



# TRANSPORTATION AND LAND USE

## INTRODUCTION

The 2020 and 2030 GHG projections estimate that transportation emissions in the unincorporated area will increase considerably in the next two decades. Minimizing these emissions will be essential to achieve the County’s climate protection and air quality goals.

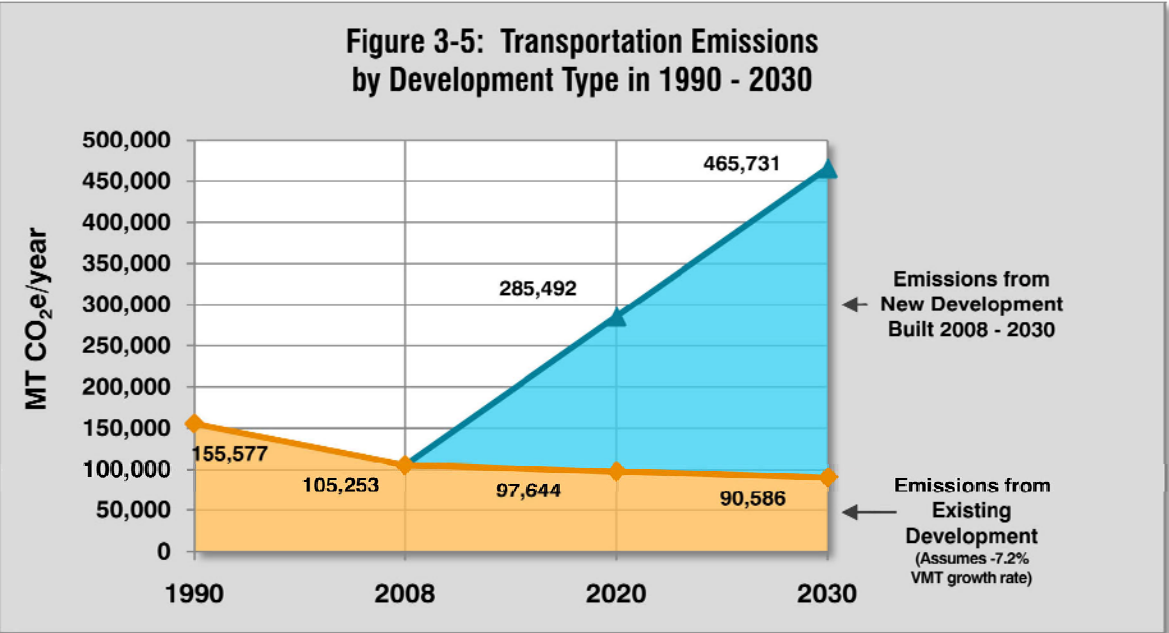
The Land Use and Circulation elements of the 2030 General Plan contain numerous policies that outline the County’s vision for smart growth development patterns and a balanced transportation system. The intent of these policies is to provide residents with multiple travel choices and minimize environmental impacts, including transportation emissions. This section of the CAP reiterates these important policies and programs and quantifies their emission reduction potential. The CAP does not propose additional measures.

### Transportation Emissions Growth

As described earlier in this Chapter, new planned development in unincorporated Yolo County is projected to result in

increases in transportation and building-related energy emissions. Figure 3-5 demonstrates the role that new development will play in increasing vehicle emissions. Without County action, projected residential and commercial development would generate 2.6 times more vehicle emissions in 2020

than existing (2008) development. By 2030, this would increase to 4.2 times more. The County recognizes that to meet GHG emission reduction goals, it must take considerable actions to minimize transportation emissions in new development.





Transportation research demonstrates that smart growth land use patterns and pedestrian-oriented urban design can substantially reduce residents' need to use automobiles. This reduces household travel costs, road congestion, and air pollution.

### **Four Reduction Methods**

Transportation planners often refer to four fundamental ways to reduce transportation-related GHG emissions:

- increasing vehicle fuel efficiency;
- reducing the carbon content of vehicle fuels;
- reducing the number of vehicle miles traveled (VMT); and
- optimizes vehicle operations and driver behavior, including strategies such as speed management, eco-driving, and vehicle maintenance.

The way land uses are arranged in a community, the availability of local employment, and the extent and quality of alternative transportation infrastructure (e.g., bicycle, pedestrian, transit) influences how far and by what means people travel. Land use patterns and transportation can be designed in such a way as to substantially reduce VMT generated at the household and community level.

While federal and State legislation and regulations address vehicle fuel efficiency and the carbon content of fuels on a broad

level, Yolo County's actions will determine the success of the latter two methods, and will play a critical role in achieving VMT reductions.

### **Federal and State Actions**

The federal government and State of California have taken various actions that will increase vehicle efficiency and reduce the carbon content of vehicle fuels. The federal Corporate Average Fuel Economy (CAFE) standards were recently increased to require higher fuel efficiency in passenger vehicles and light duty trucks. In 2016, cars will need to achieve a fuel economy of 37.8 miles per gallon and trucks will need to achieve 28.8. California's Low Carbon Fuel Standard will result in an additional 10% reduction by lowering the carbon content of traditional fuels (e.g., gasoline and diesel) and by advancing alternative vehicle energy systems such as plug-in electric, fuel cell, and other technologies. In addition to these technology-based efforts, SB 375 aims to reduce VMT and associated emissions by influencing local and regional transportation, land use, and housing

policies. In the Sacramento region, the SB 375 VMT reduction goal is 16% per capita by 2035. SACOG and its member jurisdictions are responsible for implementing policies and programs to achieve this target. The CAP includes measures that achieve a 23% reduction in VMT within the Specific Plan areas, which significantly exceeds the SB 375 goal.

### **County Actions**

As described earlier in this chapter, the County has already taken several significant steps towards addressing the issue of climate change. While federal and state actions will reduce emissions considerably in the future, the County will have to take additional action to achieve proposed target reductions.

### **Yolo County General Plan Policies**

The Yolo County General Plan contains policies that will direct future land use and transportation decisions and will reduce GHG emissions, improve air quality, and enhance community quality of life and mobility. These policies focus on both new growth in the Dunnigan Specific Plan area

and on infill and redevelopment opportunities in existing communities.

The Dunnigan Specific Plan area is expected to accommodate a large portion of the County's planned growth and represents an excellent opportunity to reduce future transportation-related GHG emissions. General Plan Policy CI-3.19 requires development in the Dunnigan Specific Plan area to achieve a performance standard of 44 vehicle miles travelled per household per day, or approximately the same level of household vehicle travel found within the cities of Woodland and Davis.

Development in the Specific Plan area will achieve most of the required VMT reductions through appropriate use of land use patterns, urban design, and alternative transportation investments, but transportation demand management programs (e.g., transit subsidies) will also be necessary. New development must demonstrate that it will achieve this requirement, and must monitor compliance with the performance standard over time.



Policies contained in the General Plan Land Use and Circulation Elements related to smart growth and VMT thresholds have the potential to reduce 42,018 MT CO<sub>2</sub>e/yr in 2020 and 84,035 MT CO<sub>2</sub>e/yr in 2030. Federal and State policies will contribute a similar level of reduction.



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While more limited than in the Dunnigan Specific Plan, potential also exists to reduce transportation-related emissions in existing unincorporated communities. General Plan Policy CI-3.21 directs new growth in existing communities to reduce VMT to the extent feasible. Infill development located in these communities will allow future residents increased access to amenities and economic development opportunities.

Providing new services, shops, and recreational opportunities within established neighborhoods will further reduce emissions.

Other General Plan land use and transportation policies support these VMT reduction goals. The intent of these measures is summarized below. A comprehensive list of General Plan policies and actions to reduce transportation emissions is provided in Appendix F.

#### Land Use

Smart growth land use patterns and urban design can considerably reduce the number and length of vehicle trips a

household makes per day. These qualities can also increase the likelihood that residents will use alternative travel modes. The General Plan directs future growth to incorporate the following concepts to establish lower VMT development and reduce GHG emissions:

*Mixed Uses* –The degree to which residential, commercial, industrial, institutional, and recreational uses are located in close proximity influences how far people need to travel to work, shop, or recreate. A key measure of this is a community’s jobs/housing relationship. The General Plan requires that jobs and housing be balanced (equal numbers of jobs and dwelling units); matched (salaries matched to housing prices), and phased (production of jobs keeping pace with production of housing) within each community to reduce the need for long commutes. Additionally, the General Plan land use map directs the location of future uses to ensure an appropriate level of diversity, a mix of land uses, and proximity of recreation and services.

*Compact Development* – While allowing for a diversity of home types and lot sizes, the General Plan requires growth within Specific Plan residential areas to develop at a minimum community-wide average of 8 homes per acre. This is much higher than the density of unincorporated communities (at about 4 homes per acre) or the cities within Yolo County (which range from 2.5 to 9 homes per acre). Moderate to high densities increase the viability of services, shops, schools, and public buildings located within a neighborhood and increase the availability of transit and pedestrian infrastructure. These conditions reduce the need for vehicle trips and increase the use of alternative modes.

*Use of Existing Assets* – Communities with vibrant mixed-use centers tend to generate fewer transportation-related emissions than communities without these centers. The General Plan directs new development to establish downtowns and reinvigorate existing community centers through infill development. Growth boundaries are established around each unincorporated

neighborhood and/or community, while infill development is prioritized.

*Natural Resources Conservation* – Permanent green belts would be established between cities and communities, which ensure that agriculture is not converted to urban uses which result in higher levels of GHGs. They also provide areas for orchards, vineyards, and other permanent crops which can increase carbon sequestration. Similarly, open space protection allows for the expansion of hedgerows and riparian vegetation, and the preservation of existing oak forests.

*Housing Choice and Diversity* – By providing a wide range of housing types, each town can accommodate the full range of households that make up a community. Over the past several decades, there has been a tendency for new families to live in the suburbs, while their parents live in older inner city areas. A diverse housing inventory creates opportunities for a variety of people to live within the same town, including families, singles, seniors, and people with special needs. It also allows

very low-, low-, and moderate-income households to live close to work, rather than commuting in from outlying areas where housing costs are lower.

*Quality Design* – “Green” construction and design can result in significant energy savings and reduced resources, which in turn lowers greenhouse gas emissions. Features required by the General Plan include recycled building materials, drought tolerant landscaping, water efficient fixtures, Energy Star appliances, passive and active solar technology, grey water use for landscaping, and increased insulation and heating/cooling efficiencies. In addition, the Yolo County Design Guidelines provide specific directions for development, requiring new projects to incorporate environmentally-sensitive site planning; the innovative use of materials to conserve resources; and green building techniques.

*Transportation*

The extent and quality of pedestrian, bicycle, transit, and rideshare infrastructure and programs have a strong influence over

## People use public transit when it is accessible, high quality, and provides access to desired destinations.

whether people choose to drive or use alternative transportation modes. The General Plan directs the following design features and infrastructure standards:

*Smart Growth* - The General Plan includes policies that encourage existing unincorporated towns to develop in a sustainable manner, with housing, jobs, and services similar to those in established communities. By creating full-service communities designed around sustainable principles, the General Plan will reduce both the number of daily VMT by each household and GHG emissions. These reductions will occur not just for new growth but for existing development as well, as neighborhoods benefit from infill, mixed uses, and higher densities.

*Circulation Network* – The design of streets and related infrastructure dictates whether residents consider it safe and convenient to walk or bike in their communities. The Circulation Element promotes the “complete streets” concept by establishing requirements for future transportation infrastructure, including a 600-foot

maximum block length, narrow streets with adequate tree shade, separated sidewalks, convenient and secure bicycle parking, and avoidance of cul-de-sacs and other pedestrian and bicycle barriers.

The Plan also requires street design features that increase traffic flow and reduce idling emissions, such as roundabouts and synchronized signals.

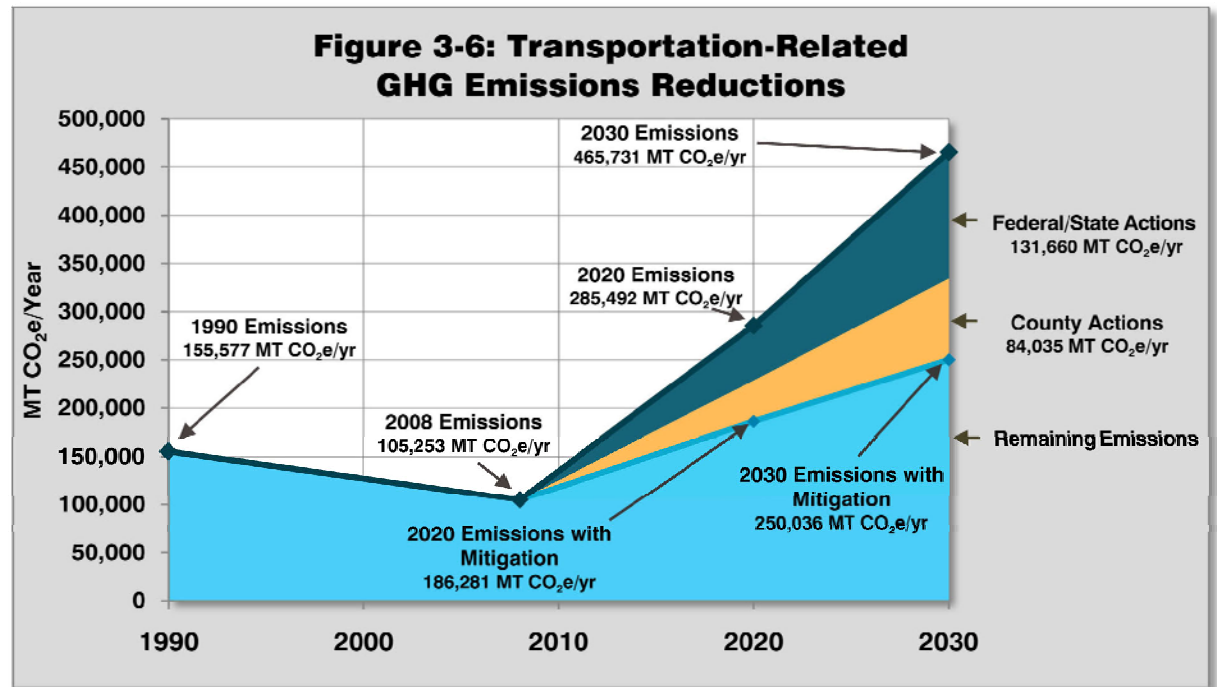
*Transit Choices* – People use public transit when it is accessible, high quality, and provides access to desired destinations. The General Plan directs public transit investments to create attractive alternatives to single-occupant motor vehicles. Specific policies direct transit stops and hubs to be located in convenient locations, provide appropriate amenities, feature direct access to bike and pedestrian networks, require the preparation of transit plans to expand existing bus service, and allow for potential commuter rail access where feasible.

*VMT Maximum Threshold* – By employing each of the above strategies, as well as other policies, the General Plan will reduce the average household weekday VMT in rural areas from 83 miles in 2005 to at least 77 miles. Actual reductions may be lower, depending on the implementation of smart growth policies within the communities. More importantly, the General Plan requires growth within the Dunnigan Specific Plan area to be designed such that the average household weekday VMT is only 44 miles. The same maximum threshold of 44 miles is set as a goal for the design of other Specific Plan areas (e.g., Madison, Knights Landing, Elkhorn, and Covell).

### GHG Reduction Estimates

Figure 3-6 represents the overall reduction in vehicle emissions in 2020 and 2030 and the individual contributions of federal, State and County actions. In 2020, federal and State actions are expected to reduce transportation emissions by 40,375 MT CO<sub>2</sub>e/yr. By 2030, federal and State action could reduce 131,660 MT CO<sub>2</sub>e/yr. It should be noted that these estimates only reflect implementation of existing policy. The federal and State governments are likely to enact additional regulations. The County will evaluate the reduction potential of these actions at that time.

The County's adopted policies have the potential to reduce 42,018 MT CO<sub>2</sub>e/yr in 2020. In 2030, they are expected to reduce 84,035 MT CO<sub>2</sub>e/yr.





# MEASURE T-1: REDUCE VEHICLE MILES TRAVELED IN NEW DEVELOPMENT

## Measure Description

The following paragraphs describe the varying levels of policy implementation per area necessary to reduce vehicle miles traveled in unincorporated Yolo County. Table 3-3 demonstrates how policies will apply to different areas of the County in 2020.

### Dunnigan Specific Plan Area

The Dunnigan Specific Plan, an area of significant planned growth, represents an excellent opportunity to reduce future communitywide GHG emissions. Once established, it is often hard to retrofit existing land use patterns to reduce automobile reliance. The Dunnigan Specific Plan offers a chance to create an entire sustainable community based on smart growth principles. The mixed land use patterns, neighborhood design, and alternative transportation networks will reduce emissions, decrease congestion, and improve the overall quality of life.

The Dunnigan Specific Plan is expected to accommodate 44% of the County's planned growth. Policy CI-3.19 requires development

**Table 3-3: 2020 Estimated Reduction in Transportation-Related GHG Emissions by Growth Area**

Growth Area	% of GP Growth	% Compliance with VMT Standard	VMT/HH/day	% Reduction	Weighted % Reduction	2020 GHG Reduction Potential
Dunnigan Specific Plan	44.4%	100%	44	42.9%	19.0%	34,308
Elkhorn Specific Plan	17.7%	33%	70	9.1%	1.6%	2,903
Esparto	8.4%	50%	64	16.9%	1.4%	2,567
Madison Specific Plan	7.6%	60%	67	13.0%	1.0%	1,774
Knights Landing	5.0%	25%	73	5.2%	0.3%	466
<b>Total</b>					<b>23.3%</b>	<b>42,017</b>

in the Specific Plan area to generate 44 VMT per household per day or lower, a considerable reduction compared to the 77 VMT per day the average unincorporated household is expected to generate. As a mandatory requirement, it is assumed that 100% of new growth in the Specific Plan will comply with the performance standard. Implementation of the land use and transportation policies in the Dunnigan Specific Plan is expected to reduce 34,308 MT CO<sub>2</sub>e/yr in 2020 and 68,617 MT CO<sub>2</sub>e/yr in 2030.

### Other Existing Communities

The existing unincorporated communities of Elkhorn, Esparto, Madison, and Knights Landing combined are expected to accommodate 39% of new growth. General Plan Policy CI-3.21 directs new growth in these communities to reduce VMT to the extent feasible. As shown in Table 3-3, the County expects that the VMT reduction level will vary between these communities. Development in Esparto and Madison is likely to achieve lower levels of VMT than in Elkhorn and Knights Landing. Combined implementation of the General Plan land use and transportation policies in these

unincorporated communities is expected to achieve a reduction of 7,710 MT CO<sub>2</sub>e/yr in 2020 and 15,418 MT CO<sub>2</sub>e/yr in 2030.

### Implementation

Reduction of transportation emissions is extremely difficult to achieve in the unincorporated area of a mostly rural county. Yolo County's GHG reduction efforts in new growth areas are ambitious. Achieving this level of reductions will be challenging and require concerted efforts over the next two decades.

General Plan Policy CI-3.20 requires future development projects in the County's specific plan areas to demonstrate achievement of the adopted VMT threshold. The County's Transportation Impact Study Guidelines provide detail regarding how

projects will demonstrate compliance with the VMT requirements. The Guidelines specify that achievement will be measured using an appropriate travel demand forecasting model that is sensitive to land use and urban design variables (e.g., 4D analysis). The Guidelines also require all Dunnigan Specific Plan area projects to monitor VMT levels after construction.

A further requirement for development projects in specific plan areas is to broaden the transportation model by establishing mode split goals for walking, bicycling, and transit trips. The development of effective programs and facilities is essential to the County's vision for a multi-modal system and is closely related to the success of a project's overall transportation strategy. The requirements for VMT reduction and mode

**2020 GHG Reduction Potential:**

**42,018 MT CO<sub>2</sub>e  
(16%)**

**2030 GHG Reduction Potential:**

**84,035 MT CO<sub>2</sub>e (17%)**

**Community Co-Benefits:**

Improve Air Quality  
Enhance Public Health

**Applicability:**

New Development Countywide

split analysis are important tools in ensuring that the County achieves its ambitious transportation-related GHG emissions reduction goals.

ACTION		RESPONSIBILITY	TIMEFRAME
<b>A</b>	Achieve the VMT performance standards identified in the 2030 General Plan.	Planning & Public Works	Ongoing
<b>B</b>	Implement the Transportation Impact Study Guidelines	Planning & Public Works	Ongoing
PROGRESS INDICATORS			TARGET YEAR
<b>A</b>	100% of Dunnigan, 60% of Madison, 50% of Esparto, 33% of Elkhorn, and 25% of Knights Landing achieve VMT performance standards.		2020 & 2030