastructure improvement projects. Safe Routes to School is a Federally funded program that improves pedestrian and bicycle infrastructure to encourage more children to safely walk and bicycle to school.

23) Institute for Transportation Engineers: http://www.ite.org/signal/index.asp and www.ite.org/reportcard/badgrade.asp

All Benicia Breeze buses, excluding paratransit vehicles, have bicycle racks, providing a link between pedestrian, bicycle, and public transportation. Bicycle storage is also provided at several major transit stops and at the Benicia Public Library and James Lemos Aquatic Center.

The Solano Transportation Authority has an adopted countywide bicycle master plan and countywide pedestrian master plan, including facilities in and connections to Benicia.

### ◆ Strategy T-3.1. Increase Bicycle Infrastructure at City Facilities

Adding bicycle racks at City facilities, including City Hall, Gymnasium, Clocktower, Commanding Officer's Quarters, Camel Barn, and City parks promotes bicycle ridership for City employees and residents.

Implementation Actions

- Identify appropriate locations at individual City-owned facilities for bicycle racks;
- Install appropriately sized and weather protected bicycle racks at appropriate locations.

CO2EMT Reduction Range

- 100% of Objective T3 when combined with remaining T3 strategies. T3 strategies were calculated together.

### ◆ Strategy T-3.2. Bicycle Infrastructure for New Development

Develop a tiered bicycle infrastructure requirement for new development based on size and cost thresholds yet to be determined. Infrastructure may include bicycle lanes, sidewalks, and storage areas depending on building size to ensure safe access for bicyclists throughout the city. This includes connections with public transportation hubs and paths to connect other non-motorized routes.

Implementation Actions

- Require bicycle infrastructure for new developments. Such an ordinance could be tiered similar to a mandatory green building ordinance, requiring varying levels of infrastructure dependent on the size and type of development;
- Infrastructure may include bicycle racks and storage, and dedicated bicycle lanes.

CO2EMT Reduction Range

- 100% of Objective T3 when combined with remaining T3 strategies. T3 strategies were calculated together.

### ◆ Strategy T-3.3. Implement Bicycle and Pedestrian Safety Measures

Integrating safety measures into the City's bicycle and pedestrian infrastructure is a very important action to promote car-free transportation. Traffic signals that allow bicycle and pedestrian crossing prior to vehicles at major intersections increase both the speed and safety of intersection crossings. A comprehensive system of directional signs for cyclists and pedestrians should indicate directions and distances to various destinations and be color-coded to correspond to the different types of local and regional bike route networks. A path network that is accessible and free of trip hazards allows for use by all residents and visitors.

Implementation Actions

- Add directional signs to highly traveled sections of the bicycle and pedestrian network;
- Upgrade traffic signals to include bike and pedestrian priority crossing (concurrent with LED upgrades);
- Make necessary infrastructure improvements to ensure a safe network of bicycle and pedestrian paths, including sidewalks.

CO2EMT Reduction Range

- 100% of Objective T3 when combined with remaining T3 strategies. T3 strategies were calculated together.

### ◆ Strategy T-3.4. Bicycle and Pedestrian Master Plan

A bicycle and pedestrian plan, including a 'complete streets' program, would be comprised of an integrated network of trails, sidewalks and bicycle paths; connects key areas of the city, identifies areas for future expansion of services, and addresses safety. The Master Plan should incorporate and supplement strategies from this Plan and include Low Impact Development (LID) standards. LID is an engineering and land use planning approach to naturally manage stormwater runoff. LID principles are based on design strategies that manage stormwater at the source by use of micro-scale natural features that are distributed through the site. This is unlike conventional approaches that typically convey and manage runoff in large facilities located at the base of drainage areas.[24]

24) US EPA Low Impact Development – A Literature Review, EPA-841-B-00-005, Year 2000 (http://www.epa.gov/owow/nps/lid/lid.pdf)

Implementation Actions

- Conduct community survey and other appropriate outreach methods to solicit user feedback;
- Develop a comprehensive bicycle and pedestrian master plan, including a 'complete streets' program, with actions to increase safety, mobility, and convenience of bicycle and pedestrian travel.

CO2EMT Reduction Range

- 100% of Objective T3 when combined with remaining T3 strategies. T3 strategies were calculated together.

**◆ Strategy T-3.5. Revise Streetscape Design Standards**

Amend streetscape standards to include LID design criteria, wider sidewalks (where appropriate), street furniture, and drought tolerant planting/landscaping standards. Enhanced streetscapes attract pedestrian activity and promote healthy lifestyles, thus decreasing auto usage and related emissions.

Implementation Actions

- Conduct public outreach and solicit community input;
- Adapt streetscape design standards;
- Upgrade existing infrastructure with new streetscape standards.

CO2EMT Reduction Range

- 100% of Objective T3 when combined with remaining T3 strategies. T3 strategies were calculated together.

**Objective T-4: Increase Public Transit Ridership 10% by 2020**

## Public Transportation

Public transportation includes bus, water and rail transportation services. Strategies are intended to promote the use of the Benicia Breeze bus system, reduce public transit vehicle emissions, promote the establishment of a regional ferry/water taxi service, and create an inter-city train station on Amtrak's Capitol Corridor line, which currently passes through Benicia's industrial park. Increasing public transportation as an alternative to automobiles will reduce VMT and greenhouse gas emissions.

## Existing Actions

The Benicia Breeze bus system serves the community with two flex-routes and a route to and from Diablo Valley College. A regional bus route connects Benicia with the Vallejo Ferry Terminal, the Pleasant Hill and Walnut Creek BART stations, and the Martinez Amtrak station. Currently, Benicia residents can travel by bus to Vallejo for ferry service to San Francisco. Discount rates are available to students on bus routes 15 and 17, which are specifically designed to get kids to school. Transportation is also provided to get students from school to the City's after school program, Kids Kaleidoscope.

The Benicia General Plan promotes ferry service to and from Benicia. The Water Emergency Transportation Authority is considering the addition of a ferry route through the Carquinez Strait, connecting Antioch and Martinez with San Francisco.

Since 2007, the City has been pursuing inter-city train service along the Capitol Corridor line. In 2009, the City began pursuing the Benicia Industrial Park Multimodal Transit Project, which will begin with the development of a Transit Plan. The City has received $1.25 million for the project from Regional Measure 2 funds, which are from tolls collected at the Benicia/Martinez Bridge. The project will result in green infrastructure and a reduction in vehicle miles traveled, both of which lower the Community's greenhouse gas emissions.

In October 2008, the City consolidated local bus service to improve the system's efficiency. The City trimmed its fleet from 14 buses to seven, retaining four fuel-efficient transit vehicles for its two primary routes. Benicia is currently upgrading bus stop shelters with plans to implement a bus replacement program.

In 2009, the City initiated the Benicia Intermodal Facilities Project to serve the new regional route 78 that provides service between the Vallejo Ferry Terminal and Walnut Creek BART. The project will integrate vital improvements that reduce vehicle miles traveled (VMT) and enhance pedestrian safety, while providing Park-and-Ride facilities for the ridership of the regional route 78 line and the regional route 40 line (for I-680 connection).

### ◆ Strategy T-4.1. Transit Passes

Establish free or reduced bus fares for select groups of local residents and employees to increase ridership and reduce personal automobile trips.

Implementation Actions

- Coordinate with local businesses, the Chamber of Commerce, the local school district, and college systems including Diablo Valley College and Solano Community College, to expand employee and student transit program;
- Provide reduced fare or free passes to full time students for all routes;
- Establish a program or subsidize costs for businesses to provide transit passes for employees.

CO2EMT Reduction Range

- 100% of Objective T4.

### ◆ Strategy T-4.2: Encourage BUSD to Reinstate School Buses

Morning and afternoon traffic patterns, as they relate to school drop-off/pick-up, have a significant impact on transportation related GHG emissions. Reinstating a Benicia Unified School District bus program with clean fuel vehicles would significantly decrease community-wide emissions and alleviate concentrated traffic congestion.

Implementation Actions

- Encourage the development and implementation of a "Walking School Bus" program;[25]
- Engage the Benicia Unified School District to perform a feasibility study on re-establishment of school bussing program;
- Identify funding sources.

CO2EMT Reduction Range

- Unknown reductions.

## Objective T-5: Reduce Benicia Breeze Vehicle Emissions 50% by 2020

### ◆ Strategy T-5.1. Low-Emission Transit Vehicles

Replace fossil fuel powered public transit vehicles with hybrid, electric, or low-emission vehicles to reduce emissions related to public transportation.

Implementation Actions

- Follow the Benicia Breeze Transit System Strategy Report's 10-Year Capital Replacement Schedule, replacing traditional buses with low-emission buses;
- Continue to increase energy standards with fleet procurement.

CO2EMT Reduction Range

- 100% of Objective T5.

25) http://www.walkingschoolbus.org/

## Objective T-6: Increase the Use of Rail & Water Transportation

### ◆ Strategy T-6.1. Explore Ferry/Water Taxi Service

The City should continue coordinating with the State Water Emergency Transportation Authority to provide ferry or water taxi service to Benicia, including a First Street terminal to help facilitate the economic sustainability of the downtown. Water taxis provide an alternative mode of transportation that could connect downtown Benicia to regional ferry networks and nearby cities such as Port Costa and Martinez. If the Water Emergency Transportation Authority selects Martinez as a ferry terminal location, water taxi service to Martinez would provide a direct connection for Benicia residents to regional ferry service.

Implementation Actions

- Work with Solano Transportation Authority to add ferry infrastructure to their list of capital projects;
- Monitor the actions of WETA regarding a feasibility study for the Antioch and Martinez ferry terminal locations;
- Pursue funding and feasibility for ferry service, including terminal facilities;
- If ferry service is not feasible, determine feasibility and funding sources for a water taxi service to/from Benicia;
- Establish ferry/water taxi service.

CO2EMT Reduction Range

- Unknown reductions.

*The First Street Pier is one potenial site for a water taxi and/or ferry terminal (2008).*

### ◆ Strategy T-6.2. Benicia Commuter Rail Stop

Benicia is well positioned for a commuter rail stop on the existing Capitol Corridor line that passes through the Benicia Industrial Park. The stop would provide direct access to Amtrak, decreasing the vehicle miles traveled to rail stops in Suisun and Martinez. In addition to capturing existing ridership, the convenience factor could influence substantial new ridership.

Implementation Actions

- Monitor the actions of the Solano Transportation Authority regarding implementation actions or changes to the Auburn-Oakland regional rail study, and other applicable studies/plans;
- Conduct ridership study to determine feasibility;
- If feasible, secure funding for rail stop development;
- Establish intercity rail stop in Benicia.

CO2EMT Reduction Range

- Unknown reductions.

## Objective T-7: Increase Carpooling to 15% of Mode Share by 2020

## Travel Demand Management

Services and programs that focus on changing travel behavior can reduce traffic congestion and greenhouse gas emissions. Encouraging carpooling and car sharing reduces total roadway traffic and vehicle miles traveled. Parking restrictions combined with improved alternative transportation infrastructure will utilize financial incentives to change travel behavior.

The Solano Transportation Authority offers free services and information for alternative transportation in Solano County and surrounding regions through the Solano Napa Commuter Information (SNCI) program. Carpool, vanpool, bus, ferry, rail, and bicycling information and services are delivered to the general public and through employers. SNCI is a part of the Bay Area regional 511 program and uses the regional ridematching system to

provide free carpool/vanpool matchlists for commuters. The new ridematching system, implemented in May 2009, has the capability to display a website that can be customized with the identity of a local jurisdiction or employer using logos, colors and other design features – but still have the advantages of a large regional database.

## Existing Actions

The Benicia General Plan includes a program to designate carpool parking at schools. The City also plans to upgrade the existing electric vehicle charging stations near the City Hall parking lot to accommodate plug-in hybrid vehicles. The Downtown Mixed Use Master Plan significantly reduced previously existing parking standards for the downtown area, thus encouraging infill development and discouraging auto-oriented developments.

### ◆ Strategy T-7.1. Carpool Program

A local carpooling program would connect Benicia residents and workforce with carpool partners via an online carpool information and communication center. Such a program would facilitate carpooling for residents commuting in and out of the area, thus reducing emissions by removing automobiles from the roads and highways.

Additional participation in the Solano Napa Commuter Information (SNCI) regional rideshare program would connect Benicia residents and workforce with carpool partners. This would facilitate carpooling, as well as other alternative modes of transit use, for residents coming into and out of the area.

Implementation Action

- Work with SNCI to provide public education and enhance access for Benicia residents, employers and their employees to SNCI ridematching and related services. Provide a direct connection to SNCI services on the City of Benicia web page.

CO2EMT Reduction Range

- 100% of Objective T-7 when combined with T-7.2.

### ◆ Strategy T-7.2. Carpool Incentives for City Employees

Developing incentives for employees to carpool is a meaningful way for the City to encourage carpooling within its own staff. Carpooling is one of many ways employees can lower their carbon emissions related to work commutes. Incentives include financial incentives and vanpool service.

Implementation Actions

- Provide incentives to City employees for carpooling to work;
- Provide incentives for City employees to live in Benicia.

CO2EMT Reduction Range

- 100% of Objective T-7 when combined with T-7.1.

## Objective T-8: Reduce Reliance on Conventional Automobile Travel

### ◆ Strategy T-8.1. Encourage Local Businesses to Use Alternative Fuel Vehicles

Increasing the usage of fuel-efficient vehicles reduces fuel consumption and costs, as well as greenhouse gas emissions. Pamphlets, workshops, and Internet resources can be effective means to inform local businesses of the merits of using alternative fuel or fuel-efficient vehicles.

Implementation Action

- Educate business owners about benefits of using low emission, fuel-efficient vehicles.

CO2EMT Reduction Range

- Unknown Reductions. The majority of Objective T-8 reductions result from an assumed increase in fuel efficiency by 2020.

### ◆ Strategy T-8.2. Create Local Car Share Program

Facilitate the establishment of car share programs in Benicia, such as Zipcar or City CarShare, which provide convenient and affordable access to vehicles. Reliable car share programs reduce individual car ownership, increasing the usage of alternative transportation.

Implementation Actions

- Work with vendors to establish one or more car share stations;
- Establish a local pilot program and track usage;
- Assess usage and expand the program to meet car share user needs.

CO2EMT Reduction Range

- Unknown Reductions. The majority of Objective T-8 reductions result from an assumed increase in fuel efficiency by 2020.

### ◆ Strategy T-8.3. Revise Parking Standards

Revise parking requirements in the Benicia Municipal Code to create maximum parking stall requirements and reduced parking requirements for new development and land uses, similar to the Downtown Mixed Use Master Plan. Parking maximums, combined with increased accessibility to alternative modes of transportation, will reduce vehicle miles traveled and emissions, create more attractive street frontages, reduce development costs, and lessen the amount of impervious pavement (which decreases storm water runoff and lowers the heat island effect). Parking limits should be determined through a parking study of existing local shopping centers, industrial parks, and businesses.

Implementation Actions

- Conduct a a commuting and parking study of local businesses and developments to assess the usage of existing parking lots, and determine the methods, routes and VMT of employee commutes to Benicia;
- Conduct a feasibility analysis for a 'one-stop' parking management program and implement appropriate measures;
- Develop and adopt revised parking standards.

CO2EMT Reduction Range

- 1% to 2%. The majority of Objective T-8 reductions result from an assumed increase in fuel efficiency by 2020.

## Objective T-9: Reduce VMT 1% by Increasing Compact Mixed-Use Development

## LAND USE

The distribution of land uses and the degree of street connectivity within a city influences how people travel. Land use strategies that place everyday needs in close proximity to each other provides the foundation for the use of alternative modes of transportation. Encouraging compact, mixed-use development and promoting a jobs-housing balance can reduce VMT by locating jobs and services closer to Benicia residents.

Strategies that support a diversity of uses promote density, encourage reuse of underutilized properties, and create a job-housing balance through the development of affordable housing. These strategies can eliminate or shorten vehicle trip lengths and encourage alternative forms of transportation.

### Existing Actions

The City has established an Urban Growth Boundary to protect surrounding agricultural lands, watershed, and open spaces from urban development. The City's General Plan includes many policies and programs that encourage mixed-use and live/work developments within various areas of the City. In 2007, the City adopted the Downtown Mixed Use Master Plan that incorporates a form-based development code.

Policies that encourage infill housing development include allowing accessory dwelling units on lots over 6,000 square feet, and requiring that a percentage of affordable housing units be included in market-rate housing developments. The City's General Plan also addresses the need to achieve a jobs-housing balance by means of programs to attract and retain employers.

### ◆ Strategy T-9.1. Form-Based Code

Unlike traditional zoning codes, form-based codes intentionally emphasize building form rather than use. This increases flexibility for a variety of complementary uses to be permitted in the same area, and the potential for mixed-use developments. Currently, a form-based code regulates development in downtown Benicia. Form-based codes should be considered for areas where mixed-use development can reduce transportation-related GHG emissions.

Implementation Action

- Develop and adopt form-based zoning for appropriate areas.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.

### ◆ Strategy T-9.2. Live/Work and Work/Live Incentives

Live/work and work/live developments allow residents to live at their place of work. Reducing permit fees and expediting permitting for live/work and work/live units can encourage such developments. An additional incentive may include waiving business license fees for residents in live/work and work/live units to encourage compact development and reduce vehicle miles traveled.

Implementation Action

- Develop and adopt live/work and work/live incentives.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.

*Mixed-use office and retail in the downtown (2008).*

### ◆ Strategy T-9.3. Neighborhood Commercial Centers

Amend development regulations to accommodate small neighborhood shopping centers and individual retail establishments in residential neighborhoods. These centers could provide goods and services (e.g., dry cleaning, etc.) adjacent to existing residential neighborhoods, shortening the distance between residents and services. This increases the possibility of walking and biking for errands as an alternative to driving.

Implementation Actions

- Develop a robust public engagement initiative, including education, outreach and facilitated design workshops;
- Evaluate and identify potential neighborhood commercial center sites;
- Adopt interim development regulations;
- Rezone identified areas to Community Commercial.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.

### ◆ Strategy T-9.4. Development of Underutilized and Vacant Infill Sites

Promote infill development including mixed-use, commercial services, parks, community gardens (see Parks and Open Space section), and limited agricultural uses. Infill development concentrates growth in already urbanized portions of the city, which helps preserve open space and agricultural uses. In addition, infill will result in a more compact urban core and decrease VMT.

Implementation Actions

- Evaluate potential infill sites;
- Amend development regulations to promote higher-density and mixed use projects at infill sites.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.

### ◆ Strategy T-9.5. Amend Zoning Regulations for Accessory Dwelling Units

Amend the Municipal Code to reduce the current minimum lot size and lower impact assessment fees associated with accessory dwelling units outside of the Downtown Historic district. This will concentrate growth in already developed portions of the City and reduce Vehicle Miles Traveled.

Implementation Action

- Amend development regulations.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.

### ◆ Strategy T-9.6. Industrial Development Workforce Housing Nexus Study

Consider amending the Inclusionary Housing Ordinance to include affordable housing requirements with future large scale developments such as the Benicia Business Park industrial development, based on the need that is generated by a respective project. This will help the City to achieve a jobs-housing balance, thus reducing commute distance, thereby lowering greenhouse gas emissions.

Implementation Actions

- Conduct nexus study to determine legal viability and appropriate thresholds;
- If nexus study identifies a legal nexus, amend the Inclusionary Housing Ordinance to include a tiered approach based on project size/dollar valuation;
- Amend Inclusionary Housing Ordinance.

CO2EMT Reduction Range

- 100% of Objective T9 when combined with remaining T9 strategies. T9 strategies were calculated together.