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# MADERA TRANSIT STATION SPECIFIC PLAN

## EXISTING CONDITIONS REPORT

February 21, 2024 Final

### Introduction

Major transit improvements are being planned for Madera County in the vicinity of Avenue 12 and BNSF rail lines in the southeastern part of the County. These improvements will relocate the Madera San Joaquins rail station and provide a future Madera High Speed Rail station. The creation of high-quality transit will enable reliable and fast rail connections to and from Madera County to surrounding regions and statewide. This in turn will provide opportunities for new transit-oriented development in the area around the station. To plan for this new development, Madera County is leading an effort to create a Madera Transit Station Specific Plan (MTSP), which will determine land uses, policies, and regulations for the lands around the station.

This Existing Conditions Report is part of the MTSP creation process, as it documents various conditions and issues relevant to the project area that will influence the content of the specific plan.

The MTSP Plan Area (Plan Area) encompasses approximately 2,148 acres in the western part of Madera County and is bounded by State Route 99 (SR-99) and the Union Pacific Railroad on the west, the BNSF Railroad on the east, Avenue 13 on the northern side, and unincorporated agricultural land to the south. Figure 1, *Madera Transit Station Specific Plan Area*, shows the Plan Area boundary.

Although the MTSP Plan Area is largely a greenfield planning area, understanding existing issues related to land use, infrastructure, transportation, and environment will help prepare for developing concepts for the



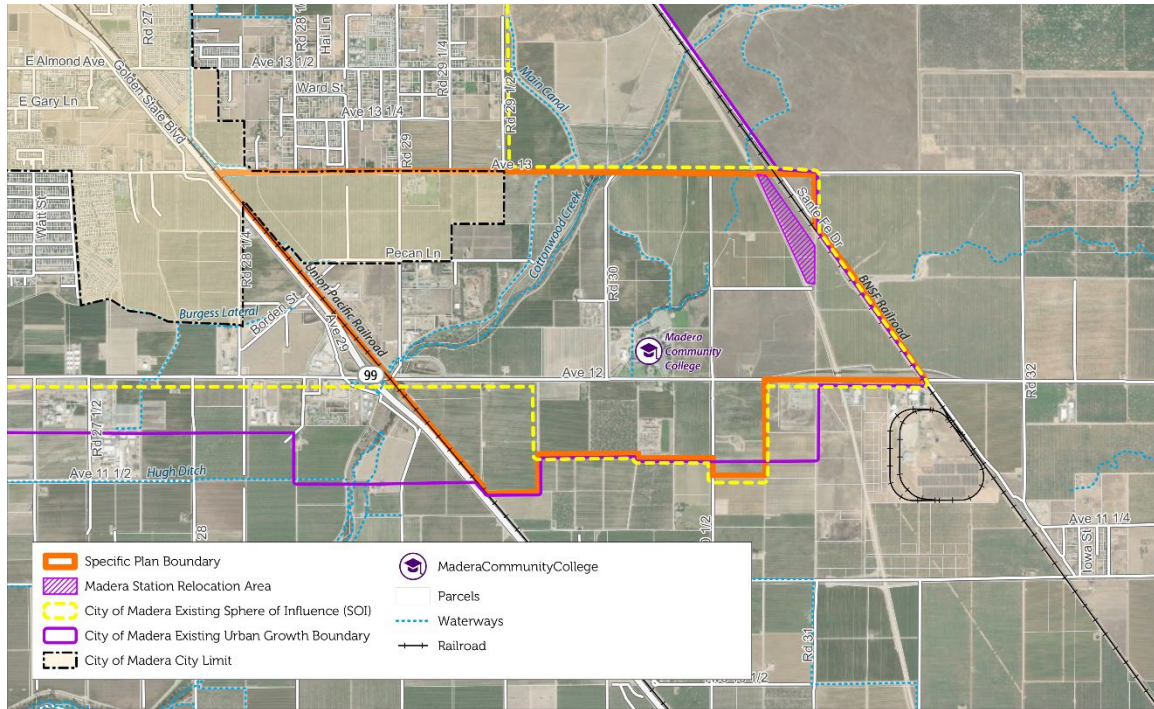
Specific Plan, which will likely envision a diverse range of residential, commercial, and industrial development around the Madera State Community College and forthcoming transit station area. This report leads with an assessment of the existing physical setting of the Plan Area and follows with a review of multiple topics as listed below. One of these topics is a review of other similar High Speed Rail station sites and the planning efforts which have been undertaken for them.

MTSP Existing Conditions Report sections include:

- Physical Setting
- Plans and Policy Review
- Environmental Constraints
- Affordable Housing Policy Review
- High-Speed Rail Case Studies
- Transportation
- Parking Policy

These Existing Conditions Report sections are meant to be used as a resource for the County, consultants, stakeholders, and community members for the development of land use concepts, policies and regulations during the creation of the MTSP.

Figure 1: Madera Transit Station Specific Plan Area



Source: Madera County GIS, 2023; PlaceWorks, Inc., 2023.

# Physical Setting

The MTSP Plan Area is within the County of Madera just southeast of the City of Madera. This section summarizes the physical characteristics of the Plan Area.

## Topography and Land Features

Madera County is located in the Great Valley geomorphic province, a 400-mile-long alluvial plain in central California. The east side of the Great Valley province is bounded by the Sierra Nevada geomorphic province, which has been tilted westward due to faulting and uplifting, while the western side is depressed and overlain by valley sedimentary deposits.

The MTSP Plan Area is located within the valley area of Madera County which is consistent with the rich alluvial bottomlands of the San Joaquin Valley and is predominantly agricultural. Most of the intensive agriculture in the county occurs here, due to its level topography, prime cultivable soils, and excellent drainage. The land within the Plan Area is essentially flat, with a gradual decrease in elevation from east to west.

Cottonwood Creek flows southwest from just south of Henley Lake and enters the MTSP Plan Area from the north. It flows through the Plan Area and crosses under State Route 99 south of Avenue 12 on its way to the Fresno River. Cottonwood Creek is a waterway owned and operated by the Madera Irrigation District, which controls flow levels within the creek. Water release into the creek typically begins in March and continues until mid-to-late September. Cottonwood Creek is classified as an intermittent stream on U.S. Geological Survey topographic maps, indicating that it is dry for part of the year.<sup>1</sup> In addition, the Little Dry Creek traverses the MTSP Plan Area at the northeast portion of the plan area. Little Dry Creek is considered one of several foothill streams, and the flows from these foothill watersheds vary considerably between wet and dry years.

## Views

Views for the Madera County region are characterized by the broad plains of Central Valley and the Sierra Foothills. Typical views for the region are rural crop lands and orchards, except where concentrated pockets of small communities and cities like Madera are located. Higher-level views for the region are predominately the Sierra Nevada range to the east, and on clear days also include the edge of the Coast Mountain range to the west and the Tehachapi Mountains to the south. The primary scenic resources in the County include the ridgelines and steep slopes of the highly visible locations, such as the mountain ranges listed above, as well as undeveloped scenic rural areas.

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<sup>1</sup> City of Madera General Plan Environmental Impact Report, 2009. <https://www.madera.gov/home/departments/community-development/general-plan/>



*View from within Plan Area looking east towards snow-covered Sierra Peaks.*

There are currently no officially designated or eligible state or county scenic routes or highways in Madera County.<sup>2</sup> The only eligible state scenic highway, though not officially designated, is Highway 49, which extends from its intersection with State Route 41 at Oakhurst north to the Mariposa/Madera County lines. This segment of Highway 49 is approximately 11 miles northeast of the MTSP Plan Area and it is not visible from the area.

The visual setting of the MTSP Plan Area contains rural and agricultural features typical of the southwestern portion of Madera County. The MTSP Plan Area consists of flat uniform terrain and is adjacent to agricultural and grazing land, rural residential areas, and commercial and industrial uses.

## **Existing Uses**

The MTSP Plan Area includes agricultural, open space, commercial, industrial, and public institutional uses. The Madera Community College is located within the center of the MTSP Plan Area and the Cesar Chavez school is located on the northern portion. Cesar Chavez Elementary is part of the Madera Unified School District and has over approximately 700 students. Commercial and industrial uses such as Talley Transportation and Talley Oil are located northwest of the MTSP Plan area near State Route 99. The majority of the MTSP Plan area is composed of agricultural and open space uses. The BNSF Railroad is also located on the eastern portion of the MTSP Plan Area. Figure 2, *Aerial View*, shows an aerial view of existing uses within the MTSP Plan Area.

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<sup>2</sup><https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>



*View of the Madera Community College from Avenue 12.*



*View of the BNSF railroad corridor looking north from Avenue 12.*

*View of existing agricultural land in the Plan Area.*

Two neighboring unincorporated communities in the county are adjacent to the Plan Area: Parksdale and Madera Ranchos.

Parksdale is an unincorporated rural community of approximately 3,200 people<sup>3</sup> located north of the MTSP Plan Area, specifically on the north of Avenue 13 and the Cesar Chavez School. The median household income in Parksdale is \$45,281.<sup>4</sup> Existing development here is sparse and low-density, comprised of large lot single-family homes and agricultural lands. There are many vacant lots in this community. CalEnviroScreen 4.0, the primary statewide tool that screens for environmental justice communities impacted by and exposed to environmental health and socioeconomic risks, calculates a cumulative score of 80 percent for the Census Tract containing Parksdale, meeting the threshold for being a “disadvantaged community.” Major

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<sup>3</sup> [https://en.wikipedia.org/wiki/Parksdale,\\_California](https://en.wikipedia.org/wiki/Parksdale,_California)

<sup>4</sup> 2022 American Community Survey 5-Year Estimates

environmental and socioeconomic factors affecting this area include adverse air quality, water quality issues, asthma, cardiovascular disease, unemployment, and low education attainment.<sup>5</sup>

Madera Ranchos is an unincorporated rural community of approximately 3,600 people located 4 miles east of the MTSP Plan Area, spanning between Roads 34 ½ and 38. It consists of a rural development pattern with large lot single-family homes and agricultural land, along with a few businesses and amenities. Compared to Parksdale, it is a wealthier community with a median household income of \$105,690.<sup>6</sup> Madera Ranchos was founded in the 1950s by Jack Haley and Jackie Gleason, two Hollywood actors who envisioned it as a resort community away from Los Angeles. They created the Madera Ranchos subdivision in 1958, which expanded rapidly during the 1970s and 1980s with the construction of many homes, the extension of Freeway 41, and improvements to Avenues 12 and 15. The development of the Maywood Center, a shopping center along Avenue 12, increased growth of the community in the 1990s to its current day numbers.<sup>7</sup>

Figure 3 shows agricultural lands in and around the Plan Area, which include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Non-agricultural or Natural Vegetation, and Semi-agricultural and Rural Commercial Land by the Development of Conservation.<sup>8</sup>



*View of agricultural land in the Plan Area.*

The Williamson Act, also known as the California Land Conservation Act of 1965, was created to allow preservation of agricultural lands and related open space. Property owners would enter a voluntary contract with their local jurisdiction to restrict their property to agricultural use for a period of 10 years in exchange for reduced property tax assessments. Property owners have the option of enrolling their land as a Farm Security Zone (FSZ), which restricts the property for 20 years for greater reduced property tax assessments.

A total of 192.3 acres are under current, on-going Williamson Act contracts as Prime Agricultural lands. A total of 65.5 acres of lands currently under Williamson Act contracts have filed for non-renewal and will eventually exit contract.<sup>9</sup>

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<sup>5</sup> [https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4\\_0/](https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/)

<sup>6</sup> 2022 American Community Survey 5-Year Estimates

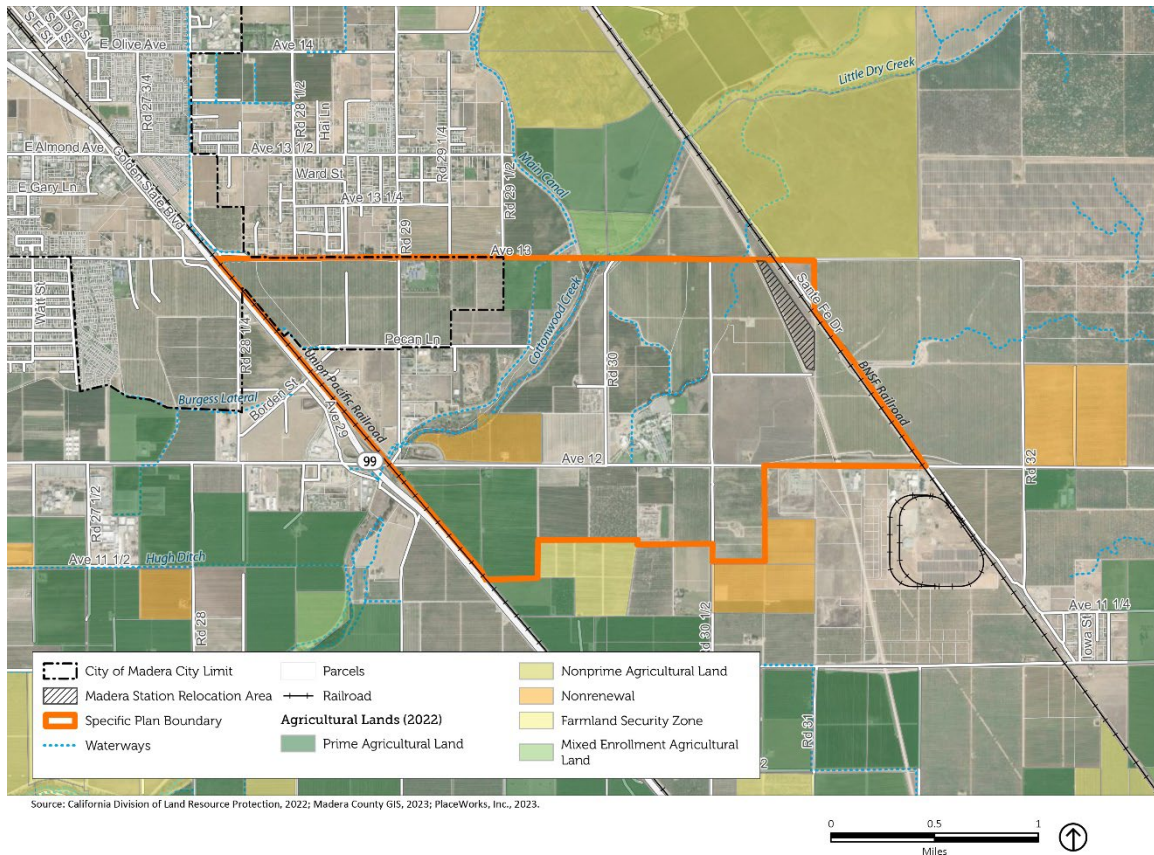
<sup>7</sup> Burchell, Eleanore. "Ranchos: Palm Springs North?" *The Ranchos Independent*, July 2010, page 12. <https://theranchos.com/news/papers/July2010.pdf>

<sup>8</sup> <https://maps.conservation.ca.gov/agriculture/>

<sup>9</sup> <https://maps.conservation.ca.gov/dlrp/WilliamsonAct/>



Figure 3: Agricultural Lands in Plan Area



## Surrounding Uses

To the west of the MTSP Plan Area across Highway 99, there are commercial, industrial, and residential uses. The nearest school to the MTSP Plan Area other than Cesar Chavez is Parkwood Elementary, approximately 0.43 miles west, and is part of the Madera Unified School District. To the east of the Plan Area across the BNSF Railroad line, there is unincorporated agricultural land. As mentioned above, residential uses in the community of Parksdale are located north of the MTSP Plan Area across Avenue 13. To the south of the MTSP Plan Area, there is additional unincorporated agricultural land with industrial uses in the southeast portion of the area. The industrial uses south of Avenue 12 include the grain elevators of the Seaboard Energy Plant, which is a renewable fuels terminal.





# Plans and Policy Review

This section reviews plans and policies relevant to the MTSP Plan Area, including a summary of the 1995 Madera State Center Community College Specific Plan which was the original specific plan of the Plan Area.

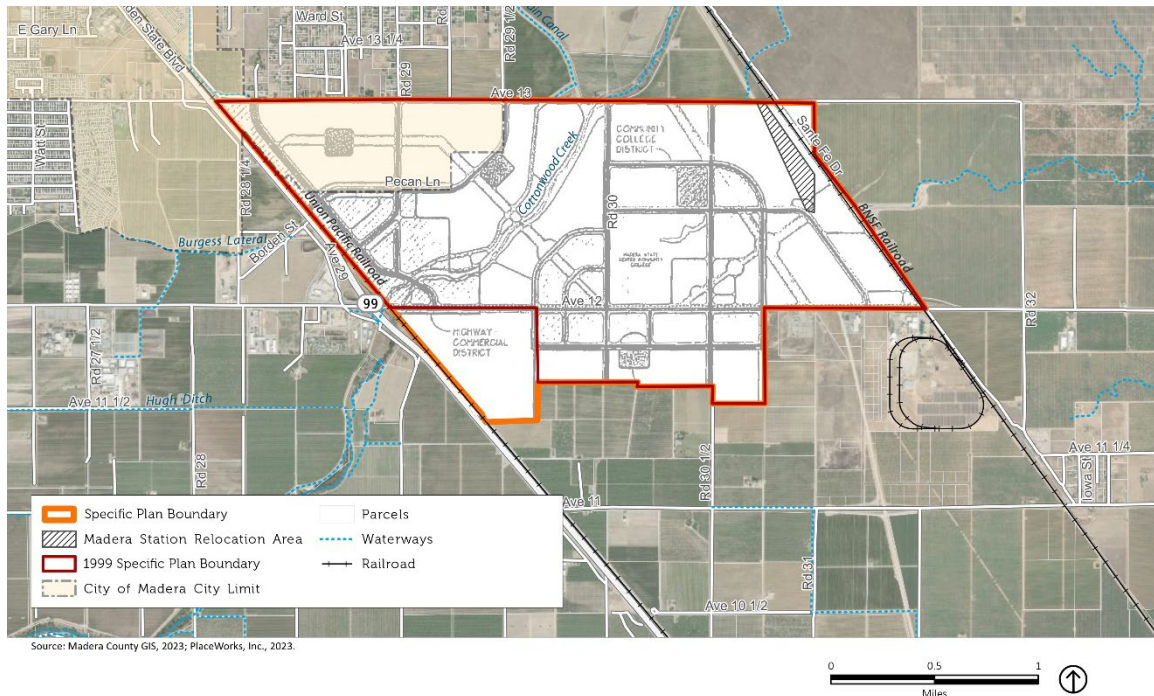
## 1995 Madera State Center Community College Specific Plan

The MTSC Plan Area is similar to the area of a previously adopted specific plan, the Madera State Center Community College Specific Plan. This plan was adopted in 1995 to guide development around the community college site. The community college was developed and opened in 1996 on a 114-acre site, but the surrounding areas have not seen significant development as of 2024. Because the MTSP Plan Area boundary is similar to the 1995 Madera State Center Community College Specific Plan area, the MTSP is considered to be an update to the older plan.

The Madera State Center Community College Specific Plan provides planning concepts, infrastructure programs, and development standards to guide orderly development of the 1,867-acre specific plan area. Although nearly 30 years old, its goals are similar to the goals of the MTSP, aiming for an integrated mixed-use development with the Madera State Community College as a key central component of this area. However, the older specific plan did not envision the creation of a transit station along the BNSF line, leading to the need to update the plan.

The Plan includes various uses such as neighborhood and community commercial, highway service commercial, professional office, light industrial/business park, public institutional uses (schools, civic uses, and community college), and parks. Figure 4, *Madera State Center Community College Specific Plan Concept Plan*, shows the original concept framework for the 1995 Specific Plan. The framework of the 1995 Plan Area is defined by the SR-99, the two railways, Avenue 12, and Cottonwood Creek, which is identified as a major landscape feature that naturally divides the plan area into two districts: the Community College District and the Highway/Commercial District.

Figure 4: Madera State Center Community College Specific Plan Concept Plan



The Community College District is located east of Cottonwood Creek and has a proposed land use pattern that treats the college as the anchor and clusters offices, retail, high-density residential, and civic buildings around it, all of which are connected by a pedestrian pathway system that diagonally cross-cuts the orthogonal circulation grid of the area and supports alternative modes of transportation. From the intersection of Avenue 12 and Road 30, a primary public pathway traverses diagonally northwest to connect the college to the western Highway/Commercial District. As one approaches west from the college towards the creek, the land use would transition from professional office and businesses to single-family residential. A second public pathway traverses northeast from the southeast corner of the college to create a promenade through a wide range of uses that will be developed with an “intimate, campus-like quality”. This path concludes at a habitat preserve that would be located at the east edge of the Plan Area.

The Highway/Commercial District is designed as a highway-oriented district that would be developed into larger commercial uses and industrial businesses that would benefit from adjacency to SR-99. It is similar to the Community College District in that it would create a pedestrian-oriented circulation network with pedestrian promenade linking professional office and light industrial land uses. This District would have also included a multi-modal transit station along the then Southern Pacific (now UPRR) rail line, serving as an anchor for this district. A ceremonial gateway entrance into the district would have been located adjacent to Cottonwood Creek.

At present, the 1995 Specific Plan provides capacity for 4,500 single family and multifamily units, including 3,398 single family units, 646 small-lot single family and townhome units, and 456 higher-density units. Parcels designated High Density Residential are located in two general locations of the 1995 Specific Plan area: along Road 12½ West near the business-center node and along Road 30½ near the community college. Parcels designated professional office (which allows some housing development) are located at the community focal points (i.e., the community college and along SR 99).

The 1995 Specific Plan contains the following key goals and policies:

***Goal 1: A self-supporting community which recognizes the need to balance environmental resources, living, and employment opportunities.***

- *Policy 1.1 Locate social, cultural, recreational, employment, and commercial opportunities within the Civic Centers.*
- *Policy 1.2 Organize land uses for maximum efficiency between residential and employment areas, and from all land uses to the Civic Centers.*
- *Policy 1.3 Provide for a diversity of land uses which can accommodate the daily needs of residents.*
- *Policy 1.4 Provide a mix of land uses within the Civic Centers to strengthen them as the social, cultural, employment, and retail centers of the community.*
- *Policy 1.5 Provide a reasonable level and diversity of employment opportunities within the community to reduce the need for commuting, thereby minimizing potential impacts on air quality.*
- *Policy 1.6 Cluster community uses to create activity nodes and encourage walking or cycling between uses.*

***Goal 2: A community which compliments surrounding communities.***

- *Policy 2.1 Maintain the basic distribution and intensity of land uses and circulation patterns depicted in the Madera County General Plan to ensure future compatibility between project development and future adjacent offsite development.*
- *Policy 2.2 Ensure that existing, adjacent offsite agricultural uses are adequately buffered from the potential impacts of project development.*

***Goal 3: Contribution to Madera County affordable housing goals.***

- *Policy 3.1 Provide affordable housing consistent with the Madera County Housing Element to ensure housing opportunities for all segments of the population.*
- *Policy 3.2 Explore the provision of affordable housing which incorporates options in housing mix, size, location, and type.*

***Goal 4: Protection from incompatible land uses.***

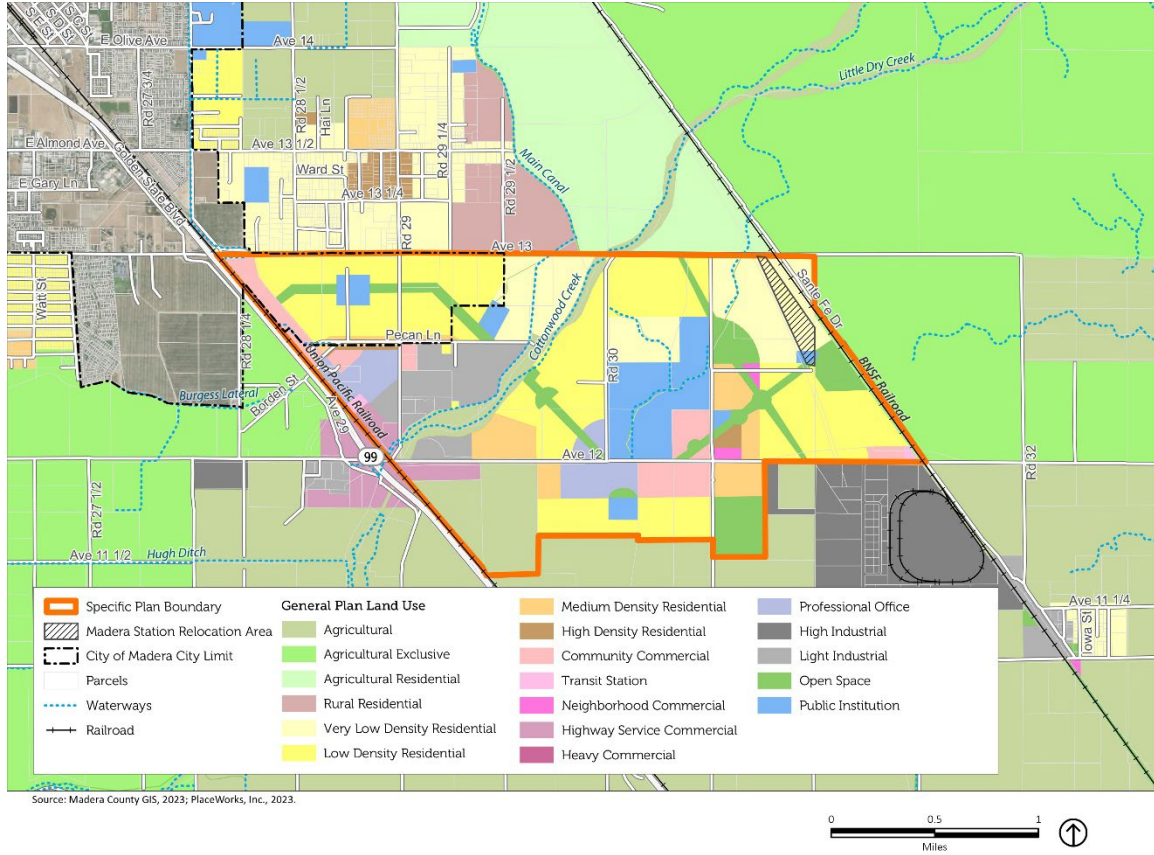
- *Policy 4.1 Establish a hierarchy of land uses, which comfortably connects high activity hubs and residential neighborhoods and provides a pathway system to conveniently connect all uses.*
- *Policy 4.2 Provide buffers between sensitive land uses and high activity or industrial uses, or hazardous areas.*

## **County General Plan Land Uses**

The Madera County General Plan is a comprehensive framework for the county's development and protection of its natural and cultural resources. The Madera County General Plan consists of two types of documents: the countywide General Plan and a set of detailed area plans covering specific areas of the unincorporated county. The General Plan provides an overall framework for the country's development and protection of its natural and cultural resources.

The Madera County General Plan identifies the Plan Area as a New Growth Area, which led to the creation of the original 1995 Specific Plan as described above. The General Plan land use designations in the MTSP area are Rural Estate Residential, Rural Residential, Very Low-Density Residential, Low-Density Residential, Medium-Density Residential, High-Density Residential, and Professional Office. Figure 5, *County General Plan Use Diagram*, shows the County's General Plan land use designations for the MTSP Plan Area.

Figure 5: County of Madera General Plan Land Use for Plan Area



# County Zoning

The provisions of the County Zoning Ordinance are in Chapter 18 of the Madera County Municipal Code. Table 1, *Madera County Zoning for the MTSP*, shows the zoning designated for the MTSP boundary and their allowed uses within the zone. Figure 6, *County Zoning Map of Plan Area*, shows the distribution of zoning districts for the MTSP Plan Area.

Figure 6: County of Madera Zoning Map of Plan Area

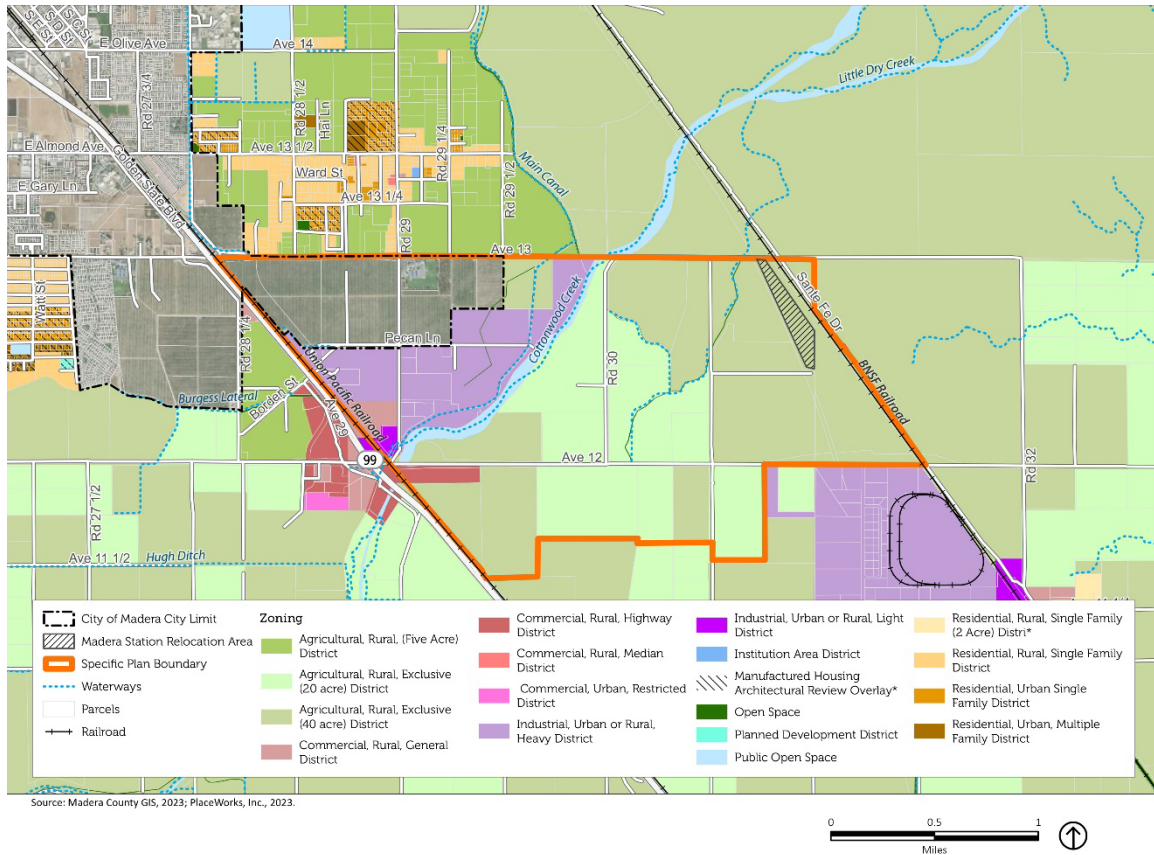


Table 1 Madera County Zoning for the MTSP

Zoning	Allowed Uses	Development standards
Agricultural, Rural, Exclusive (ARE-20)	The purpose of the ARE zones is to accommodate a wide range of agricultural uses. This zone is applied to lands that are in agricultural use. The ARE-20 requires a minimum of 18-acre parcels.	N/A
Agricultural, Rural, Exclusive (ARE-40)	The purpose of the ARE zones is to accommodate a wide range of agricultural uses. This zone is applied to lands that are in agricultural use. The ARE-40 requires a minimum of 36-acre parcels.	N/A

<p>Commercial, Rural, General District (CRG)</p>	<p>Permitted Uses include restricted retail sales establishment; one two-family dwelling; professional office; one single-family dwelling in a permanent structure or one manufactured home on a permanent foundation.</p> <p>Conditional uses include multiple-family dwellings in the permanent structure; establishment serving liquor for consumption on the premises; churches, synagogues, and other buildings for religious assembly; cemeteries and mausoleums; laboratories for testing, experimental or analytical purposes; private clubs and outdoor recreation facilities; public and semipublic buildings and uses; and communications tower/wireless communications facility.</p>	<ul style="list-style-type: none"> <li>» Setback from the edge of right-of-way: 25 feet, minimum; side yard offset: 10 feet, minimum; rear yard offset: 20 feet, minimum</li> <li>» Principal building or structure height: 35 feet, maximum per establishment and/or per dwelling; accessory building or structure height: 15 feet, maximum.</li> <li>» Lot area: one acre, minimum; average lot width: 120 feet, minimum; lot length to width ratio permitted: 3 to 1, maximum; dwelling floor area to lot area ratio permitted: 20 percent, maximum; total buildings area to lot area ratio permitted: 40 percent, maximum</li> </ul>
<p>Commercial, Rural, Highway District (CRH)</p>	<p>Permitted Uses include restaurant; motel; service station.</p> <p>Uses allowed with zoning permit include one single-family dwelling.</p> <p>Conditional uses include any commercial use determined by the zoning administrator to be directly oriented to the commercial needs of highway users; cemeteries and mausoleums; laboratories for testing, experimental or analytical purposes; private clubs and outdoor recreation facilities; outdoor theaters; public and semipublic buildings and uses; communications tower/wireless communications facility.</p>	<ul style="list-style-type: none"> <li>» Setback from edge of right-of-way: 25 feet, minimum; side yard offset: 10 feet, minimum; rear yard offset: 20 feet, minimum</li> <li>» Principal building or structure height: 35 feet, maximum; accessory building or structure height: 15 feet, maximum.</li> <li>» Lot area: one acre, minimum; average lot width: 120 feet, minimum; lot length to width ratio permitted: 3 to 1, maximum; dwelling floor area to lot area ratio permitted: 20 percent, maximum; total buildings area to lot area ratio permitted: 40 percent, maximum.</li> </ul>
<p>Industrial, Urban or Rural, Heavy District (IH)</p>	<p>Permitted Uses include heavy industrial use; light industrial use; general commercial establishment; transit mix operations, concrete manufacture and concrete products manufacture; communication tower/wireless communications facility.</p> <p>Uses Allowed with Zoning Permit include one single family dwelling; communications tower/wireless communications facility; and mini storage facility.</p> <p>Conditional uses include restricted retail sales establishment; retail sales establishment; airports, landing fields and airstrips; cemeteries and mausoleums; laboratories for testing, experimental or analytical purposes; outdoor theaters; junkyards; communications tower/wireless communications facility; solar farms.</p>	<ul style="list-style-type: none"> <li>» Setback from edge of right-of-way: 25 feet, minimum; side yard offset: 10 feet, minimum; rear yard offset: 20 feet, minimum</li> <li>» Principal building or structure height: 60 feet, maximum; accessory building or structure height: 60 feet, maximum; for uses other than industrial, height limits shall be the same as specified in the district that matches that use.</li> <li>» Lot area: one acre, minimum per establishment or per family; average lot width: 120 feet, minimum; lot length to width ratio permitted: 4 to 1, maximum in industrial use; length to width ratio 3 to 1 for all other uses; dwelling floor area to lot area ratio permitted: 20 percent,</li> </ul>

		maximum; total buildings area to lot area ratio permitted: 90 percent, maximum in industrial uses; total buildings area ratio permitted, with other permitted uses, determined by the zoning administrator.
Industrial, Urban or Rural, Light District (IL)	<p>Permitted Uses include light industrial use; general commercial establishment; customer service establishment; communication tower/wireless communications facility placed atop an existing structure, which will not increase the height of said structure above 20 additional feet, or exceed the height limit of this zone district, whichever is greater; motel; office; emergency shelter.</p> <p>Uses allowed with Zoning Permit include one single family dwelling; communications tower/wireless communications facility; mini storage facility.</p> <p>Conditional uses include restricted retail sales establishment; retail sales establishment; airports, landing fields and airstrips; cemeteries and mausoleums; laboratories for testing, experimental or analytical purposes; transit mix, concrete manufacturing or concrete goods manufacturing; outdoor theaters; junkyard; communications tower/wireless communications facility; bulk fuel storage for distribution and resale; solar farms.</p>	<p>» Setback from edge of right-of-way: 25 feet, minimum; side yard offset: 10 feet, minimum; rear yard offset: 20 feet, minimum; no industrial use, structure, building or storage area may be closer to the side or rear lot line than the minimum offset allowed in any abutting residential district.</p> <p>» Principal building or structure height: 60 feet, maximum; accessory building or structure height: 60 feet, maximum.</p> <p>» Lot area: 1 acre minimum per establishment or per single family; average lot width: 120 feet, minimum; lot length to width ratio permitted: 4 to 1, maximum in industrial use; length to width ratio 3 to 1 for all other uses; dwelling floor area to lot area ratio permitted: 20 percent, maximum; total building area to lot area ratio permitted: 90 percent, maximum in industrial uses; total buildings area ratio permitted, with other permitted uses, determined by the zoning administrator.</p>
Open Space (OS)	<p>Permitted Uses include agriculture; golf course; riding academy or riding club; irrigation canals, reservoirs and control devices; major transmission lines for greater than 70 KV, interregional gas transmission lines, or trunk communication lines</p> <p>Uses Allowed With Zoning Permit include one single family dwelling per farm.</p> <p>Conditional uses include commercial recreation area, camp, and resort; other single-family dwellings per farm or ranch, in permanent structures; refuse disposal sites; airports, landing fields or airstrips; private clubs and outdoor recreational facilities; communications tower/wireless communications facility; solar farms.</p>	<p>» Setback from edge of right-of-way: 25 feet, minimum; side yard offset: 10 feet, minimum; rear yard offset: 20 feet, minimum.</p> <p>» Principal building height: 35 feet, maximum; accessory building height: 15 feet, maximum.</p> <p>» Lot area: 5 acres, minimum; average lot width: 120 feet, minimum; lot length to width ratio permitted: N/A; dwelling floor area to lot area ratio permitted: 10 percent, maximum, permitted buildings only; total buildings area to lot area ratio permitted: 10 percent, maximum, permitted buildings only.</p>
Public Open Space (POS)	Permitted Uses include publicly owned uses, but not institutions; areas under public control for purposes of natural resources conservation; public recreation; national defense; public instruction, other than schools;	N/A



	public transportation; aesthetic control in the public interest; public protection; public utilities; farming: 40 acres or more per site; sustained yield forestry; grazing: 40 acres or more per site; public airports and airstrips. Conditional uses include any private use involving an operation on open space and not requiring any buildings or structures; communications tower/wireless communications facility; solar farms.	
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## City of Madera General Plan

### SPHERE OF INFLUENCE

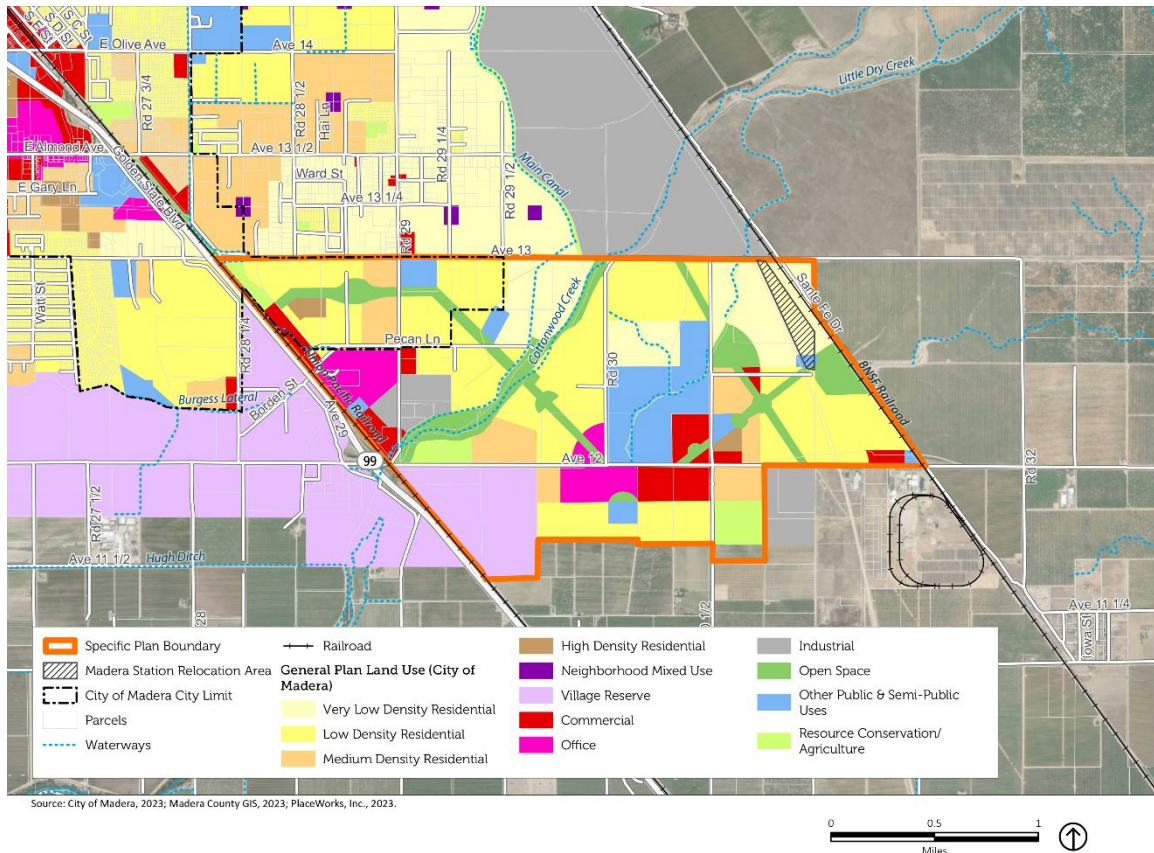
The entire MTSP Plan Area is within the City of Madera’s Sphere of Influence (SOI). The City of Madera could potentially annex some or all of this land; however, the City would need approval from the Madera County Local Agency Formation Commission for any annexation of land into their City Limit. The City SOI is shown in Figure 1.

### GENERAL PLAN LAND USE

Since the MTSP Plan Area is within the City of Madera’s SOI, the City’s General Plan designates land uses for the Plan Area in addition to the County General Plan. Because the City Limit does not extend over the Plan Area, the City has no authority to approve nor deny development and land uses. However, incorporated cities typically identify land uses for lands within their SOI to plan for potential annexation that may happen in the future.

The City General Plan land use designations and layout of the Plan Area are similar to the County General Plan and City land use designations for the MTSP area include Very Low Density Residential, Low Density Residential, Medium Density Residential, High Density Residential, Office, Commercial, Industrial, Public and Semi-Public, Open Space, and Village Reserve. Figure 7, City of Madera General Plan Use Diagram, shows the City’s General Plan land use designations for the MTSP Plan Area.

Figure 7: City of Madera General Plan Land Uses for Plan Area



## SJJPA Station Relocation Project and High-Speed Rail

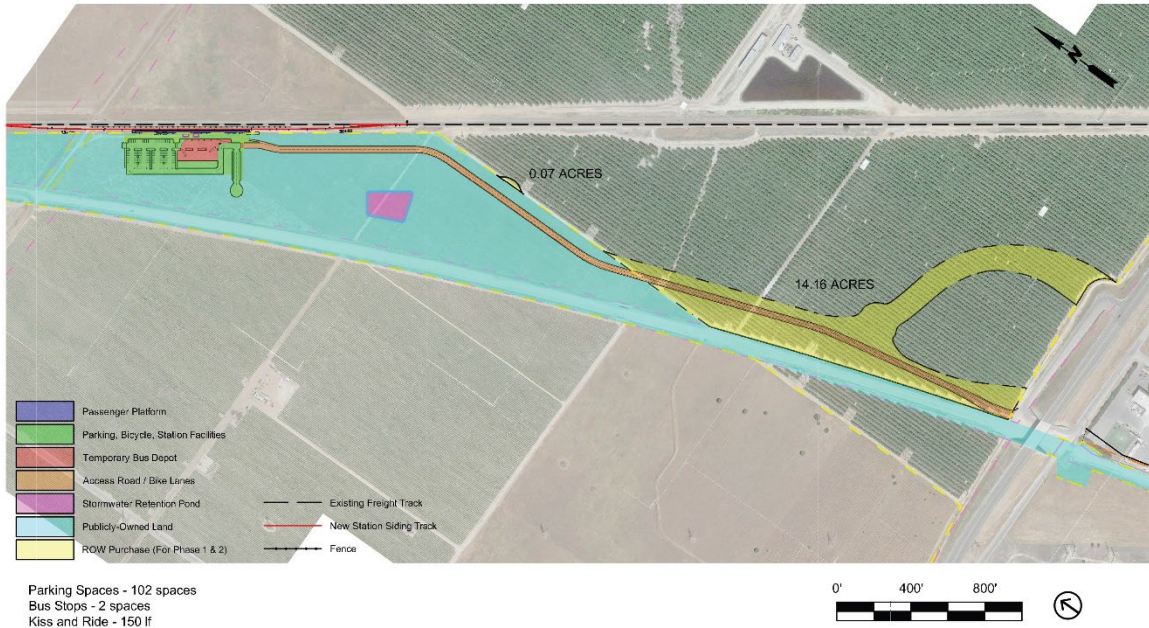
The San Joaquin Joint Powers Authority (SJJPA) is overseeing the relocation of Madera San Joaquin’s Station along the Amtrak rail line to the eastern edge of the MTSP Plan Area. The development of this station area is also intended to support the potential future location of a California High-Speed Rail station and is a key driver of the MTSP. SJJPA assessed the connectivity between San Joaquin and local transit services and found that the existing Madera Turlock/Denair San Joaquin's Station and Madera San Joaquin's Station (Madera Station) had connectivity challenges due to a lack of local or regional bus services. SJJPA collaborated with Madera County, the City of Madera, the Madera County Transportation Commission, the California State Transportation Agency, and the California High-Speed Rail Authority to identify the site at Avenue 12, southeast of the City of Madera, as the best service option for a relocated San Joaquin's Amtrak station and a future High-Speed Rail (HSR) station to serve Madera County<sup>10</sup>. The Madera Station Relocation site can be seen in Figure 1.

The Madera Station Relocation Project is entering the environmental clearance stage for Phase 3, the Madera HSR Station Full-Build Project. Phase 3 builds on previous phases, including Phase 1, Madera San Joaquin's

<sup>10</sup> [https://cdn.sjjpa.com/wp-content/uploads/20231122140306/Madera-HSR-Station-Full-Build\\_NOP\\_2023-11-22\\_FINAL.pdf](https://cdn.sjjpa.com/wp-content/uploads/20231122140306/Madera-HSR-Station-Full-Build_NOP_2023-11-22_FINAL.pdf)

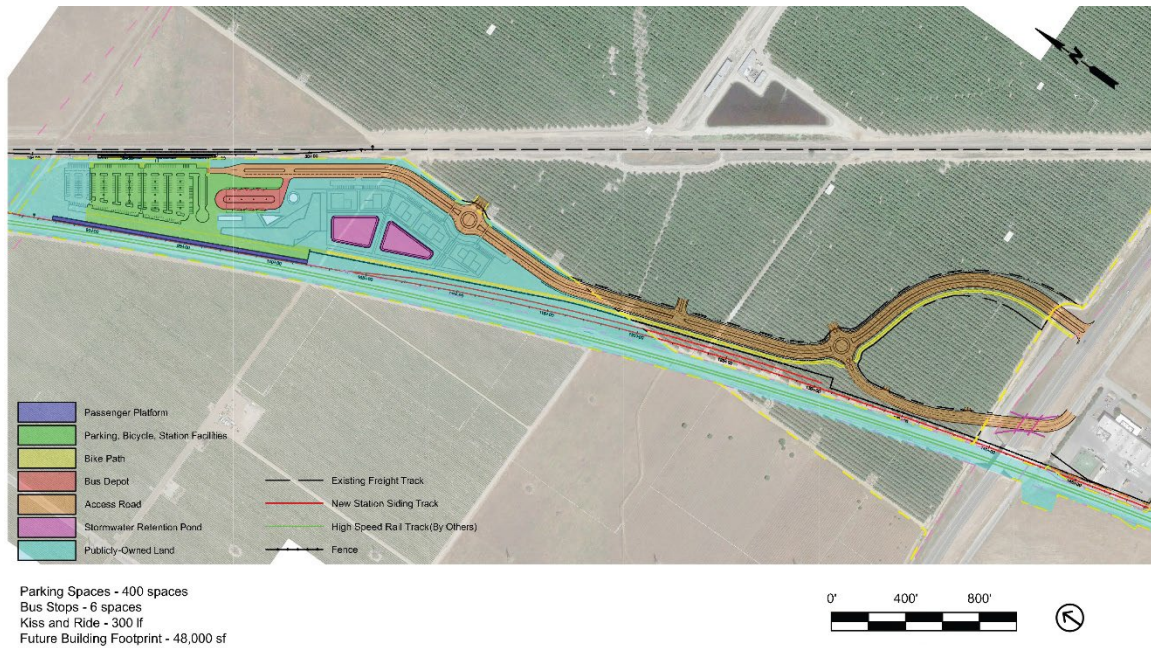
Station Relocation project, and Phase 2, Madera HSR Early Operating Segment (EOS) Station (See Figures 8A and 8B, Phases of the Madera Station Relocation Project). This project will enable a HSR station in Madera County, for expanded HSR operations beyond the Merced-Bakersfield California HSR EOS and better connect existing intercity railroad services to economic and educational centers in Madera County. This project is required to facilitate continued service in Madera County, as an HSR Station, once HSR extends to the Bay Area and “Silicon Valley to Central Valley” service has begun<sup>11</sup>.

Figure 8A: Station Relocation Project Phase 1 (May 17, 2022)



<sup>11</sup> <https://sijpa.com/madera-station-relocation-project/>

Figure 8B: Station Relocation Project Phase 2 (May 17, 2022)



## Avenue 12 Grade Separations

The California Department of Transportation (Caltrans) maintains State Routes and roads across California. District 6 maintains and oversees improvements within Madera County. State Route 99 (SR-99), which borders the west edge of the Plan Area, and portions of Avenue 12 are under Caltrans jurisdiction. Around 2015, Caltrans reconstructed the highway interchange at SR-99 and Avenue 12 and created a grade separation at Avenue 12 to pass over the highway and UPRR tracks. This led to realignment of the surrounding roads, including Road 29 and Golden State Boulevard. Before the improvement, Road 29 crossed over the UPRR tracks. The north-south road now sharply turns east as it approaches Avenue 12 before curving back south to reconnect with Avenue 12.

Caltrans is currently underway with the Cottonwood Creek Replacement Project to replace two mainline bridges and the northbound off-ramp to Avenue 12/Road 29 crossing over Cottonwood Creek just slightly south of this interchange. Construction is estimated to be completed in October 2024.<sup>12</sup>

On the east side of the Plan Area, there are two grade separations where Avenue 12 crosses over both the existing BNSF railroad and the future proposed HSR Right-Of-Way (R.O.W.). At full build of the Madera Station Relocation Project as seen in Figure 8B, Avenue 12 would connect to the new station area via a new R.O.W. leading north from the road.

<sup>12</sup> <https://dot.ca.gov/caltrans-near-me/district-6/district-6-projects/d6-sr099-cottonwood-creek-bridge-replacement>

# Environmental Constraints

This section contains assessment of the environmental aspects that could present constraints in the MTSP Plan Area.

## Utility Infrastructure

### WATER

Groundwater serves as an important source of supply for agricultural, municipal, domestic, industrial, and environmentally beneficial uses and users throughout the Madera Subbasin. The Madera Subbasin exists within the larger San Joaquin Valley Groundwater basin. There are multiple Groundwater Sustainability Agencies (GSA) within the Madera Subbasin. The MTSP Plan Area is within the Madera County GSA and Madera Irrigation District (MID).<sup>13</sup> A majority of the MTSP Plan Area is serviced by the MID. The MID encompasses approximately 130,000 acres in Madera County and is adjacent to the San Joaquin River on its southern boundary. MID operates a primary gravity irrigation distribution system with approximately 300 miles of open-flow canal systems as well as 150 miles of large-diameter pipelines. MID's water supply derives from multiple sources including water rights on the Fresno River and service contracts for water from the Friant Division of the Central Valley Project.<sup>14</sup> The southeast portion of the MTSP is within the Madera County GSA.<sup>15</sup>

The Sustainable Groundwater Management Act (SGMA) mandates the Department of Water Resources (DWR) to identify groundwater basins and subbasins in critical overdraft conditions. Overdraft occurs when annual groundwater extraction exceeds the long-term water supply, leading to adverse environmental, social, or economic impacts. Overdraft can cause seawater intrusion, land subsidence, groundwater depletion, and chronic groundwater levels reduction. DWR identifies the Madera Subbasin along with many neighboring basins to be critically overdrafted.<sup>16</sup>

The California State Water Resources Control Board - Division of Drinking Water (SWRCB-DDW) has designated the Madera County Environmental Health Division as the Local Primacy Agency for enforcing state drinking water requirements for small public water systems. The division also serves as a resource for private domestic well owners, ensuring safe, potable, and adequate water supplies. The Madera County Environmental Health Division oversees over 200 small water systems in the County, including housing developments, apartments, mobile home parks, schools, businesses, camps, restaurants, and mini marts. They ensure safe water delivery by issuing permits, conducting inspections, and tracking water samples to eliminate pathogens and chemicals that could cause illness.<sup>17</sup> There are three public supply wells within the MTSP Plan Area regulated by the SWRCB-DDW Program.<sup>18</sup> These wells include:

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<sup>13</sup> <https://www.maderacountywater.com/wp-content/uploads/2018/08/Madera-County-Basins-and-Water-Districts.pdf>

<sup>14</sup> <https://www.madera-id.org/about-us/history-of-mid/>

<sup>15</sup> <https://gis.maderacounty.com/portal/apps/webappviewer/index.html?id=f9d3078191be4dd8bf023d016e5d90aa>

<sup>16</sup> <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins>

<sup>17</sup> <https://www.maderacounty.com/government/community-economic-development-department/divisions/environmental-health-division>

<sup>18</sup> <https://storymaps.arcgis.com/stories/f2b252d15a0d4e49887ba94ac17cc4bb>

- » A community water system located at the Cesar Chavez School. Community Water Systems are city, county, regulated utilities, regional water systems and even small water companies and districts where people live.<sup>19</sup>
- » A non-community non-transient water system located at Madera Community College. A non-community non-transient water systems are places like schools and businesses that provide their own water. The same people have a regular opportunity to consume the water, but they do not reside there.<sup>20</sup>
- » A non-community non-transient water system located at Talley Transportation Inc., located at the northwest portion of the MTSP Plan Area.

A permit is required from the Madera County Environmental Health Division to drill wells and must be constructed by licensed C-57 well drillers. The Madera County Environmental Health Division ensures that all construction and installation of ground water wells follow Chapter 13.52, Well Standards, in the Madera County Code.

## SEWER AND SOLID WASTE

On-site sewage systems in Madera County generally serve rural and other low-density areas. Due to concerns over potential impacts to public health and safety, as well as environmental concerns, the placement and design of on-site sewage disposal systems are closely regulated by the Madera County Environmental Health Division.<sup>21</sup> Madera County includes a Liquid Waste Program which aims to protect public health and the environment from improper disposal of sewage and greywater systems. In 2019, Madera County implemented an On-site Wastewater Treatment Systems (OWTS) policy also known as the Local Agency Management Plan (LAMP). The implementation of the LAMP was required under Assembly Bill 885 and allowed the County to set guidelines for the permitting and installation of all OWTS. The Environmental Health Division permits, inspects, enforces OWTS, advance septic designs, septage haulers to ensure compliance with local and state laws to protect the public, community, and the environment.<sup>22</sup>

Madera County owns and operates two solid waste facilities: Fairmead Landfill under the Red Rock Environmental Group; and North Fork Transfer Station under Emadco Disposal Service.<sup>23</sup> The Fairmead Landfill is located approximately 13 miles northwest of the MTSP Plan Area with a maximum capacity of 1,100 tons per day. The estimated closure year for the landfill is set for 2048. North Fork Transfer Station is a solid waste facility located approximately 33 miles northeast of the MTSP Plan Area with a 60 tons per day maximum capacity.<sup>24</sup> Waste generated within the MTSP Plan Area would likely be serviced by the Fairmead Landfill. Figure 9 shows the location of these two facilities.

City of Madera wastewater is conveyed by the sewer collection system to Madera's Wastewater Treatment Plant (WWTP), which is located at the intersection of Avenue 13 and Road 21 ½, approximately 6.8 miles west of the plan area. The WWTP existing sewer system is comprised of a network of approximately 173 miles of sewer pipelines ranging from 6 to 48 inches in diameter. According to the City's Sewer System

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<sup>19</sup>[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/waterpartnerships/what\\_is\\_a\\_public\\_water\\_sys.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/waterpartnerships/what_is_a_public_water_sys.pdf)

<sup>20</sup>[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/waterpartnerships/what\\_is\\_a\\_public\\_water\\_sys.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/waterpartnerships/what_is_a_public_water_sys.pdf)

<sup>21</sup><https://online.encodeplus.com/regs/maderacounty-ca-gp/doc-viewer.aspx#secid-416>

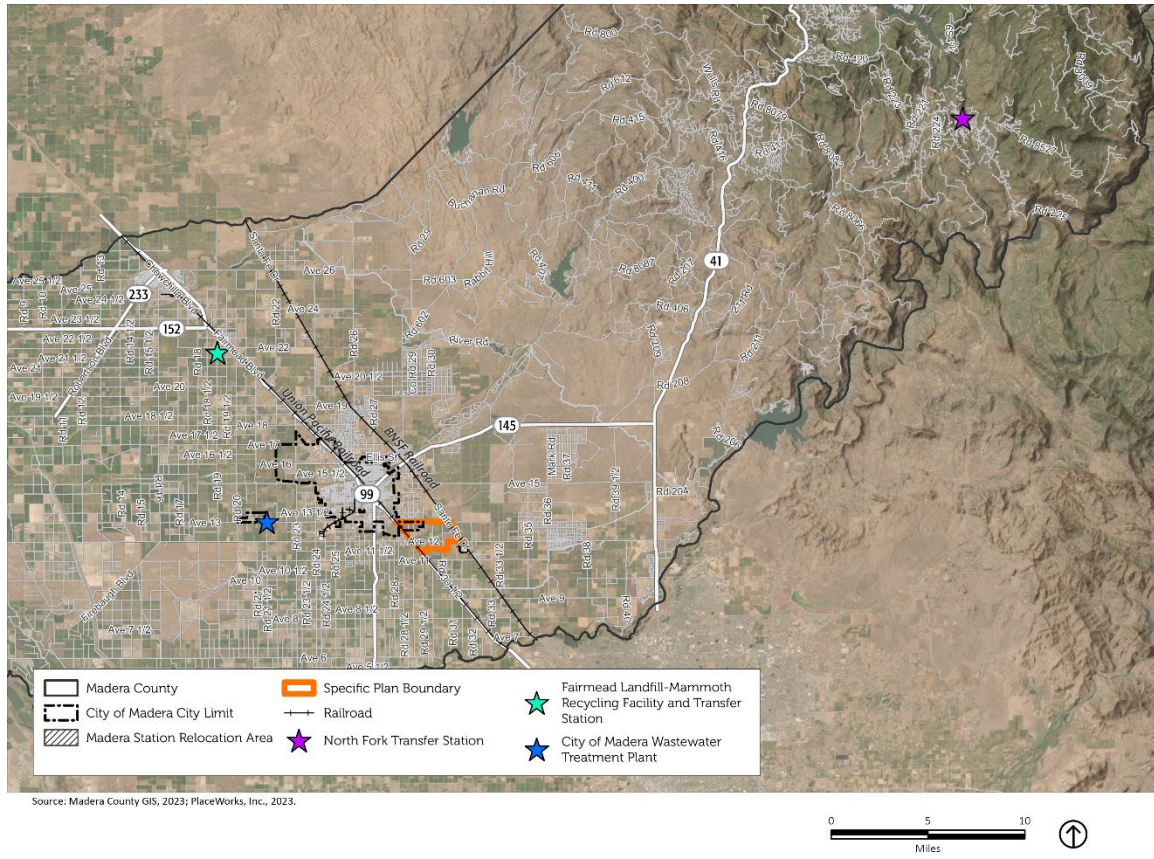
<sup>22</sup><https://www.maderacounty.com/government/community-economic-development-department/divisions/environmental-health-division/liquid-waste-program>

<sup>23</sup><https://www.maderacounty.com/government/public-works/solid-waste-management>

<sup>24</sup><https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3027?siteID=1700>

Management Plan, there is a lift station located within the plan area that is connected to a 6-inch diameter pipe which then connects to larger inch diameter pipelines located on the northern boundary of the plan area until it reaches the WWTP.<sup>25</sup>

Figure 9: Solid Waste Facilities Near Plan Area



## STORMWATER

Storm water is water that flows down streets and into nearby streams and creeks. Storm water is different from sewer water, which is water from effluent or toilets and sinks. Storm water picks up pollutants along the way. Chapter 16.2, *Stormwater and Storm Sewer Systems*, aim to protect Madera County residents' health, safety, and welfare by regulating non-stormwater discharges to the storm drainage system. The chapter establishes methods to control pollutants' introduction into the municipal separate storm sewer system (MS4), complying with the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this chapter are to regulate pollutants' contribution to MS4, prohibit illicit connections, and establish legal authority for inspection, surveillance, monitoring, and enforcement to ensure compliance with these provisions. The Central Valley RWQCB requires a Stormwater Pollution Prevention Plan (SWPPP) for projects disturbing more than one acre of total land area. The Central Valley RWQCB regulates Wastewater Discharges to Land by establishing thresholds for discharged pollutants and implementing monitoring programs to evaluate program compliance. This program regulates approximately 1500 dischargers in the

<sup>25</sup> [https://www.madera.gov/wp-content/uploads/2021/02/Madera\\_2020\\_SSMP\\_Final\\_Adoption\\_December2020.pdf](https://www.madera.gov/wp-content/uploads/2021/02/Madera_2020_SSMP_Final_Adoption_December2020.pdf)

region. The Central Valley RWQCB is also responsible for implementing NPDES. The NPDES Program is the federal permitting program that regulates discharges of pollutants to surface waters of the U.S. Under this program, a NPDES permit is required to discharge pollutants into Waters of the U.S. There are 350 permitted facilities within the Central Valley Region.

As mentioned above, Cottonwood Creek, flowing southwest from just south of Henley Lake, terminates at the Eastside Bypass, a flood-prevention bypass on the San Joaquin River. Cottonwood Creek is not used for flood control but instead is used to carry any additional water that is produced from runoff from the City of Madera and surrounding areas.<sup>26</sup> Stormwater from the plan area would flow to Cottonwood Creek and from there to the Fresno River.

## Hazards

### WILDFIRE

Wildfires are deadly and can cause catastrophic damage to property, infrastructure, and ecosystems. Under the right conditions, a small fire can quickly grow into an enormous, rapidly-moving blaze. The air pollution from wildfires can also cause health problems for people hundreds of miles away, and recently burned areas are more susceptible to flooding and landslides. Climate change is expected to increase the size, frequency, and intensity of wildfires throughout California. However, according to the California Fire and Forestry Protection's Fire Hazard Severity Maps, the MTSP Plan Area is not within a Very High Fire Hazard Severity Zone.<sup>27</sup>

### FLOOD

The Federal Emergency Management Association (FEMA) flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. Flood risk is any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream. Each zone reflects the severity or type of flooding in the area. According to Figure 10, *Flood Zones*, the entire MTSP Plan Area is within AO and AH Zone, which is a special flood hazard area (SFHA).<sup>28</sup> SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.<sup>29</sup>

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<sup>26</sup> <https://dot.ca.gov/-/media/dot-media/district-6/documents/d6-environmental-docs/06-0v120/sr99-cttnwd-crk-f-060v120-0720.pdf>

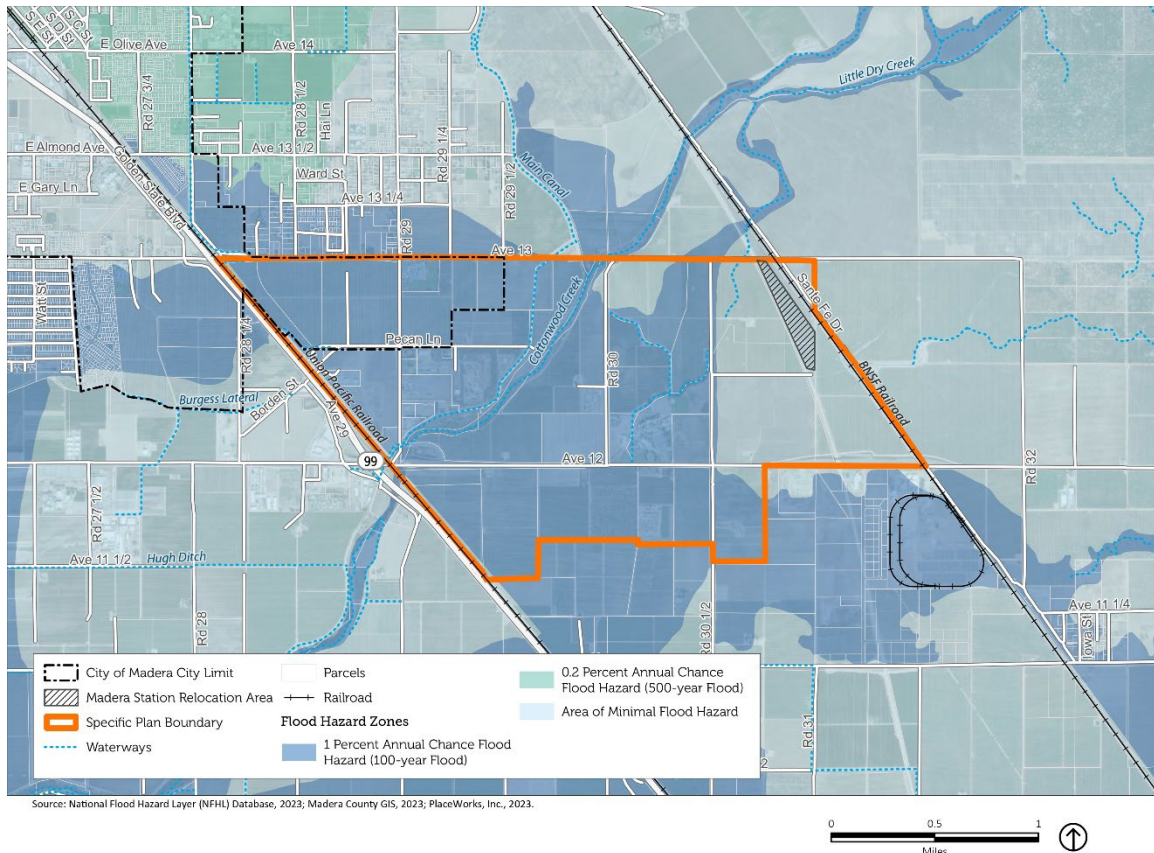
<sup>27</sup> [https://34c031f8-c9fd-4018-8c5a-4159cdf6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map-2022/fire-hazard-severity-zones-maps-2022-files/fhsz\\_county\\_sra\\_11x17\\_2022\\_madera\\_2.pdf](https://34c031f8-c9fd-4018-8c5a-4159cdf6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map-2022/fire-hazard-severity-zones-maps-2022-files/fhsz_county_sra_11x17_2022_madera_2.pdf)

<sup>28</sup> <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd&extent=-120.07492132786855,36.923498003550115,-120.00568457249564,36.95208278601978>

<sup>29</sup> <https://www.fema.gov/glossary/flood-zones>



Figure 10: Flood Zones



## LIQUEFACTION

Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes. Liquefaction is most common in water-saturated areas with uniform, loose to medium-density sands. The Madera County LHMP states that in Madera County, where the water table is less than 30 feet below the surface, soil types are not conducive to liquefaction due to their coarse texture or high clay content. These soil types mitigate the potential for liquefaction in these areas.<sup>30</sup>

## EARTHQUAKE

Madera County has no major fault systems within its boundaries. The San Andreas Fault is approximately 60 miles west of the Madera County Boundary. There are no active faults located inside Madera County.<sup>31</sup> The Madera County LHMP identifies the project site as likely to experience low to moderate risk of earthquake occurrence. Earthquakes can result in geological impacts, including liquefaction, landslides, lateral spreading, subsidence, or collapse. Damage from earthquakes typically occurs at peak accelerations of 30 percent or

<sup>30</sup> <https://www.madera.gov/wp-content/uploads/2018/09/Madera-County-Local-Hazard-Mitigation-Plan-2018.pdf>

<sup>31</sup> <https://maps.conservation.ca.gov/cgs/fam/>

greater. The LHMP identifies the peak acceleration in Madera County to be only 10 percent over the next 50 years.<sup>32</sup>

## DAM INUNDATION

Inundation occurs when there is a break in a dam and water is released, washing downstream and causing flooding. While such events are extremely rare, they have occurred in California, and climate change may increase the risk by causing more intense storms that could cause reservoirs to exceed their design capacity. According to the Dam Breach Inundation Map Web Publisher, published by the DWR, the nearest dam is located in Madera Lake which is approximately 4.3 miles north of the MTSP Plan Area.<sup>33</sup> The MTSP Plan Area is not within the area that could result in flooding from a hypothetical failure of the dam. However, the City of Madera's General Plan Environmental Impact Report (EIR) shows that the MTSP Plan Area is within the inundation area of the Hidden Dam as shown in Figure 11, *Hidden Dam Inundation Area*. Hidden Dam is a 184-foot-high zoned earthen embankment dam built in 1975 by the U.S. Army Corp of Engineers.<sup>34</sup> The dam consists of a main embankment, grout curtain; six earthen dikes; a detached spillway; an outlet with a gate tower; and has a capacity of 90,000 acre-feet.<sup>35,36</sup> The dam serves flood control, recreation, fish and wildlife habitat, and irrigation water supply. The Hidden Dam impounds the Fresno River at Hensley Lake approximately 13 miles northeast of the MTSP Plan Area.

## AIRPORT

The Madera Municipal Airport is located in the northwestern portion of the City of Madera, approximately 5.40 miles northwest of the MTSP Plan Area. The MTSP Plan Area is not within the regulatory area of the Madera Countywide Airport Land Use Compatibility Plan (ALUCP), which The establishes certain land use restrictions and height requirements within the vicinity of the airport in order to minimize the effect of the airport on people and structures on the ground in the areas of noise, safety, and land use.<sup>37</sup> Therefore, there are no restrictions in place for land uses related to the airport within the plan area.

## HAZARDOUS MATERIALS

A search of the SWRCB's GeoTracker and the Department of Toxic Substances Control's (DTSC) EnviroStor databases identified two sites within the MTSP Plan Area Table 2, *Hazardous Material Sites within the MTSP Plan Area*, are listed and described below:

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<sup>32</sup> <https://www.madera.gov/wp-content/uploads/2018/09/Madera-County-Local-Hazard-Mitigation-Plan-2018.pdf>

<sup>33</sup> [https://fmds.water.ca.gov/webgis/?appid=dam\\_prototype\\_v2](https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2)

<sup>34</sup> <https://www.madera.gov/wp-content/uploads/2018/01/Draft-EIR.pdf>

<sup>35</sup> <https://www.madera.gov/wp-content/uploads/2018/01/Draft-EIR.pdf>

<sup>36</sup> <https://www.rjh-consultants.com/services/geotechnical-geologic-engineering/hidden-dam/>

<sup>37</sup> <https://www.madera.gov/wp-content/uploads/2018/02/2015-ALUCP.pdf>

Figure 11: Hidden Dam Inundation Area

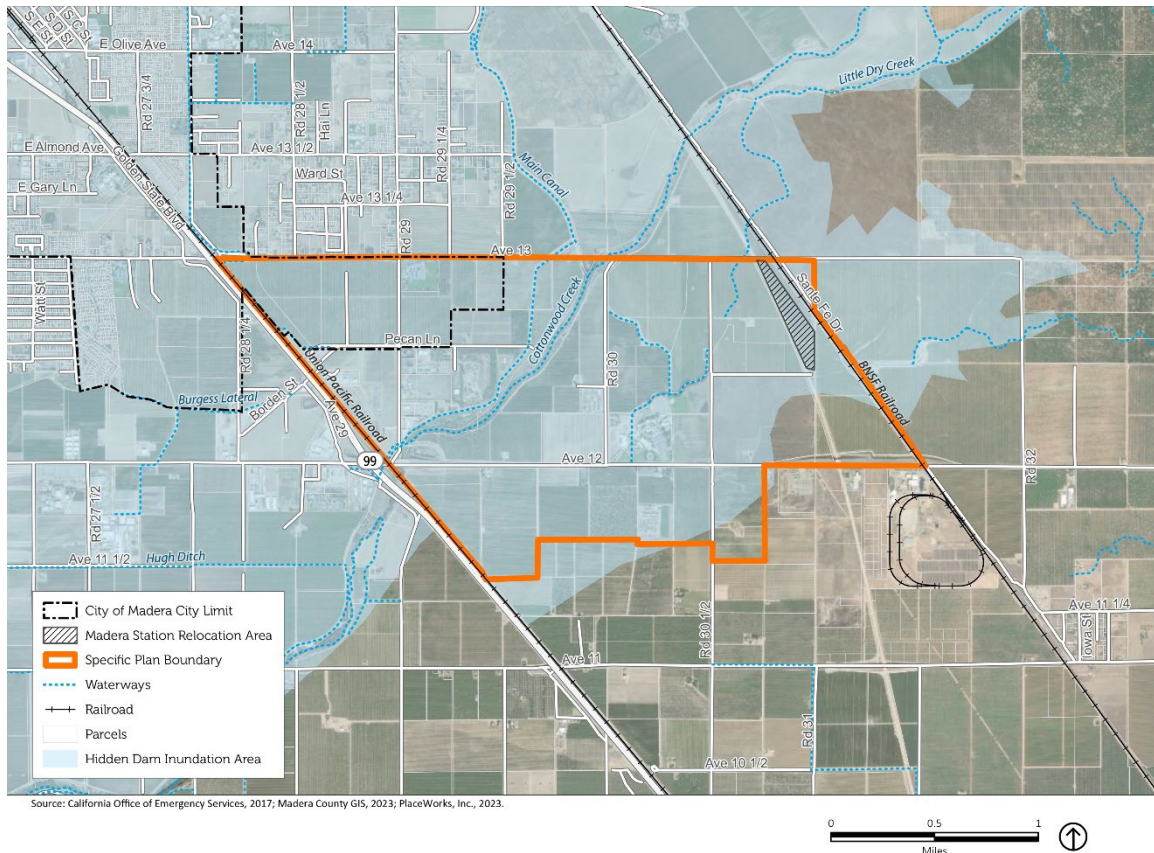


Table 2 Hazardous Material Sites within the MTSP Plan Area

Site Name/Location	Site Type	Description	Cleanup Status
<b>Geotracker sites</b>			
Domries Interprises Inc. 12281 Rd 29 Madera, CA 93638	LUST Cleanup	No case closure letter or case closure summary was found in the Fresno Office’s case file for this case. <sup>38</sup> However, the SWRCB has designated this site as case closed since 1987.	Completed – Case Closed as of 10/20/1987
<b>EnviroStor sites</b>			
Avenue 13 School Site Avenue 13/Road 29 Madera, CA 93638	School	The site is currently fallow land, surrounded by residential development and fallow properties. The site has been historically utilized for agricultural purposes, indicating potential pesticide application. The vineyards have been removed, piled, and burned on-site. Due to the historical agricultural use of the site, a preliminary environmental assessment (PEA) was required. A PEA was completed for the site in November of 2004. Site soils were sampled and analyzed for organochlorine pesticides, paraquat, arsenic, and CAM 17 metals. Soil in a burn pile area was also sampled for semi-volatile organic compounds. The DTSC issued an approval letter for the PEA with a "no further action" determination. <sup>39</sup>	No Further Action as of 3/16/2004

<sup>38</sup> [https://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0603900014](https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603900014)

<sup>39</sup> [https://www.envirostor.dtsc.ca.gov/public/profile\\_report?global\\_id=20010002](https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=20010002)

## Biological Resources

Wetlands in the MTSP Plan Area are shown in Figure 12, Wetlands. Wetlands are areas that are covered by surface or groundwater at a frequency and duration that support vegetation typically adapted for life in saturated soil conditions, such as swamps, marshes, and bogs.<sup>40</sup> Riparian areas are plant communities affected by surface and subsurface water bodies such as rivers, streams, lakes, or drainage ways.<sup>41</sup> According to the National Wetland Inventory, published by the U.S. Fish and Wildlife Service, the MTSP Plan Area includes approximately 7.54 acres of Freshwater Emergency Forested/Shrub Wetland and 2.41 acres of Freshwater Pond and 16.62 acres of Riverine.

The County of Madera is not within a Natural Community Conservation Plan/Habitat Conservation Plan.<sup>42</sup>

The Information for Planning and Consultation (IPaC) is a tool that generates a list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near a specific boundary project area but that could potentially be directly or indirectly affected by activities in the project area.<sup>43</sup> Table 3, *Potential Biological Resources within or near the MTSP Plan Area*, shows a summary of the trust resources that could be within the MTSP Plan Area.

The list compiled in Table 3, is a resource list for informational purposes only and does not constitute the full extent or confirm the biological resources within the plan area. In addition, when determining the likelihood and extent of effects a project may have on biological resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Figure 12: Wetlands

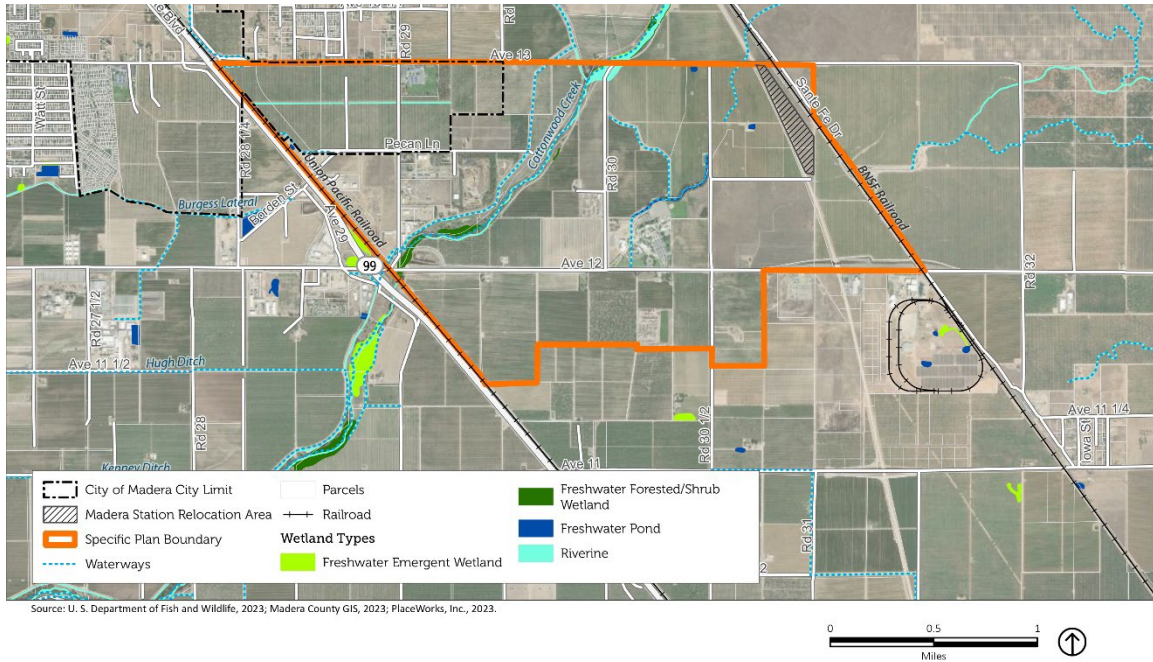
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<sup>40</sup> <https://www.epa.gov/cwa-404/how-wetlands-are-defined-and-identified-under-cwa-section-404#:~:text=22Wetlands%20are%20areas%20that%20are,life%20in%20saturated%20soil%20conditions>

<sup>41</sup> <https://www.fws.gov/glossary/riparian#:~:text=Riparian%20areas%20are%20plant%20communities,transitional%20between%20wetland%20and%20upland.>

<sup>42</sup> <https://wildlife.ca.gov/Conservation/Planning/NCCP/Plans>

<sup>43</sup> <https://ipac.ecosphere.fws.gov/location/AAHDN4QBPCNHHZKJFVGQEL2FA/resources#migratory-birds>



**Table 3 Potential Biological Resources within or near the MTSP Plan Area**

Name	Description	Status
<b>Mammals</b>		
Fresno Kangaroo Rat <i>Dipodomys nitratoides exilis</i>	The Fresno kangaroo rat is one of three subspecies of San Joaquin kangaroo rats and is a species of concern. The Fresno subspecies averages around nine inches in length.	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i>	The San Joaquin kit fox is the smallest fox in North America, with an average body length of 20 inches and weight of about 5 pounds. It is a member of the Canidae family. San Joaquin kit foxes are lightly built, with long legs and large ears. Their coat ranges from tan to buffy gray in the summer to silvery gray in the winter. Their belly is whitish, and their tail is black-tipped.	Endangered
<b>Reptiles</b>		
Blunt-nosed Leopard Lizard <i>Gambelia silus</i>	The blunt-nosed leopard lizard is a relatively large lizard the Iguanidae family. It has a long, regenerative tail, long, powerful hind limbs, and a short, blunt snout. Adult males are slightly larger than females, ranging in size from 3.4 to 4.7 inches in length, excluding tail. Females are 3.4 to 4.4 inches long. Males weigh 1.3 to 1.5 ounces, females 0.8 to 1.2.	Endangered
Northwestern Pond Turtle <i>Actinemys marmorata</i>	Species proposed for official listing as threatened. No critical habitat has been designated for this species.	Proposed Threatened
<b>Amphibians</b>		
California Tiger Salamander <i>Ambystoma californiense</i>	It is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults males are about 8 inches long, females a little less than 7. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. The salamander's small eyes protrude from their heads, and they have black irises.	Threatened
<b>Insects</b>		

Monarch Butterfly <i>Danaus plexippus</i>	Adult monarch butterflies are large, conspicuous butterflies with bright orange wings surrounded by a black border and covered with black veins. They lay their eggs on their obligate milkweed host plant during the breeding season, and larvae emerge after two to five days. Larvae develop through five larval instars, feeding on milkweed and sequestering toxic chemicals as a defense against predators. They pupate into a chrysalis and emerge as adult butterflies 6 to 14 days later. There are multiple generations produced during the breeding season, with most adult butterflies living approximately two to five weeks. In temperate climates, monarchs undergo long-distance migration in the fall, taking distances of over 3,000 km and lasting over two months. In early spring, surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds, starting the cycle of generational migration again.	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle is a medium sized beetle that is endemic to the Central Valley of California. The beetle is found only in association with its host plant, elderberry ( <i>Sambucus</i> spp.). Males range in length from about 2 cm, with antennae about as long as their bodies. Females are slightly broader than males and have shorter antennae. Adult males have red-orange elytra (wing covers) with four elongate spots. The red-orange fades to yellow on some museum specimens. Adult females have dark colored elytra.	Threatened

#### Crustaceans

Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	A species in danger of extinction throughout all or a significant portion of its range. No description available.	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	The vernal pool fairy shrimp is a small freshwater crustacean belonging to the ancient order of branchiopods, the Anostraca. It has stalked compound eyes and eleven pairs of phyllopod, which serve as gills. <i>Branchinecta lynchi</i> are distinguished by their medium antennae with curved rounded tips, elongated antennae used to grasp females during mating, and a short, pyriform brood pouch. The basal segment outgrowth below and posterior to the pulvillus is ridgelike, while the bulge below the middle is smaller and more moundlike. Vernal pool fairy shrimp are found in ephemeral freshwater habitats and have life histories adapted to these conditions. They can be found in small or marginal vernal pools that fill with water for just long enough for hatching, reaching sexual maturity, reproducing, and dying. The time to maturity and reproduction is temperature-dependent, with an average of 18.0 days and 39.7 days, respectively.	Threatened

#### Flowering Plants

Fleshy Owl's-clover <i>Castilleja campestris</i> ssp. <i>succulenta</i>	A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. No description available	Threatened
Hairy Orcutt Grass <i>Orcuttia pilosa</i>	A species in danger of extinction throughout all or a significant portion of its range. No description available	Endangered

#### Migratory Birds

Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i>	BCC only in particular Bird Conservation Regions (BCRs) in the continental USA. Breeding period is from April 1 to August 15.	BCC
Bullock's Oriole <i>Icterus bullockii</i>	BCC only in particular Bird Conservation Regions (BCRs) in the continental USA. Breeds Mar 21 to Jul 25.	BCC
California Gull <i>Larus californicus</i>	BCC throughout its range in the continental USA and Alaska. Breeds Mar 1 to Jul 31.	BCC
Common Yellowthroat <i>Geothlypis trichas sinuosa</i>	Adult males are bright yellow below, with a sharp black face mask and olive upperparts; a thin whitish line sets off the black mask from the head and neck. Immature males show traces of the full mask of adult males. Females are a	BCC

	plain olive brown, usually with yellow brightening the throat and under the tail; they lack the black mask.	
Lawrence's Goldfinch <i>Carduelis lawrencei</i>	The Lawrence's Goldfinch is a small songbird with a gray back and sides, yellow patch on the chest, yellow wingbars and a dusky or black face. Adult males have a black face, gray nape and mantle, black wings with broad yellow bars, yellow edges on primary feathers and a yellow patch on the breast. Adult females are gray overall and have subtle yellow wing bars, edges of primary feathers, and breast patch. Juveniles are similar to adult females, but have even less yellow, and sometimes appear all brownish gray.	BCC
Nuttall's Woodpecker <i>Picoides nuttallii</i>	Small black-and-white woodpecker. Head with black ear-coverts and malar stripe, which both connect with black nape. Upperparts, including wings and tail black with white barring; underparts white with some black spots and barring on sides, flanks, and under tail-coverts. Sexes alike, except male has forehead black becoming streaked with white on center of crown and entirely red on rear crown and upper nape, while female has these areas entirely black with some white streaking. Juveniles resemble adults but have slightly more grayish to buffy underparts, whiter upperparts, and, unlike adults, both sexes show red in crown (usually a small patch in center of crown in males, while females have fewer and more scattered, red-tipped feathers).	BCC
Tricolored Blackbird <i>Agelaius tricolor</i>	The Tricolored Blackbird is a medium-sized (18-24cm total length), sexually dimorphic North American passerine. Adult males are typically larger than females, and are black with bright red and white plumage on the wing shoulder. Adult females have sooty brown-black plumage with distinct grayish streaks, a relatively white chin and throat, and a smaller reddish shoulder-patch. Banding studies indicate a lifespan of 12-13 years.	BCC
Yellow-billed Magpie <i>Pica nuttalli</i>	Yellow-billed Magpies are large black-and-white songbirds with a long dark tail as well as bright yellow around their bill and eye. Juveniles are similar to adults, but are less iridescent and have a brownish wash on their head and back.	BCC

## Cultural Resources

The County of Madera's General Plan notes that Madera County is home to over 2,000 recorded archeological sites. Most archeological survey work has been conducted in the foothills and mountains, with many in the Sierra National Forest. This results in a large number of recorded sites in the eastern county, but not in the western county, as this area has not been as thoroughly studied.<sup>44</sup>

### PREHISTORIC

Prehistoric resources, which precede written record, suggest Native Americans occupied the San Joaquin Valley around 8,000 years ago. In Madera County, evidence of the region's prehistoric past has been found at various sites, with detailed archaeological studies conducted on a site-by-site basis. In 1864, the remains of a prehistoric animal were discovered along the Fresno River,<sup>45</sup> above what is now Hidden Dam/Hensley Lake, which is approximately 13 miles northeast of the MTSP Plan Area. In addition, in 1993, 2,000 bone parts from nearly a dozen species, including Columbian mammoths, were discovered near Fairmead, Madera County, during excavation for a landfill expansion<sup>46</sup>. Estimates suggest the artifacts may be 500,000 years old. The Fairmead landfill is 13 miles northwest of the MTSP Plan Area.

<sup>44</sup> <https://online.encodeplus.com/regs/maderacounty-ca-gp/doc-viewer.aspx#secid-454>

<sup>45</sup> <https://www.maderacounty.com/home/showpublisheddocument/2852/636480653566630000>

<sup>46</sup> <https://www.maderacounty.com/home/showpublisheddocument/2852/636480653566630000>

## NATIVE AMERICANS

The Native American groups inhabiting the San Joaquin Valley during ethnographic times were known collectively as the Yokuts. There were over 40 Yokuts tribes which, for the purposes of description have been divided into three geographical categories: the Northern Valley, Southern Valley, and the Foothill Yokuts. The Northern Valley Yokuts inhabited areas of Madera County along the San Joaquin River and its tributaries from the valley floor up to about 3,000 feet.<sup>47</sup>

## HISTORIC SITES AND BUILDINGS

The National Register of Historic Places and California State Historical Landmark list a total of five historic resources within Madera County including Wassama Roundhouse State Historic Park, Buck Camp Patrol Cabin, Devils Postpile Cabin Site, Devils Postpile National Monument Ranger Cabin, and Madera County Courthouse.<sup>48,49</sup> However, none of these sites are within or near the MTSP Plan Area that activities occurring within the plan area would cause a direct or indirect significant impact to these resources.

## POTENTIALLY SIGNIFICANT SITES

The Madera County General Plan notes 55 other sites of potential historic significance. Of these sites there are two sites located near the MTSP Plan Area - Borden Town, (Old Alabama Settlement), Central Pacific RR Building, and old Borden Hotel site and the Historic Chinese Cemetery.<sup>50</sup> The Borden Town is located in the intersection at Highway 99 at Avenue 12½, which borders the southwest portion of the MTSP Plan Area. The Historic Chinese Cemetery is located in the intersection of Avenue 12 and Road 28½, which is less than a mile southwest of the MTSP Plan Area.

# Air Quality

## REGIONAL

The MTSP Plan Area is situated in the San Joaquin Valley Air Basin (SJVAB), the second largest air basin in California. The basin is 250 miles long and 35 miles wide, bordered by the Sierra Nevada Mountains, Coast Ranges, Tehachapi Mountains, and Sacramento Valley. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction over the entire SJVAB, including cities like Chowchilla, Stockton, Modesto, Merced, Madera, Fresno, Hanford, Visalia, and Bakersfield. The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute them. Natural factors affecting transport and dilution include terrain, wind, atmospheric stability, and sunlight. The SJVAB is part of a Mediterranean Climate Zone, with sparse rainfall in winter and high temperatures often exceeding 100 degrees in Fahrenheit. Winds typically blow from the northwest, resulting in periods of stagnation and pollutant trapping in the valley.<sup>51</sup>

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<sup>47</sup> <https://www.maderacounty.com/home/showpublisheddocument/2852/636480653566630000>

<sup>48</sup> <https://www.nps.gov/subjects/nationalregister/database-research.htm#table>

<sup>49</sup> [https://ohp.parks.ca.gov/?page\\_id=21428](https://ohp.parks.ca.gov/?page_id=21428)

<sup>50</sup> <https://online.encodeplus.com/regs/maderacounty-ca-gp/doc-viewer.aspx?secid=459#secid-459>

<sup>51</sup> <https://www.maderacounty.com/government/community-economic-development-department/divisions/planning-division/planning-forms-and-documents/-folder-3418>



## LOCAL AIR QUALITY

The SJVAPCD currently operates thirty-six air monitoring stations throughout the SJVAB.<sup>52</sup> The closest monitoring station to the MTSP Plan Area is the Madera-Pump Yard located at Rd. 29 ½ No. of Avenue 8 less than a mile west of the MTSP Plan Area. This station only monitors for Ozone and Nitrogen Dioxide. The only other station in Madera County is the Madera-28261 Avenue 14 Station located at 28261 Avenue 14, a mile north of the MTSP Plan Area. This Station monitors for Ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. Carbon Monoxide and Sulfur Dioxide are not monitored in the SJVAB.<sup>53</sup>

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<sup>52</sup> <https://ww2.arb.ca.gov/applications/air-monitoring-sites-interactive-map>

<sup>53</sup> \\Pw102\mend\_\MADE-01.0\02\_BackgroundData\Outside Document Library\EIRs (others)\Castellina Specific Plan (in process)

# Affordable Housing Policy Review

To accommodate the development of multifamily affordable housing in a transit-oriented area, this section summarizes findings from existing policies and makes recommendations for removal of barriers to housing development, including potential changes to zoning and other existing processes.

## Existing Policy

### EXISTING MADERA COUNTY HOUSING ELEMENT (ADOPTED NOVEMBER 3, 2015)

The 2016-2024 Housing Element is a required Element of the County’s General Plan. State Housing Element law mandates that Madera County update its Housing Element every eight years. The law requires the State Department of Housing and Community Development (HCD) to administer the law by reviewing housing elements for compliance with State law and by reporting its written findings to the local governing body.

- The County Housing Element identifies many parcels within the 1995 Specific Plan area as being able to accommodate the County’s share of the RHNA for higher density lower-income households. For the 2016-2024 Housing Element, Madera County relied on the default density standard of 20 units per acre to demonstrate it has adequate sites to accommodate the lower-income share of the RHNA. All sites were inventoried based on allowed densities. For these sites/projects, if the maximum allowed density was equal to or exceeded the default density standard of 20 units per acre, the site was inventoried as feasible for lower-income. This includes sites designated High Density Residential, Mixed Use Core, and Professional Office. Sites designated Medium Density Residential with an allowed density of 5-12 units per acre were inventoried as feasible for moderate-income units. The Medium Density Residential designation provides for single family detached and attached homes, duplexes, triplexes, fourplexes, garden apartments, and group quarters. All other designations, which allow low-density, single family development, were inventoried as feasible for above moderate-income units.
- The 1995 Specific Plan allows approximately 24 percent of land designated professional office to include residential uses at 12-25 units per acres. These parcels are anticipated to result in 263 higher-density units and were inventoried as lower-income units.

2016-2024 Housing Element Capacity 1995 Madera State Center Community College Specific Plan				
General Plan Designation	General Plan Allowed Density (units/acre)	Acres	Expected Units <sup>1</sup>	Income Category
Very Low Density Residential	2	249.0	295	Above Moderate
Low Density Residential	1 - 7.5	680.8	3,103	Above Moderate
Medium Density Residential	5 - 12	113.0	646	Moderate
High Density Residential	12 - 25	13.5	193	Lower
Professional Office <sup>2</sup>	12 - 25	18.5	263	Lower
<b>Total</b>		<b>1,134</b>	<b>4,500</b>	

<sup>1</sup>Expected Units are based on target density dwelling unit projections in the 1995 Specific Plan area.

<sup>2</sup>The SCCSP allows 18.5 of the 77.5 acres of Professional Office designation to be developed as high density residential.

*Source: Madera State Center Community College Specific Plan, 1995.*

- Note that the 1995 Specific Plan is no longer listed as part of the County’s Draft Sites Inventory for the 2024-2032 Housing Element. The northwest corner of the extent of the 1995 Specific Plan was annexed into the City of Madera since the current county Housing Element was adopted. The County has not yet released a public draft of the 2024-2032 Housing Element.
- The County’s goals and policies as they relate to housing are as follows:

***Goal HE-1: New construction to encourage new residential development in suitable locations that meet the projected needs of all economic segments of the community.***

*Policy 1.2 The County shall minimize governmental constraints to the development, improvement, and maintenance of the housing stock.*

*Policy 1.3 The County shall strive to address the need for community services (sewer and water) to support development of new housing.*

*Policy 1.4 The County shall encourage and facilitate the development of second units in appropriate locations to increase the availability of affordable housing.*

*Policy 1.5 As a part of the Community Plan Updates, the County shall work with the Community Plan Update Committees to encourage a diversity of housing types that meet all income levels.*

- ***Goal HE-2: Encourage and maintain affordable housing to encourage and maintain housing affordability in Madera County for all income groups.***

*Policy 2.1 The County shall encourage the provision of units available for sale or rent to lower- and moderate-income households.*

## EXISTING CITY OF MADERA HOUSING ELEMENT (ADOPTED DECEMBER 5, 2015)

As with the County Housing Element, the City of Madera’s 2016-2024 Housing Element is a required Element of the City’s General Plan. The City also has not yet released a public draft of their updated 6<sup>th</sup> cycle Housing Element. Under California law, the Housing Element must include the community’s goals, policies, housing programs, and quantified objectives for the maintenance, improvement, and development of housing. The 2016-2024 Housing Element includes eight goal statements. Under each goal statement, the Element sets out policies that amplify the goal statement. Implementation programs (i.e., action items) are listed at the end of the corresponding policy or group of policies and describe briefly the proposed action, the City agencies or departments with primary responsibility for carrying out the program, and the time frame for accomplishing the program.

Key policies and programs that relate to the MTSP area are as follows:

- ***Policy H-1.1 The City shall ensure continued availability of suitable sites for construction of a variety of housing.***
  - *Action Item H-1.1.2 The City shall provide incentives and technical assistance through the processing of subdivision or larger sites located in Specific Plans and Special Planning Areas to facilitate development of a variety of housing types and developments affordable to lower-income households. The City will offer the following incentives for the development of affordable housing, including but not limited to:*

- *priority processing for subdivision maps that include affordable housing units;*
  - *expedited review for the subdivision of larger sites into buildable lots where the development application can be found consistent with the General Plan, applicable Specific Plan and master environmental impact report;*
  - *financial assistance (based on availability of Federal, State, local foundations, and private housing funds); and*
  - *modification of development requirements, such as reduced parking standards for seniors, assisted care, and special needs housing on a case-by-case basis.*
- ***Policy H-1.3 Where appropriate, the City shall encourage developers/builders to develop their projects at the maximum density allowed under the General Plan land use designations and zoning provisions.***
    - *Action Item H-1.3.1 As part of a comprehensive Zoning Ordinance update, the City shall review and potentially amend the Zoning Ordinance to include minimum densities in the medium and high-density zones unless there are issues of site constraints or the affordability of the units would be compromised.*
  - ***Policy H-5.3 The City shall improve the jobs/housing balance through the development of housing in proximity to jobs and both in proximity to public transportation. The City shall increase the supply of affordable housing and support efforts to match job income and housing affordability levels.***
  - ***Policy H-5.4 The City shall promote residential development patterns that protect and improve air quality through alternative modes of transportation. More detailed information on mobility, livability and transit support is available in the City's updated Land Use and Circulation Elements.***
  - ***Policy H-5.5 The City shall enhance community livability by encouraging residential project sites to be designed to increase the convenience, safety, and comfort of people using public transportation, walking, or cycling; and by coordinating with transit providers to ensure that transit routes are in proximity to high density housing sites.***

## TRANSIT-ORIENTED DEVELOPMENT (TOD) BEST PRACTICES

Transit-oriented development (TOD) principles will be important for guiding the growth and development of the MTSP area to ensure a compact, pedestrian-oriented community that capitalizes on a range of mobility options – pedestrians, bicycles, transit and vehicles. A land use system that groups daily needs, including housing, jobs, and commercial and service needs close together can allow for a mobility system that is more efficient than one that relies on the single-occupancy vehicle. Below are several best practices for land use and development that are effective for facilitating multiple modes of travel, such as walking, bicycling, or taking public transit.

- Proximity between land uses that meet daily needs is an important part of providing connectivity between these uses. Strategic land use planning helps to ensure that people can reach all of their daily needs, including housing and employment.
- Providing a variety of housing types and densities helps support alternative transportation strategies and commercial uses. Higher-density housing, especially when paired with resources and amenities, can help address disparities in access to opportunities. Higher-density housing may also provide lower-cost housing units in higher-opportunity, well-resourced areas where lower-

density housing is typically prevalent. Building higher density housing may also reduce overall development costs.

- While increasing availability of high-density housing is an important aspect of increasing housing access and mobility, there is also a vastly underutilized category of residential density referred to as missing middle housing. Missing middle housing is generally considered to be between 8 and 16 units per acre, and can include duplexes, triplexes, small apartment complexes, and accessory dwelling units.
- Mixed-use areas, with relatively dense residential uses and concentrated commercial needs like grocery stores and medical offices, can serve as transit hubs for the community. Mixed-use development provides opportunities for multiple land use types to be in proximity to one another, such as housing, education, employment centers, commercial uses, parks and open space, public facilities, and public transit. The availability of necessary resources in proximity to new development may enhance public transportation connectivity and help alleviate disparities in residents' access to opportunities.
- The Accessory Dwelling Unit (ADU) is an innovative housing type which allows homeowners to add additional units on their property, introducing financial benefits and/or to providing more housing space for families. The financial benefits of an ADU for a homeowner includes potentially increasing property values and making extra income if the property owner decides to rent the ADU. ADU development also facilitates aging in place for seniors. ADUs facilitate integration through the expansion of smaller-scale housing types that can be located in resource rich areas, creating more relatively affordable housing options in these areas without requiring more high-cost land.

## Barriers to Development

PlaceWorks reviewed existing policies and regulations for barriers to development, including infrastructure, existing uses, and growth boundaries. Below summarizes high-level findings on challenges to development:

- A major constraint to the development of new housing units is a lack of sewer and water services. Sewer and water services in a rural area such as Madera County are very different than in an urban area. New development must often be accompanied by the development of a whole new system or major expansion of an existing system, instead of an extension of the water mains or sewer lines as in a city. The expense of providing a new system can be prohibitive unless there is a sufficient density of population to support the cost of installing a new water or sewer system.
- The MTSP Plan Area contains 192.3 acres of Prime Farmland as shown in Figure 3. Although there is already an approved specific plan for development of this area, the issues around converting this farmland to other land uses will need to be carefully considered.
- The MTSP Plan Area includes approximately 1,971 acres in the City of Madera's Sphere of Influence. The City of Madera could potentially annex some or all of this land; however, the City would need to go through a formal annexation process with the Madera County Local Agency Formation Commission. It is the policy of the City of Madera that any lands in the Planning Area outside of the City which are proposed to be converted from agricultural use should be annexed to the City before development. The City encourages the County to assist in the implementation of this policy by taking the following actions:
  - Discouraging the subdivision of unincorporated land within the Planning Area to parcel sizes less than 20 acres.

- Directing all new urban development within the Growth Boundary (development that would typically be expected to connect to community sewer and water systems) to annex into the City and by supporting annexation applications at the Local Agency Formation Commission. (Policy LU-17)

In addition, all proposals to annex property into the City limits for the purpose of new development shall prepare a Public Facilities Financing Plan (PFFP) that articulates infrastructure and public facilities requirements, their costs, financing mechanisms, and the feasibility of the financial burden. (Policy LU-14) The City shall also only support the annexation of property to its boundaries for the purpose of new development only when it determines that the following conditions exist:

- 1) Sufficient public infrastructure, facilities, and services are available or will be provided in conjunction with new development; and
  - 2) Demands on public infrastructure, facilities and services created by the new development will not result in reductions in capacity that is necessary to serve the existing city limits (including demand created by potential infill development), reductions in existing service levels within the city limits, or the creation of detrimental fiscal impacts on the City. (Policy LU-13)
- The MTSP Plan Area includes approximately 2,120 acres within the City of Madera’s Urban Growth Boundary. At present, it is the City’s policy to direct all future growth in Madera and in the unincorporated area outside the city limits to occur inside the Growth Boundary. In addition, the City will only plan and install infrastructure to serve the area inside the Growth Boundary. The expansion of urban services (specifically including residential sewer service) outside this boundary shall not be permitted unless the City Council finds that:
    - 1) The extension is needed to address a clear public health or safety need; and
    - 2) The infrastructure provided is sized to the minimum level necessary in order to reduce any excess capacity that could be used to support additional growth outside the boundary. (Policy LU-12)

## **Recommended Policy Changes and Areas to Examine Further**

Recommendations for land use and facilitating housing development in the MTSP Plan Area are summarized below:

- At present, the 1995 Specific Plan’s maximum permitted density is 25 dwelling units per acre. To best utilize the land around the Madera Transit Station, higher-density housing should be considered to provide lower-cost housing units in a high-opportunity, well-resourced area. New land use/zoning categories should be considered for those neighborhoods within 0.5-mile of the Madera Transit Station.
- At present, there are no land use designations within the 1995 Specific Plan that provide for a wide mix of uses. The two highest land use designations for residential (High Density Residential and Professional Office) allow for residences and offices to mix, with very few opportunities for other commercial enterprises, such as personal service establishments, retail, restaurants, and grocery stores to mix. A new mixed-use designation should be considered. Policy 4.1 should be revised to encourage a ‘mix’ of uses, rather than a ‘hierarchy’ of uses.

- At present, the 1995 Specific Plan envisions two transit stations, one at the western boundary near SR-99, the other toward the eastern boundary, near where the planned Madera Transit Station will be located. The 1995 plan envisions development to be centered around both stations, with multimodal circulation connecting both ends of the plan. If the western station is still being considered, the land uses and zoning for properties along SR-99 should allow potential siting of housing as well as commercial uses, to create two mixed use transit hubs in the Plan Area.

# High-Speed Case Studies

This section contains several case studies of existing high-speed rail (HSR) station plans and developments in greenfield or exurban contexts. The purpose of these case studies is to serve as precedents that can inform land use, transportation, and future development of the MTSP.

High-speed rail is still being developed in California and in the United States overall. The California High-Speed Rail Authority is the agency leading development efforts in the state with construction commencing recently. Although there are not any precedents of built stations in the western United States, there are examples and plans for high-speed rail in the eastern U.S. with Amtrak's *Acela* train service and the Brightline service in Florida. There is also a wealth of examples internationally that offer insight into land use and transportation planning. With the anticipation of HSR arriving to the San Joaquins Station Area, PlaceWorks has reviewed several examples of recent planning for development around rural or greenfield stations to serve as a guide for how to approach concepts for the MTSP.

The case studies contained in this report have been selected through a high-level review based on their similarity to the conditions of the MTSP area, with the potential for deeper analysis and study during concept development. Four case studies have been summarized below.



# Amtrak Northeast Corridor Route 128/University Park Station

Location: Westwood, Massachusetts



Aerial view of Westwood Station (source: Google Maps, 2023)

Amtrak is currently updating its Northeast Corridor line to accommodate high-speed rail capacity. The Route 128/University Park Station is one of the stations located in Westwood, MA along the line between Washington, DC and Boston, MA. This station shares similar characteristics to the MTSP Plan Area with the station located at one end of a mixed-use and industrial growth area on the eastern side of the town. The station was built in 1958 and last rebuilt between 1998 to 2000, originally serving a primarily industrial area. Development follows a linear pattern south from the station with University Avenue as the primary spine that connects the area. The area has been steadily transitioning to become a mixed-use residential, retail, office, and industrial area. In 2015, two developments came online: the Gables University Station mixed-use residential-retail development southwest of the station, introducing 350 residential units; and the Bridges by Epoch assisted living residence with 64 units. At least two new multifamily developments are currently being built with the likelihood of more in the future. Additionally, a Marriott Courtyard hotel and a Brigham and Women's Health Center are near the station. Existing industrial uses furthest south remain in the southern part of the area.

The station is primarily accessed through a large parking structure. There are few other options for entering and connecting to the station.

The developmental trajectory of the Route 128/University Station area from a former industrial area to a livable, mixed-use place can offer valuable lessons for the MTSP. While this station is well accessed from the nearby highway, its connection to the nearby town center could be stronger. The area has seen mostly auto-oriented development while pedestrian connections to the station are lacking. Mixed-use development is located closer to the station and industrial uses are located further away, indicating prioritization of the station for commuter use yet still accommodating business and economic activity.

## Lancaster Train Station Small Area Plan

Location: Lancaster, PA



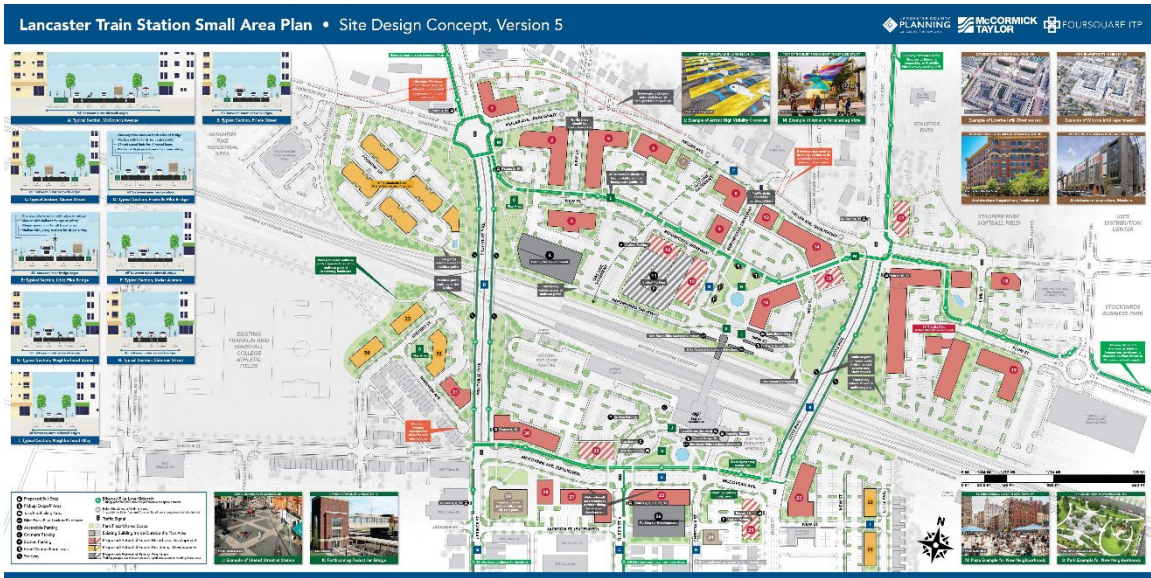
The Keystone Corridor is the Amtrak rail corridor between Philadelphia and Pittsburgh in Pennsylvania and is formally recognized by the Federal Railroad Administration as a “designated high-speed corridor.”<sup>54</sup> Lancaster Station is along this line and in May 2023, Lancaster County adopted the Lancaster Train Station Small Area Plan for the lands surrounding this station. The area is north of downtown Lancaster and straddles both the City of Lancaster and Manheim Township. The lands surrounding the station include large vacant or greenfield lots, parking lots, industrial or former industrial properties, and car dealerships. Further south is urban land and high density residential. The Small Area Plan was created to address anticipated growth from several large proposed commercial and residential developments, seeking to transform the station area into a mobility hub that incorporates TOD planning principles.

Key features of the plan include a bicycle loop that connects over the railroad and circulates between the proposed developments north and south of the station. Bicycle parking and facilities are immediately available at the station entrances. Directly in front of each station entrance is a plaza that would accommodate outdoor dining and food trucks. Parking consists of a parking structure on each side with

<sup>54</sup> [https://en.wikipedia.org/wiki/High-speed\\_rail\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/High-speed_rail_in_the_United_States)

surface parking offset from the east and west sides of the plaza. Developments in the first phase would include a series of 4- to 5-story mixed-use buildings closest to the station with some 3-story residential along the periphery of the area. Figure 13 from the Small Area Plan illustrates the Site Design Concept for the station area.

Figure 13: Lancaster Train Station Small Area Plan Site Design Concept

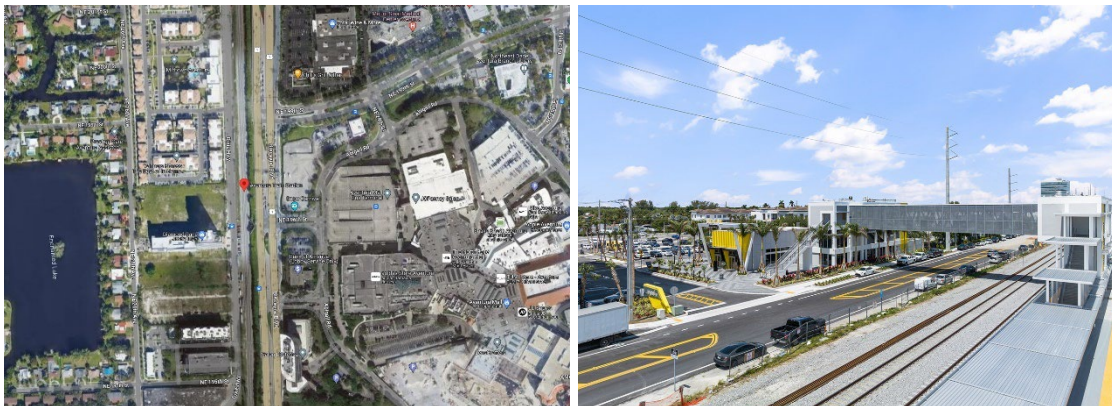


Source: Lancaster County, PA

The Lancaster Station Area Plan demonstrates how a station area could benefit from a detailed land use plan. Its bicycle loop is an innovative idea to promote multimodal connectivity. The plan also promotes higher densities near to the station with lower densities farther away. The station also makes a point to face two directions with a plaza on each side, doubling the potential for development.

## Brightline Aventura Station

Location: Aventura, Florida



Aerial and rendering showing Aventura Station (source: Lemartec)

Brightline is a privately-owned and operated high-speed railroad based in Florida that runs between Miami and Orlando with four station stops in between. Brightline is one of the few operating HSR lines in the United States. Although most of the stations are in an urban setting, Aventura Station, which is two stops away from the Miami station, potentially offers insight as a case study for the MTSP. Located at the western edge of the city along Biscayne Boulevard, a primary business and commercial corridor, the station straddles a low-density residential neighborhood to the west and the large Aventura shopping mall to its east. With several large vacant and underutilized parcels adjacent to the station, its location potentially serves a driver of growth and future development, while simultaneously creating an opportunity to connect the west and east which is currently divided by the rail line and Biscayne Boulevard. A key proposal following construction of the station is a proposed office tower that will contain approximately 240,000 square feet of office space and 20,000 square feet of ground-floor retail that would connect directly to the station.<sup>55</sup> As the area around the station transforms, it will offer insight into how land use and transportation planning could improve connectivity across and along the corridor.

Although the Brightline Aventura Station is not a greenfield development scenario, it potentially provides insight into how a station could bridge a commercial-rail corridor that currently divides two areas of the city. Though no formal plan has been developed by Brightline or the City that proposes connectivity concepts around the station, it is a potential catalyst that could lead to further development and change. In the case of Aventura Station, it was located directly adjacent to an existing shopping mall and surrounded by underutilized and vacant land, with one of the parcels already proposed for development into a multi-story office tower. This indicates the importance of the station for employment and commerce in the city.

## Montabaur Station

Location: Montabaur, Germany



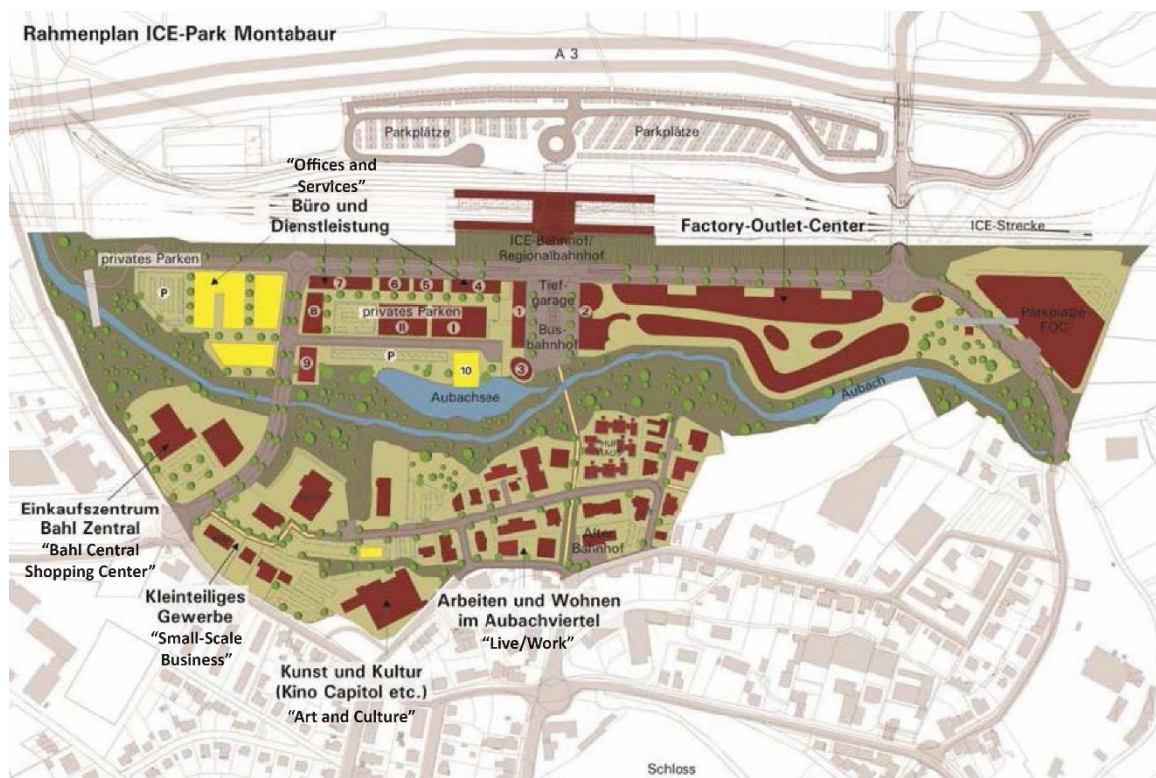
Aerial view of Montabaur Station (source: Google Maps, 2023)

<sup>55</sup> <https://www.turnberry.com/in-development/two-turnberry/>

Montabaur Station was featured in the 2021 San Francisco Bay Area Planning and Urban Research Association (SPUR) talk *How Can High-Speed Rail Benefit Small- and Mid-Sized Cities* where Heidi Sokolowsky highlighted it as a station that transformed the small city of Montabaur, which lies between Frankfurt and Cologne. Regionally, the station was strategic in connecting Montabaur to Frankfurt, which is a major employment center. Within the city itself, the station was carefully located in a greenfield area at the edge of the city between a freeway and the city's historic core, a deliberate location to create the opportunity for growth and future development along a planned pedestrian street that would connect these two points. After the station was built, Montabaur became a more desirable place to live and visit.<sup>56</sup>

A key similarity between the Montabaur station area and the MTSP Plan Area is the presence of a waterway that bisects the area. As seen in Figure 14 of the Montabaur Framework Plan, the Aubach (river) creates two areas. The north area which includes the station is planned for office, service, and industrial uses. South of the Aubach would be retail, arts and cultural district, and live/work. A pedestrian bridge would connect these two areas, along with two vehicular bridges on the east and west sides. From this, we can read that this framework plan fulfils the intent of creating connection between the historic core and highway by placing a community district with retail and arts closer to the city core, and locating industrial and employment uses directly adjacent to the station for economic development and logistical purposes.

Figure 14: Montabaur Station Framework Plan



Source: SPUR 2021, Heidi Sokolowsky

<sup>56</sup> <https://cal.streetsblog.org/2021/07/06/spur-talk-bullet-trains-and-small-cities>



*Aerial imagery showing before and after the Montabaur Station development (source: SPUR 2021, Heidi Sokolowksy)*

The Montabaur Station case study offers perhaps relevant insights into the land use and transportation concepts for the MTSP Area given its original context and presence of a river. The development and planning of this station provides potential lessons for how development of the MTSP Plan Area could meaningfully connect the City of Madera to the Station Relocation Area. Cottonwood Creek is an important natural feature that presents opportunities for how this connection is created, recognized in the 1995 Specific Plan as a natural divider that creates two districts. In addition to ideas for circulation, the Montabaur Station Framework Plan shows us an approach for land uses that draw from and connect to the city core and highway. Treating the MTSP Plan Area as an area that could meaningfully bridge two destinations could be an important starting point for developing concepts.

# Technical Memorandum

February 21, 2024

Project# 286990

To: Cliff Lau, Associate II  
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2040 Bancroft Way #400  
Berkeley, CA 94704

From: Allison Woodworth, RSP<sub>1</sub>, Bincy Koshy, Allison Woodworth

RE: Madera Transit Station Specific Plan (MTSP) - Transportation Existing Conditions

## INTRODUCTION

The Madera Transit Station Specific Plan (MTSP) envisions improved access to passenger rail service within Madera County and the San Joaquin Valley region as well as transit-oriented development in the vicinity of the future Madera high-speed rail (HSR) station and along Avenue 12 corridor in southeastern Madera County through the development of the MTSP. The MTSP will help guide the design of development and land-use in the vicinity of the relocated station area being planned by the California HSR Authority as well as enable Madera County to promote economic development and enhance multimodal access connections between the station, the City of Madera, Madera Community College, and other surrounding communities throughout Madera County and northern Fresno County.

The main objective of the MTSP is centered on the relocated San Joaquin station and future Madera HSR station in the vicinity of the intersection of Avenue 12 and the BNSF Stockton Subdivision in southeastern Madera County. The MTSP will further complement the County's General Plan, the State Rail Plan, and other transportation and land use planning efforts. Implementation of the MTSP will encourage transit-oriented and sustainable development in the specific plan area, reduction of Greenhouse gases (GHG) emission and vehicle miles traveled (VMT) in Madera County, and increased use of the investment made in HSR passenger services in the San Joaquin Valley.

This Transportation Existing Conditions Technical Memorandum provides an overview of baseline transportation conditions in the study area. This includes:

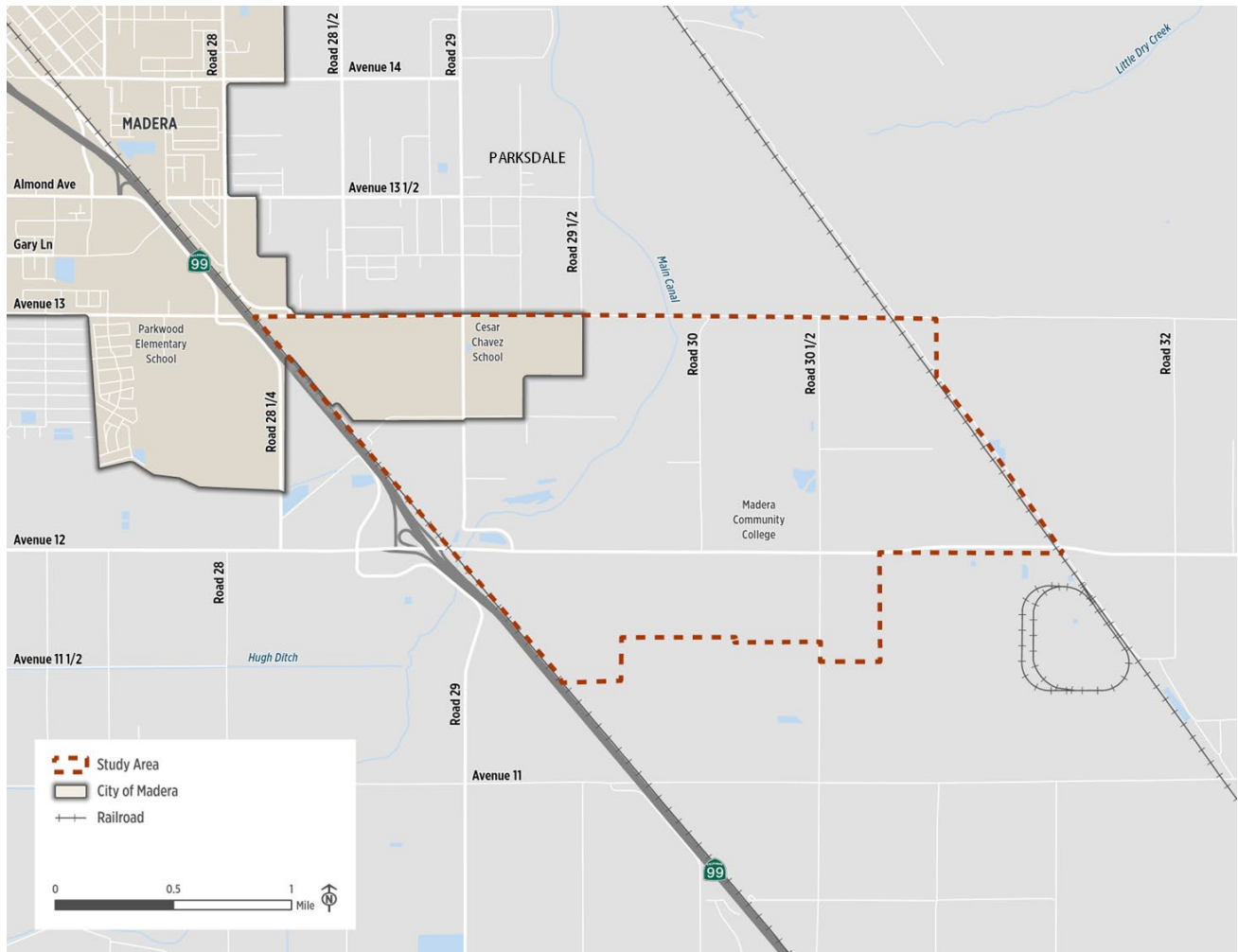
- Existing transportation infrastructure
  - **Street network** including street functional classifications.
  - **Pedestrian facilities** including sidewalks, crosswalks, existing pedestrian circulation patterns, pedestrian activity areas and destinations, barriers and constraints, and gaps in the sidewalk network.
  - **Bike facilities** including bikeways, existing bike circulation patterns, potential biking destinations, planned improvements, barriers and constraints, and gaps in the bike network.
  - **Transit service** including existing transit service providers, hours of operation, access to transit stops and stations, and future expected HSR service frequency.
  - **Motor vehicles** operation including existing circulation conditions, daily traffic volumes, along roadways, and potential connectors to destinations.
  - **Crash history** review of the latest five years of crash data for the study area and identification of potential opportunities for safety improvements and other safety trends.
  - **Travel patterns** including origin and destination patterns, mode split, and key activity areas in the study area.

- **Network barriers** including barriers to general overall circulation of vehicles, pedestrian, and bicyclists.
- **Parking** including review of existing and planned parking estimates per review of the related plans.

## Study Area

Madera County is located in the heart of the Central Valley. State Route 99 runs through the center of the county and the San Joaquin River separates Fresno County and Madera County. The specific plan study area is bounded by Avenue 13 corridor to the north, local roads to the south, SR-99 to the west, and Sante Fe Drive/Santa Fe railroad to the east. Madera Community College is located along Avenue 12 corridor to the south and Cesar Chavez School is located along Avenue 13 corridor to the north within the study area. Closer to the northeastern quadrant of SR-99/Avenue 12 corridor, there exists some local services pertaining to farming and roadway construction. The remaining areas within the study area are primarily agricultural land uses. Figure 1 shows the study area.

Figure 1: Study Area



Source: Kittelson, 2023.



## EXISTING TRANSPORTATION INFRASTRUCTURE

This section provides an overview of the study area infrastructure and facilities.

### Street Network

The street network within the study area is defined by four functional classifications per the Madera County General Plan<sup>1</sup> (updated in 2021) namely, freeways, arterials, collectors, and local roads. The major roadways include:

- **State Road (SR) 99** is a four-lane freeway through Madera County that is considered as one of the most important corridors to the economic livelihood of the San Joaquin Valley. It serves as the main corridor for transporting agriculture products and other commercial goods. SR-99 is a north-south freeway extending from Sacramento in the north to the south beyond Bakersfield where it links to Interstate 5. SR-99 runs through the cities of Madera and Chowchilla and the unincorporated community of Fairmead. SR-99 has a posted speed limit of 70 mph through the study area and a posted speed limit of 65 mph north of the study area. The nearest interchange is at Avenue 12.
- **Avenue 12** is an arterial roadway of regional significance<sup>1</sup> and traverses primarily agricultural land uses. It is an east-west two-lane roadway extending from Road 16 in the west to SR 41 in the east. At the SR-99 interchange, Avenue 12 widens to a four to six lane roadway with left-turn lanes before transitioning back to a two-lane roadway with raised landscaped medians and left-turn pockets closer to Madera Community College. The roadway continues as a four-lane roadway closer to the Santa Fe railroad tracks and then transitions back to a two-lane roadway further east. The posted speed limit is 45. There are Class III bike routes signed along Avenue 12 corridor on both sides from SR-99 to SR 41. There are sidewalks along Avenue 12 corridor on the north side by the college frontage roadway section. Marked crosswalks and sidewalks exist along all directions at the signalized intersection of Golden State Boulevard/Avenue 12. Marked crosswalks and sidewalks also exist at the southbound and northbound on-ramp and off-ramp terminal intersections with SR-99.

Other local roadways within the study area include Avenue 13 to the north, and Road 29 traversing north-south through study area:

- **Avenue 13** is a two-lane roadway with no paved shoulder on either side of the roadway within and around the study area. The posted speed limit varies from 25 mph (in the school zone) to 35 mph for different sections of the roadway.
- **Road 29** is a two-lane roadway with unpaved three- to five-foot shoulders on either side of the roadway within and near the study area. The posted speed limit varies from 20 mph to 25 mph within the study area and 45 mph just north of the study area.

### Pedestrian Facilities

Sidewalks are minimal within the study area, not well connected and are inconsistently provided with large gaps between sidewalk segments within the study area. Crosswalks are sparingly present within the study area and other pedestrian facilities such as lighting etc. are mostly absent. Roadway shoulders may be used as pedestrian facilities. Shoulders along SR-99 and Avenue 12 are six to eight feet wide and paved. Most of the other roadways such as Avenue 13, Pecan Lane, and Road 30 ½ do not have shoulders. Existing pedestrian facilities are described in more detail below.

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<sup>1</sup> [Madera County, CA General Plan \(encodeplus.com\)](https://www.encodeplus.com)

Figure 2 illustrates the pedestrian facilities in the study area. Sidewalks are present along Avenue 12 corridor on the north side of Madera Community College and at four signalized intersections: Road 29/Avenue 12, SR-99 Northbound on-ramp/Northbound off-ramp/Avenue 12, Southbound on-ramp/Southbound off-ramp/Avenue 12, Golden State Boulevard/Green Court/Avenue 12. Sidewalks are also present at the southeastern quadrant of Road 29/Avenue 13 where Cesar Chavez middle school is located. Marked crosswalks exist at all crossings at the signalized intersection of Golden State Boulevard/Avenue 12 and Road 29/Avenue 13. Marked crosswalks also exist at the southbound and northbound on-ramp and off-ramp at the interchange with SR-99. There are connected pedestrian paths within Madera Community College.

**Figure 2: Existing Pedestrian Facilities**



Source: Kittelson, 2023.

Potential walking destinations in the study area include educational institutions, namely Madera Community College and Cesar Chavez elementary school and residential areas (Parksdale) to the north of the study area. As shown, multiple barriers and gaps exist in the pedestrian network. Sidewalks and crosswalks are only present around the school and college within the campuses with no broader connections between land uses within and outside the study area.

## Bike Facilities

Within the study area, there are minimal designated bicycle facilities including bikeways or bike parking. Many of the roadways have no shoulder or very narrow shoulders (less than two feet). Bikeway facilities are described per the Highway Design Manual (Chapter 1000: Bikeway Planning and Design) and California Assembly Bill 1193 which mentions four classifications of bikeways<sup>2</sup> and approved by the California Department of Transportation (Caltrans). The four bikeway classes are:

- **Class I Bikeway (Bike Path):** Also known as a shared path or multi-use path, a bike path is a paved right-of-way for bicycle travel that is completely separate from any street or highway.
- **Class II Bikeway (Bike Lane):** A striped and stenciled lane for one-way bicycle travel on a street or highway. This facility could include a buffered space between the bike lane and vehicle lane and the bike lane could be adjacent to on-street parking.
- **Class III Bikeway (Bike Route):** A signed route along a street where the bicyclist shares the right-of-way with motor vehicles. This facility can also be designated using a shared-lane marking (sharrow).
- **Class IV Bikeway (Separated Bikeway):** A bikeway for the exclusive use of bicycles including a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Figure 3 illustrates the existing bike facilities in the study area and Figure 4 illustrates the existing and proposed bike facilities in the region. There are Class III bike routes present along Avenue 12 corridor within the study area extending from SR-99 to SR 41. To the east, the Class III bike routes along Avenue 12 also connect with Class II bike lanes along Road 36 on both sides serving to connect to Libert High School located in the northwestern quadrant of Road 36/Avenue 12, Ranchos Middle School located in the southeastern quadrant of Road 35 ½/Avenue 12 ½, and the community of Madera Ranchos to the east of the intersection. The bike routes also connect to State Foods Supermarket and other services and residential areas along Avenue 12 located further east in Madera Ranchos.

Per the Madera County Active Transportation Plan<sup>3</sup>, proposed bike enhancements near the study area include:

- Avenue 12 ½ (Ruth Ave) from Road 35 ½ to Road 36: Currently Class II.A<sup>4</sup> bike lanes exist. The improvement to the facility includes upgrading to Class II.B<sup>5</sup> buffered bike lanes.
- Road 36 from Avenue 12 to Avenue 12 ½: Currently Class II.A bike lanes exist. The improvement to the facility includes upgrading to Class II.B buffered bike lanes.
- Road 36 from Avenue 12 ½ to SR 145: Currently there are no bike facilities on site. The Active Transportation Plan recommends installing a Class I multi-use path.
- Avenue 12 from Road 36 to Road 38: Currently a Class III.A<sup>6</sup> bike route exists. The improvement to the facility includes upgrading to Class II.A bike lanes.

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<sup>2</sup> [Madera Active Transportation Plan \(maderactc.org\)](http://maderactc.org)

<sup>3</sup> [Madera Active Transportation Plan \(maderactc.org\)](http://maderactc.org)

<sup>4</sup> Class II.A bike lanes provide designated street space for bicyclists adjacent to the outer travel lane

<sup>5</sup> Class II.B bike lanes are enhanced with painted buffers between vehicle lanes and parking

<sup>6</sup> Class III.A bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and provide continuity to a bikeway network.

- Avenue 12 from SR 41 to San Joaquin River: Currently there are no bike facilities on site. The Active Transportation Plan recommends installing Class IV separated bikeway.
- SR 41 from Victory Court to SR 145: Currently there are no bike facilities on site. The Active Transportation Plan recommends installing a Class I multi-use path.
- SR 41 from SR 145 to Avenue 9: Currently there are no bike facilities on site. The Active Transportation Plan recommends installing a Class I multi-use path.

These planned bikeway improvements will help to connect various unincorporated communities such as Madera Ranchos, Oakhurst, Rolling Hills, educational institutes etc. Many local streets may have lower vehicle volumes and could be comfortable for bicyclists with lower levels of bicycle traffic stress, hence providing opportunities for connections within and around the study area.

**Figure 3: Existing Bike Facilities**

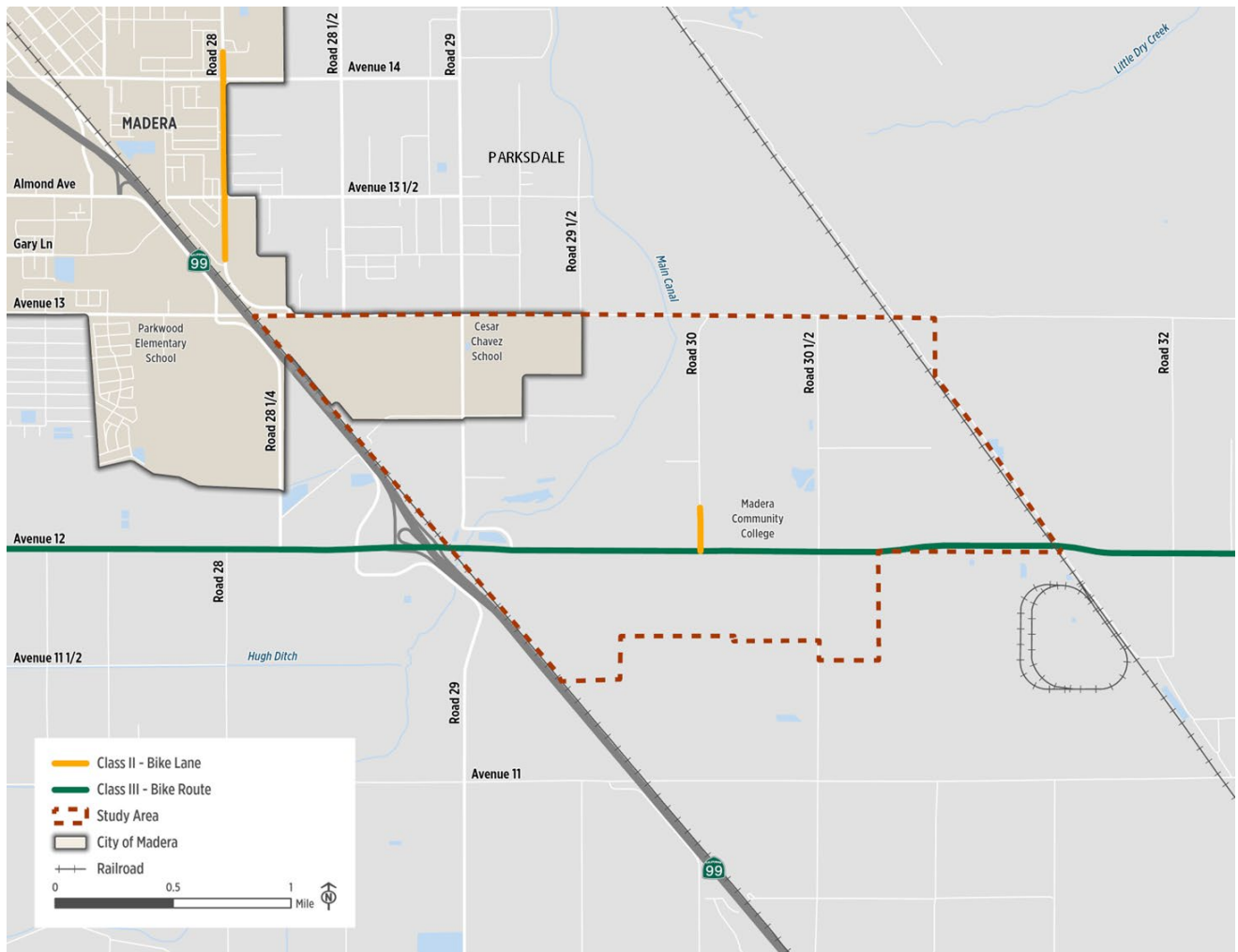
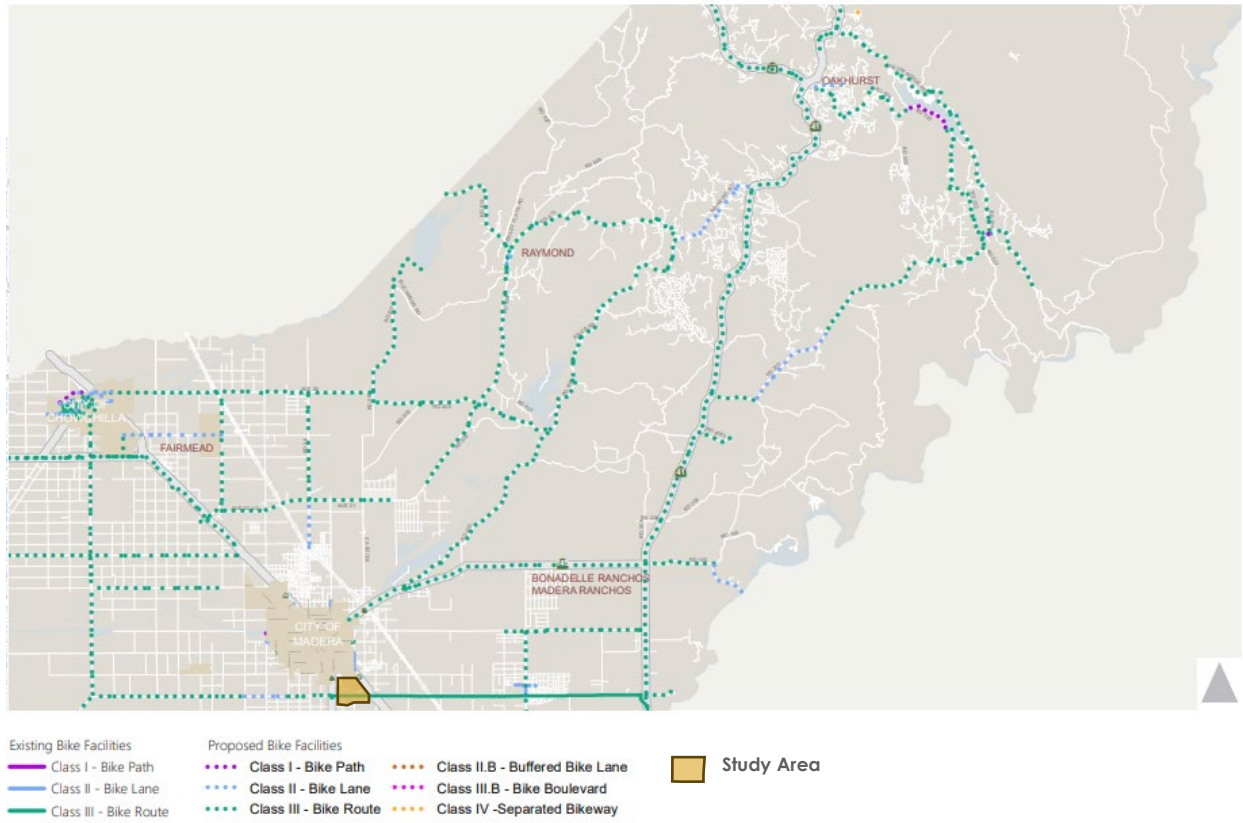


Figure 4: Existing and Proposed Bike Facilities in the Region

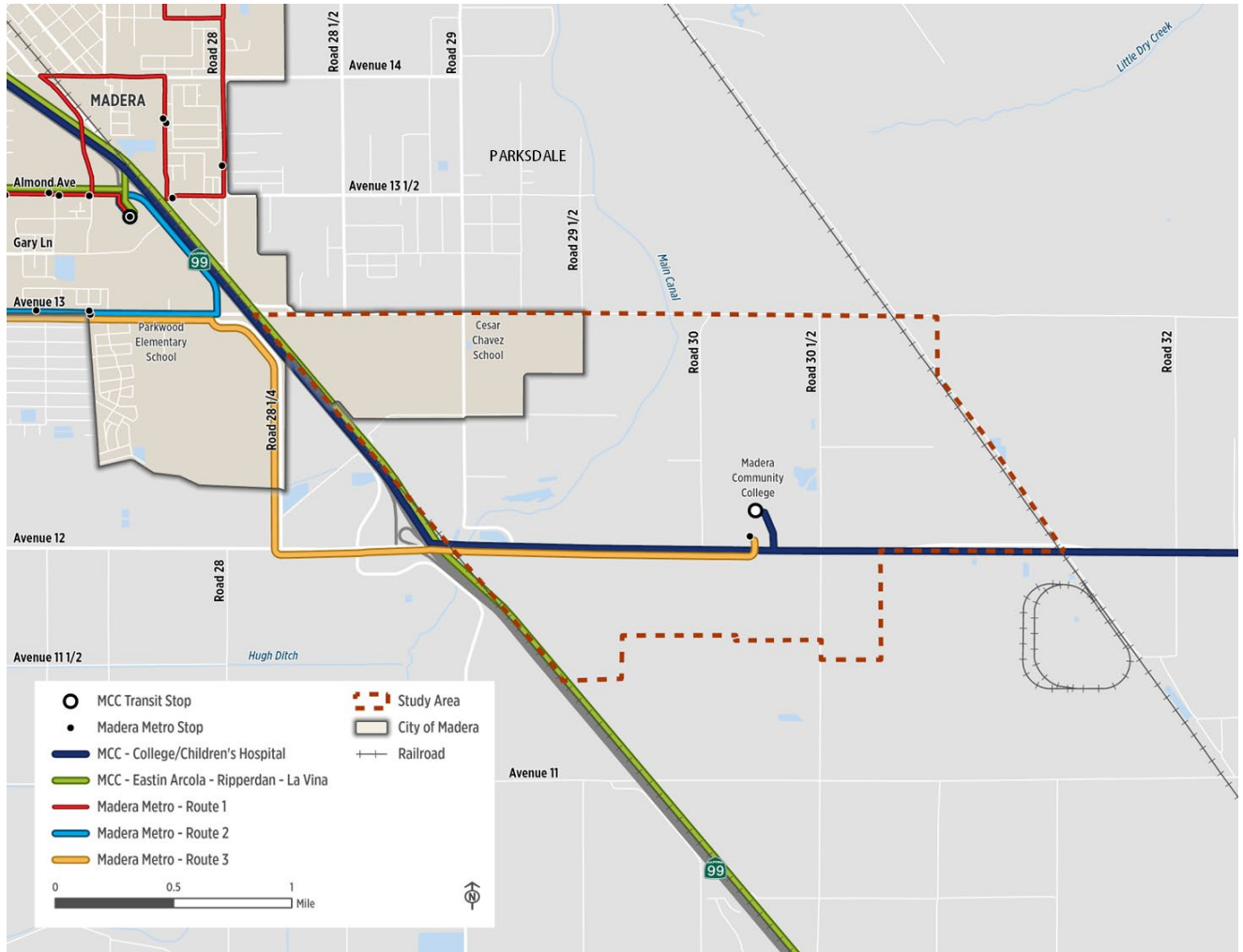


Source: Figure 14, Madera Active Transportation Plan, 2018

## Transit

Madera Metro and Madera County Connection provide fixed-route transit services each serving only one destination – Madera Community College – within the direct study area (Figure 5).

Figure 5: Transit Service within and around Study Area



Source: MCTC Short Range Transit Plan

## Madera Metro

Madera Metro provides fixed route, Dial-A-Ride, and Paratransit services within the study area.

### Fixed Route

Route 3, a free, fixed route<sup>7</sup> bus operates along Avenue 12 within the study area and terminates at Madera Community College, the only bus stop within the study area. This weekday-only service runs from 7:15AM to 6:13PM on one hour headways.

<sup>7</sup> Madera Metro's fixed route system went fare-free since April 2020 as a result of COVID-19

The fixed-route system transported over 55,700 riders in FY20/21.<sup>8</sup>

The Madera City Council adopted a resolution approving a new fixed-route service network at their April 19, 2023 meeting.<sup>9</sup> The new network will add a fourth route and re-aligns existing routes to provide streamlined service. Route 3 (re-named the Green Line) will extend its alignment along Avenue 12 within the study area to connect communities in the southeast to Madera Community College.

#### **Dial-A-Ride (DAR) and Paratransit (ADAP)**

Curb-to-curb, demand response service within the study area is available through Madera Dial-A-Ride (DAR). Passengers under the age of 18, over the age of 59, college students with university ID, and veterans may access DAR for free. There is a \$3 fare for the general public. The service operates 7AM-6:30PM, Saturdays 9AM-4PM, and Sundays 8:30AM-2:30PM and it transported 4,300 riders in FY20/21.<sup>10</sup>

The City of Madera Transit Services provides paratransit within the study area for \$3 a trip. To qualify for this curb-to-curb service passengers must be over the age of 59, veterans, or ADA eligible.

### **Madera County Connection**

The Madera County Connection (MCC), operated by Madera County Public Works, provides intercity commuter fixed-route connections within the county.

The eastern Madera County weekday only route provides service within the study area along Avenue 12 and connects downtown Madera to Madera Community College and Children's Hospital. The route provides five runs a day between 7:40AM and 4:30 PM with a final stop in downtown Madera at 5:42 PM.<sup>11</sup> Fares are \$2 per passenger while children under the age of six ride free.

The fixed-route network served 35,150 passengers and provided 255,912 revenue miles and 9,227 revenue hours in FY22-23 (Madera CTC Unmet Transit Needs FY23-24 Report). The Unmet Needs report identified frequency, reliability, and operational issues that the Madera Transit Plan, adopted in Summer 2023, is expected to address.

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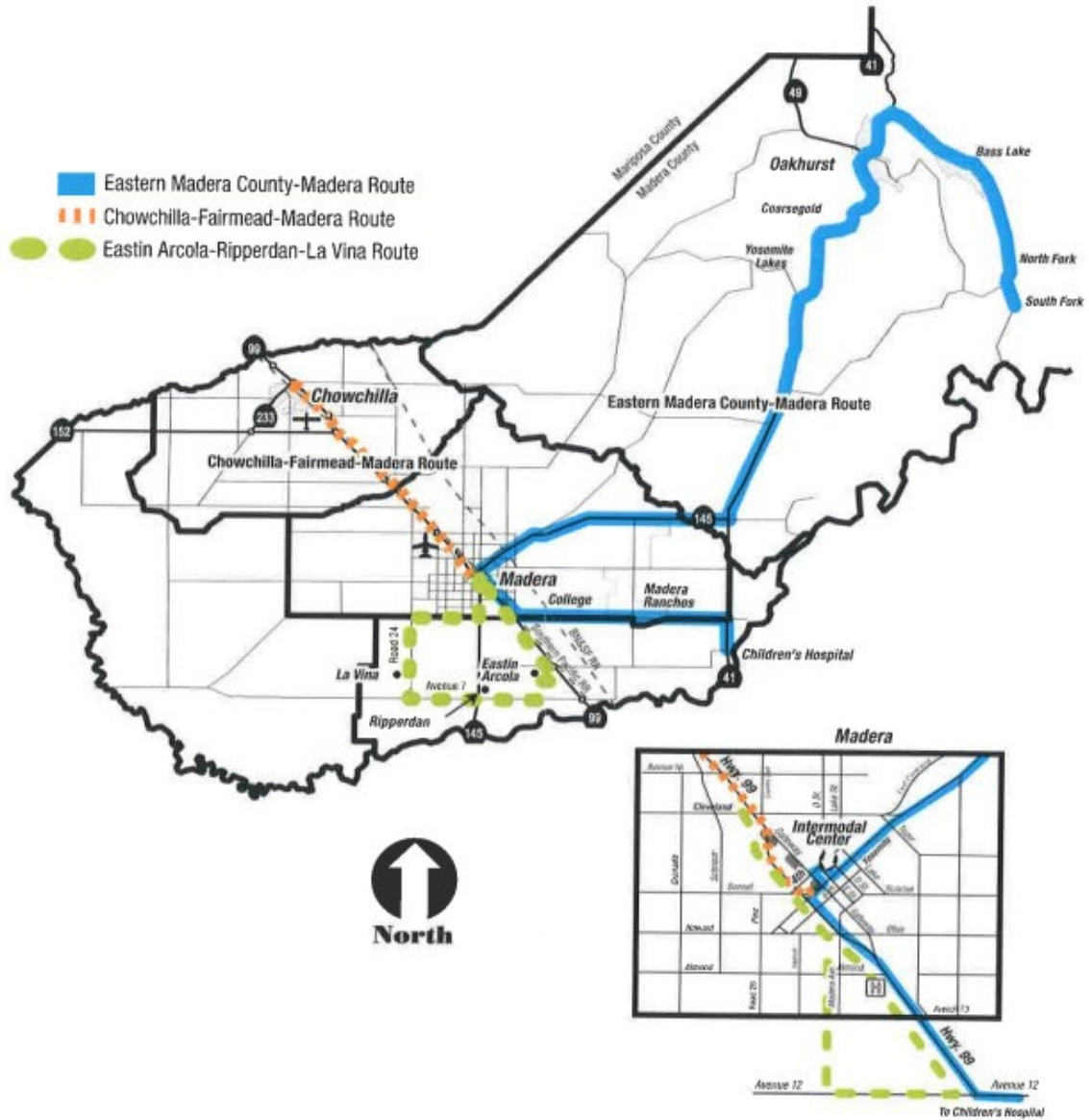
<sup>8</sup> [MCTC Short Range Transit Plan FY 2022/23 to 2026/27 \(maderactc.org\)](#)

<sup>9</sup> <https://www.madera.gov/wp-content/uploads/2023/04/D-4-04.19.23-Madera-Transit-Plan-Fixed-Routes.pdf>

<sup>10</sup> [MCTC Short Range Transit Plan FY 2022/23 to 2026/27 \(maderactc.org\)](#)

<sup>11</sup> <https://www.maderactc.org/transportation/page/madera-county-connection-mcc>

Figure 6 MCC System Map



Source: MCTC Short Range Transit Plan



## Traffic Volumes

The project team reviewed annual average daily traffic (AADT) motor vehicle volumes. AADT volumes were obtained from the 2022 traffic volumes report produced by the Madera County Transportation Commission Traffic Monitoring Program<sup>12</sup>. The report contains traffic count data within four jurisdictions namely:

- County of Madera
- City of Madera
- City of Chowchilla
- State of California (Caltrans)

Table 1 documents the AADT volumes along roadways within and near the study area.

**Table 1: AADT Volumes, 2017 – 2022**

Street Name	Location	Direction	2017	2018	2019	2020	2021	2022
Avenue 12	East of Road 29	Eastbound	6,448	-	-	-	6,537	-
		Westbound	6,632	-	-	-	6,957	-
Avenue 13	West of Road 29	Eastbound	1,869	-	-	3,936	1,803	-
		Westbound	1,945	-	-	4,183	1,763	-
Road 29	North of Avenue 12	Northbound	-	2,514	3,989	-	-	2,589
		Southbound	-	2,428	3,941	-	-	2,486
Road 36	North of Avenue 12	Northbound	-	2,856	3,373	-	-	2,356
		Southbound	-	3,214	3,881	-	-	2,388
	South of Avenue 12	Northbound	-	1,241	1,009	-	-	1,573
		Southbound	-	1,106	1,238	-	-	1,354
SR 99	Avenue 12 Interchange	Back <sup>13</sup>	80,000	81,000	81,000	72,000	78,000	-
		Ahead <sup>14</sup>	79,000	82,000	81,000	72,000	76,000	-

Source: 2022 Traffic Volume Report, Madera County Transportation Commission Traffic Monitoring Program; Caltrans Traffic Census Program 2021 AADT (SR 99)

<sup>12</sup> [MCTC Traffic Monitoring Program Draft 2022 Traffic Volumes Report \(maderactc.org\)](https://maderactc.org)

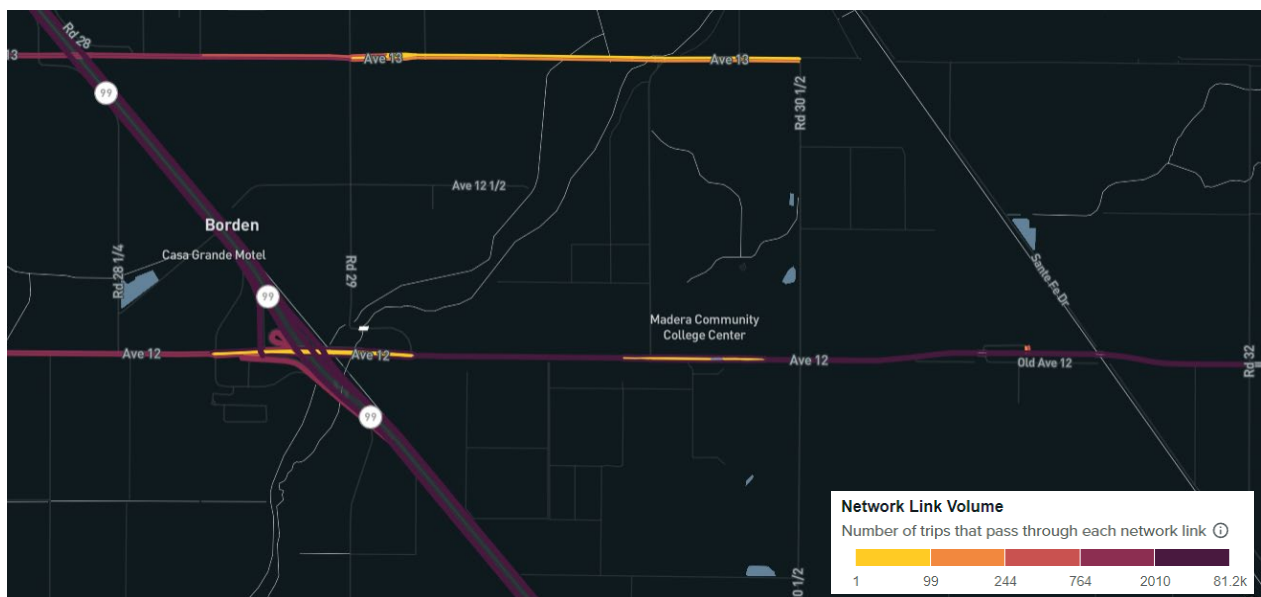
<sup>13</sup> 'Back' refers to traffic to the south/west of the location along the roadway. In this case it refers to AADT along SR 99 along the south leg of the intersection with Avenue 12

<sup>14</sup> Source: [Traffic Census Program | Caltrans](#)

The project team used **Replica**, a big data platform that visualizes mobility data to review modeled link volumes along the roadways in and around our study area. Replica incorporates anonymized data from a variety of sources like the US Census Bureau, mobile location data, land use, economic activity, and others to create a simulation of an area to model how people get around, where they are going, and when they travel.

Figure 7 illustrates the network link volumes at a high level within the study area. As shown, volumes along SR-99 and Avenue 12 corridor are higher compared to the local roadways given that these roadways are regional and local connectors. Volumes along Avenue 12 by Madera Community College are lower (less than 100 vehicles). Volumes along Avenue 13 are also lower in comparison to volumes along the roadway further west.

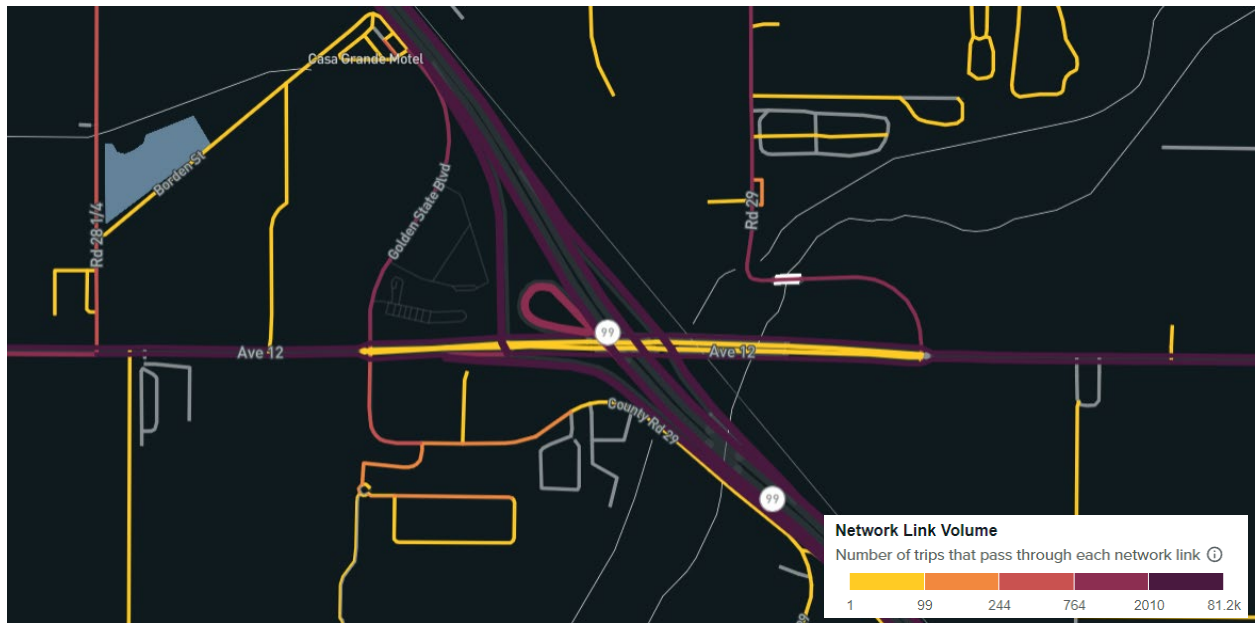
**Figure 7: Network Link Volumes within the Study Area**



Source: Replica 2022 Season

Figure 8 provides a closer look at local roadway near SR-99/Avenue 12 corridor. As shown, roadways such as Road 29 and Golden State Boulevard carry 700-2,000 vehicles daily whereas local roadways such as Borden Street carry very low traffic volumes (less than 100 vehicles) daily.

Figure 8: Network Link Volumes Along Local Roadways

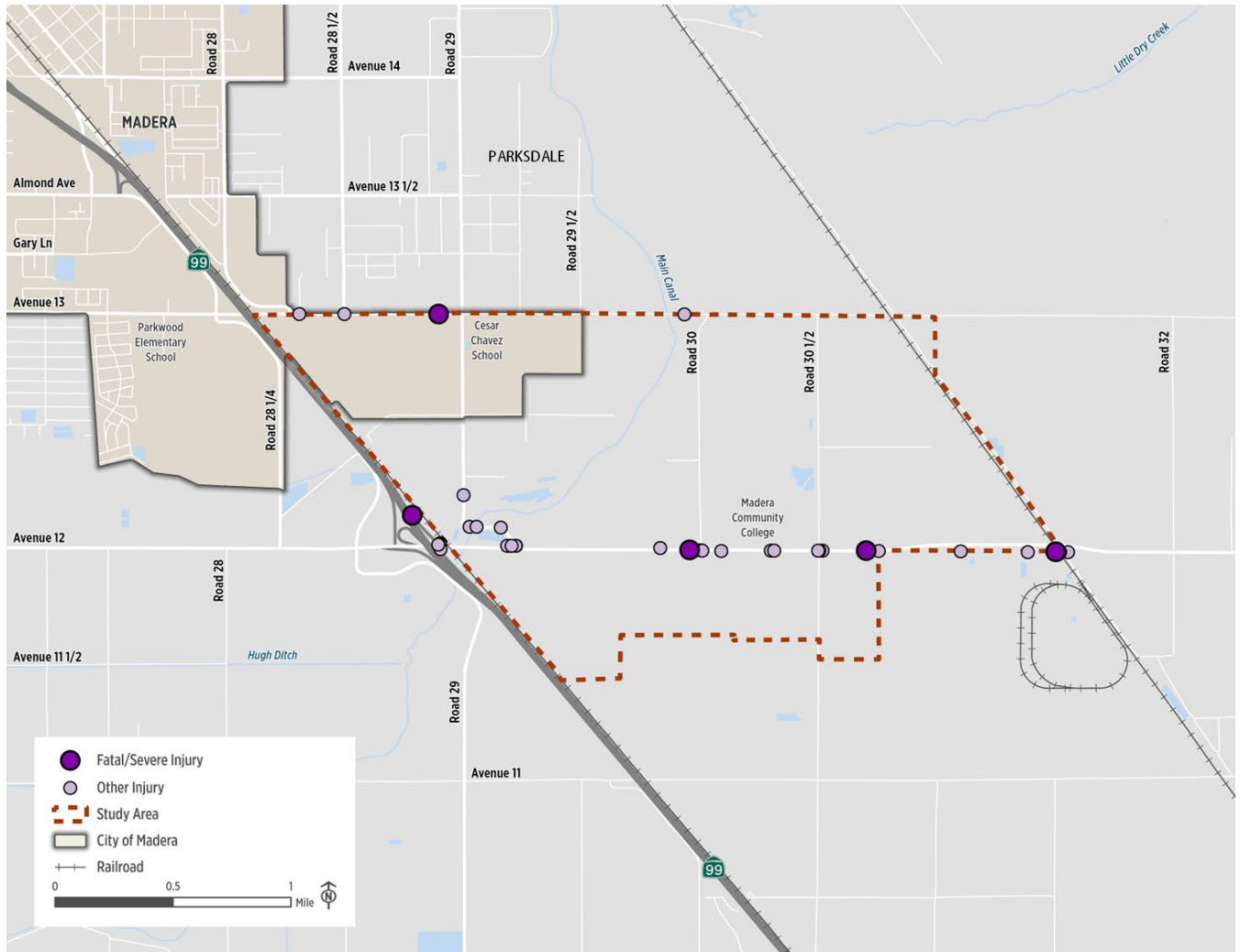


Source: Replica 2022 Season

## Crash History

The area's crash history is based on the most recent available five years of reported crash data (January 1, 2018 through December 31, 2022) obtained through the Statewide Integrated Traffic Records System (SWITRS). There were a total of 39 crashes (including five fatal or severe injury crashes) reported within the study period (Figure 9). Two of the crashes involved people walking (one fatal and one severe). There were no crashes reported involving people biking.

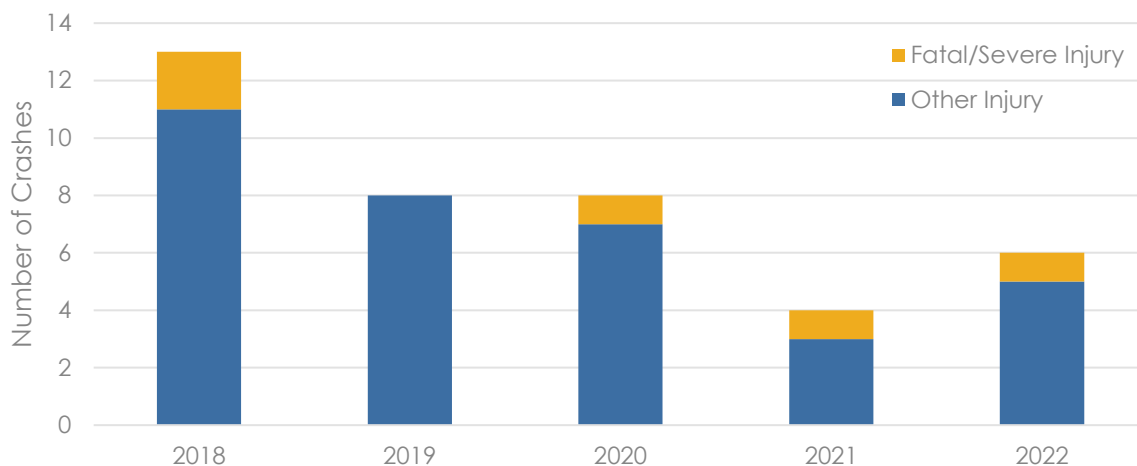
**Figure 9: Crashes (2018-2022) in Study Area by Severity**



Source: 2018-2022 SWITRS

Although it is a small sample size, there has been a general downward trend in the number of collisions within the study area. However there has been at least one fatal or severe injury in each year with the exception of 2019 (Figure 10).

**Figure 10: Crashes by Year and Severity**



Source: 2018-2022 SWITRS

### General Crash Conditions

- 15 crashes (38%) occurred in dark conditions.
- Six crashes occurred at intersections.
- Hit fixed object and rear end crashes account for nearly 60% of all crashes within the study area.
  - Seven (58%) of the hit fixed object crashes occurred during dark conditions.
  - Five of the 12 hit fixed object crashes involved drugs or alcohol.
- There was one pedestrian fatality on the Ave 12/SR-99 NB ramp shoulder and one pedestrian severe injury on Ave 13.
- Nine (23%) of reported crashes involved alcohol or drugs.

### Crash Locations

- 80% (28) of the total study area crashes occurred either on Ave 12 or at the Ave 12/SR-99 northbound ramp terminal (this was a pedestrian fatality). 9 of those crashes were attributed to unsafe speeds (none of which resulted in a fatal or severe injury).
- Three of the five fatal or severe crashes occurred on Ave 12.
- All of the crashes known to be related to alcohol, drugs, or other impairment occurred on Ave 12.
- 11 crashes occurred either on County Road 29 approaching Ave 12 or at the intersection (Figure 11). Nine crashes were attributed to unsafe speeds or improper turning. As it approaches Ave 12, County Road 29 has several curves where collisions are clustered.

**Figure 11: Crashes in Study Area by Collision Type**



Source: 2018-2022 SWITRS

## Travel Patterns

The following section describes origin and destination travel patterns, mode split, and key destinations in and around the study area. The project team used Replica, a platform that visualizes mobility data to analyze origin and destination travel behaviors in and around our study area.

### Key Activity Centers and Existing Destinations

Key (common) destinations reflect the places people tend to access daily. These include:

- Education services such as schools and colleges
- Grocery stores and shopping centers
- Health, social services, and medical centers
- Civic/government centers such as city halls and community centers

Within and around the study area, these key destinations include:

- Madera Community College

- Cesar Chavez Elementary School
- Ranchos Middle School
- Webster Elementary School
- Golden Valley Unified School
- Parkwood Elementary School
- Maywood Center
- Parkwood Village Shopping Center
- Lucky 7 Market
- State Foods Supermarket

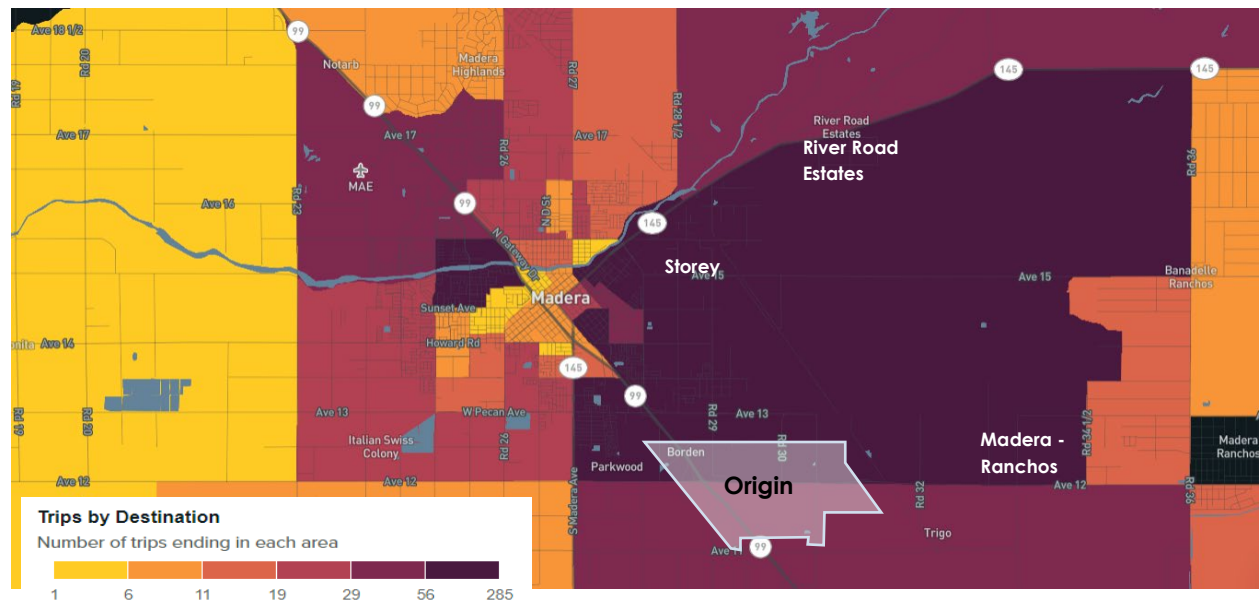
### Study Area – Origin

The following section provides details regarding travel patterns for trips where the study area is the origin.

### DESTINATION PATTERNS

Figure 12 illustrates where all trips ended (destinations), for all trips that started from the study area (origin). As shown, most trips are traveling further north to Storey, River Road Estates, and Madera Ranchos to the east, these are mostly residential and agricultural areas. Madera Community College also serves as a key destination within the study area.

**Figure 12: Destinations Around the Study Area – Study Area as Origin**

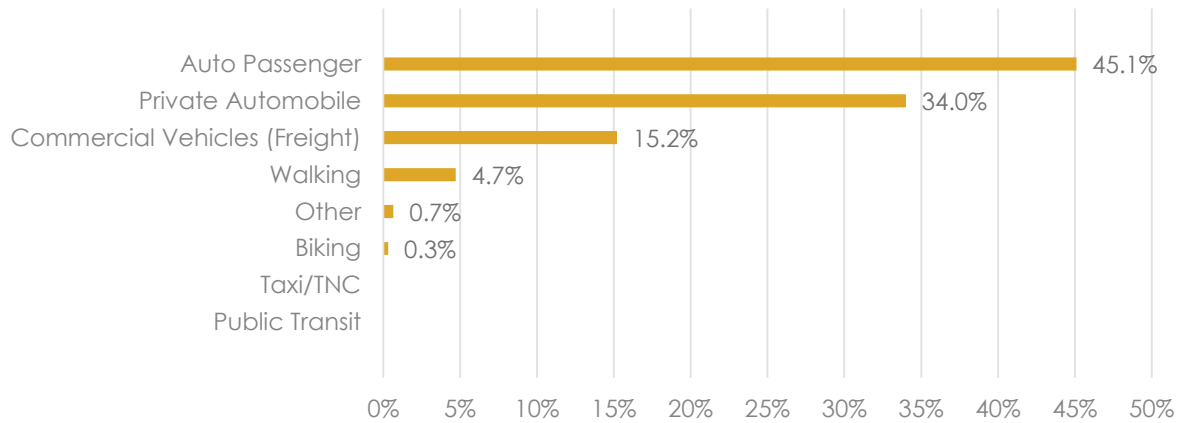


Source: Replica 2022 Season

### MODE SPLIT

Figure 13 shows the mode split for all trips starting from the study area. As shown, most trips are auto passengers or private automobile trips that comprises around 80% of the total daily trips whereas, the remaining 20% of trips comprises of majorly commercial and freight vehicles. Around 5% of people prefer to walk to their destination from the study area.

**Figure 13: Mode Split – Study Area as Origin**

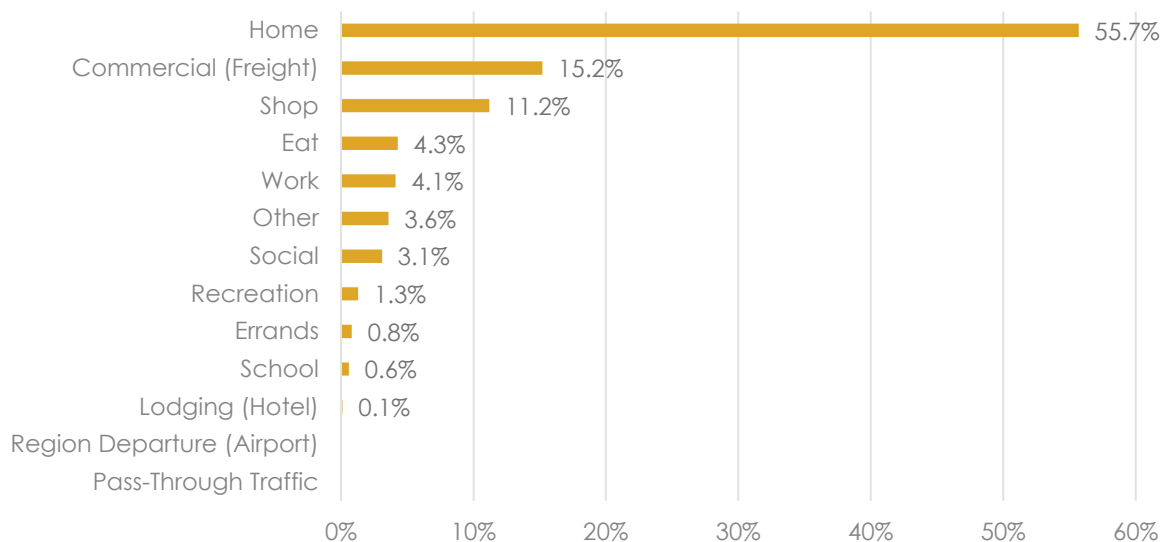


Source: Replica 2022 Season

### TRIP PURPOSE

Figure 13 shows the primary trip purposes for all trips starting from the study area (study area is the origin). As shown, around 60% of all trips are heading home to residential areas. Approximately, 15% of trips are comprised of freight vehicles and 11% of trips are heading to shopping destinations (services) further east potentially along Avenue 12 where grocery stores, restaurants, cafes, and other services are provided in Madera Ranchos.

**Figure 14: Trip Purpose – Study Area as Origin**



Source: Replica 2022 Season



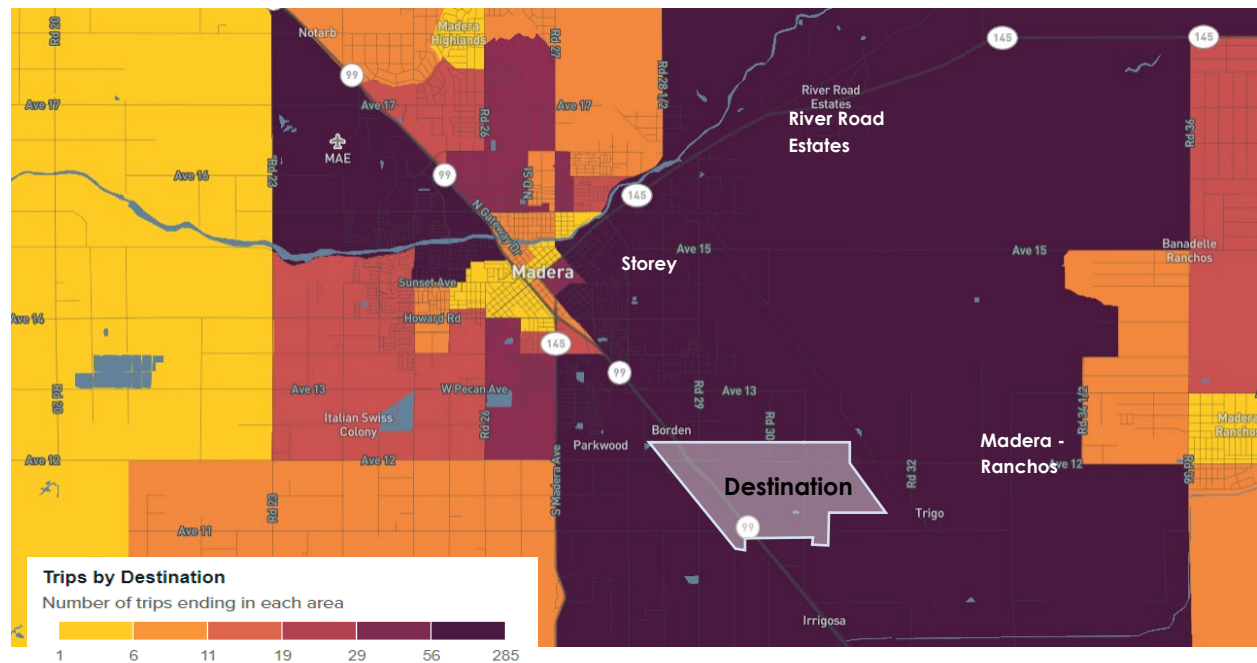
## Study Area – Destination

The following section provides details regarding travel patterns for trips where the study area is the destination.

### ORIGIN PATTERNS

Figure 15 illustrates where all trips started (origins), for all trips that ended in the study area (destination). As shown, most trips are coming from the east and north potentially from communities like Yosemite Lakes, Oakhurst, Coarsegold, Indian Lakes Estates from the far northeast (residential areas), Madera Ranchos from the east, northern parts of Madera City (residential), Storey, and River Road Estates from the north. These residential areas serve as the primary origins.

Figure 15: Origins Around the Study Area – Study Area as Destination

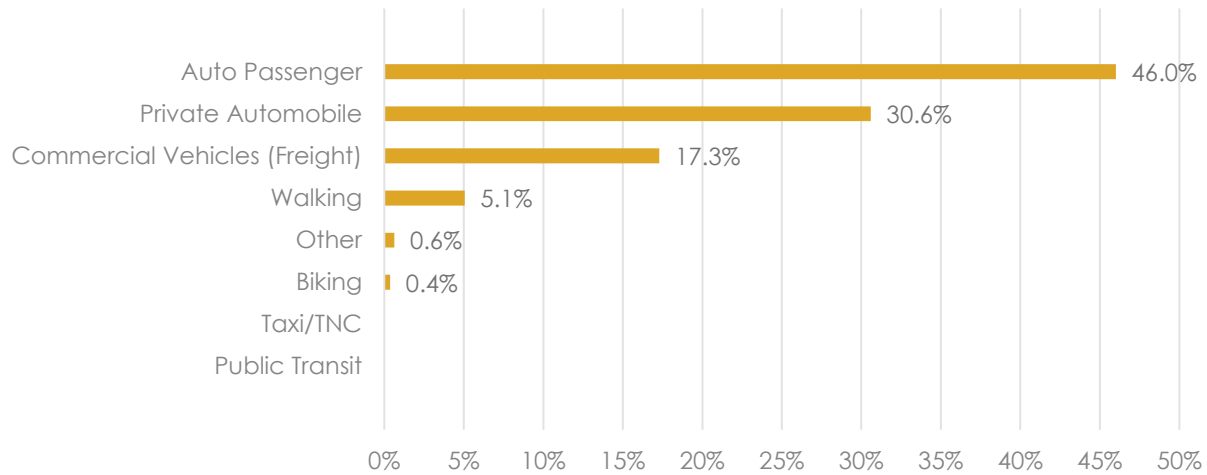


Source: Replica 2022 Season

### MODE SPLIT

Figure 16 shows the mode split for all trips starting heading to the study area (study area is the destination). As shown, most trips are auto passengers or private automobile trips that comprises around 80% of the total daily trips whereas, the remaining 20% of trips comprises of majorly commercial and freight vehicles. Around 5% of people prefer to walk to or within the study area.

**Figure 16: Mode Split - Study Area as Destination**

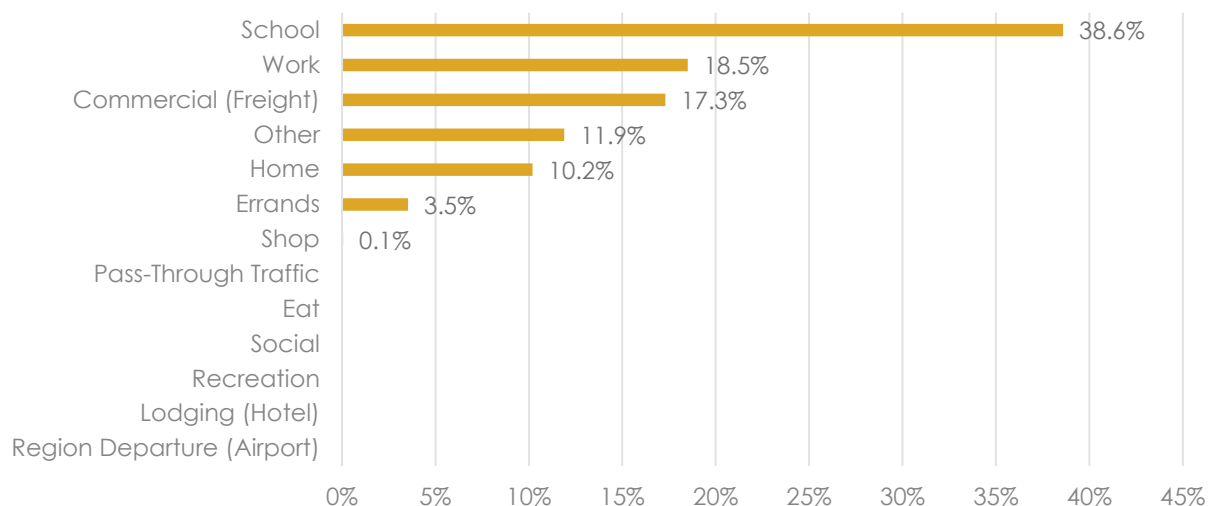


Source: Replica 2022 Season

### TRIP PURPOSE

Figure 17 shows the primary trip purposes for all trips heading to the study area (study area is the destination). As shown, around 40% of all trips travel to Madera Community College or Cezar Chavez School within the study area. Approximately, 19% of trips are comprised of trips heading to work within the study such as Smith's Wrecking and Domries Enterprises. 17% of trips comprised of commercial vehicles serving freight needs.

**Figure 17: Trip Purpose - Study Area as Destination**



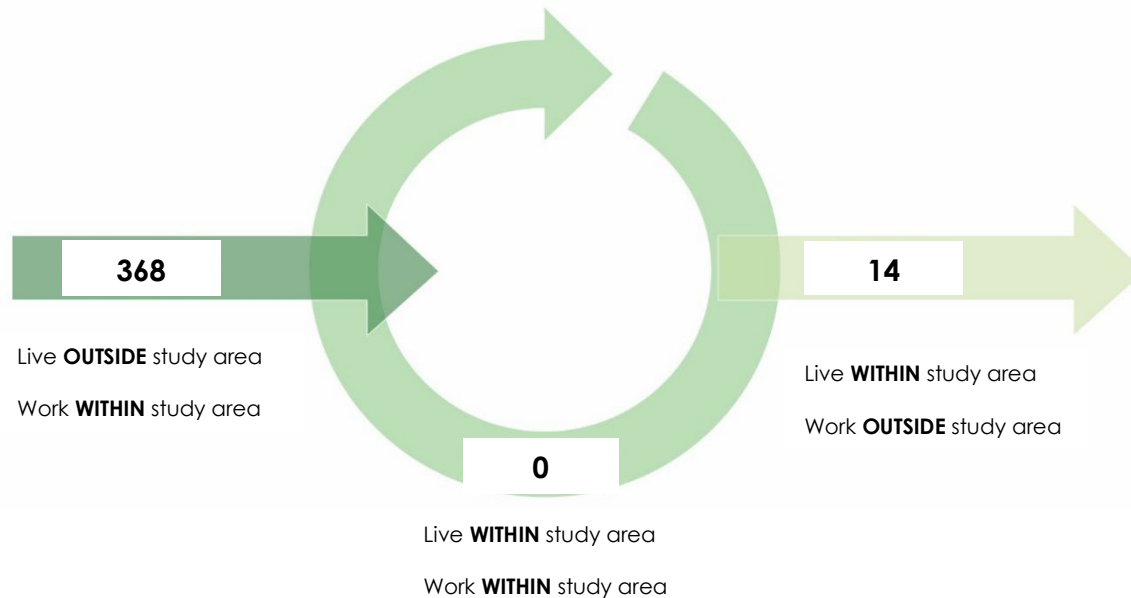
Source: Replica 2022 Season

## Jobs and Employment

Longitudinal Employer-Household Dynamics (LEHD) data is a product of the Census Bureau and provides valuable information about where workers live and work. Queries can be made for many employment variables including place of work, place of residence, work industry, and commute distance. This data set is generated based on administrative records; therefore, some work locations may be over- or underrepresented. For example, if workers in Madera have their paychecks processed in Fresno, their job site may be shown in Fresno instead of Madera if there is not a local address shown in the administrative data.

In 2021, 368 people were employed in the study area, with no one living and working in the study area. A total of 14 study area residents travel outside the service area for employment<sup>15</sup>. Figure 18 illustrates the inflow and outflow of workers into and out of the service area.

**Figure 18: Inflow and Outflow Commute Patterns, 2021**



Source: 2021 LEHD

<sup>15</sup> US Census Bureau, *LEHD On the Map, Inflow/Outflow Analysis*. Accessed online: <http://onthemap.ces.census.gov/>

## Commute Patterns

### People Living within the Study Area

Table 2 provides details on work location for study area residents. As shown, the largest share of study area residents work in the City of Fresno (43.0%).

**Table 2. Work Location for Study Area Residents (2021)**

Work Location	Number of Workers who Live in Study Area	Share
City of <b>Fresno, CA</b>	6	42.9%
<b>Campbell, CA</b>	1	7.1%
City of <b>Madera, CA</b>	1	7.1%
<b>Merced, CA</b>	1	7.1%
<b>North Auburn CDP, CA</b>	1	7.1%
<b>Sanger, CA</b>	1	7.1%
<b>Vacaville, CA</b>	1	7.1%
<b>All Other Locations</b>	2	14.3%

Source: 2021 LEHD

Table 3 shows the average commute distance of study area residents. Approximately 14.3% of study area residents commute less than 10 miles and 28.6% commute more than 50 miles.

**Table 3. Commute Distance for Study Area Residents, 2021**

Distance from Home to Work	Number of Workers	Share
<b>Less than 10 miles</b>	2	14.3%
<b>10 to 24 miles</b>	6	42.9%
<b>25 to 50 miles</b>	2	14.3%
<b>Greater than 50 miles</b>	4	28.6%

Source: 2021 LEHD

### People Working within the Study Area

Table 4 documents where those who work within the study area live. Approximately 25% of those who work within the study area live in the City of Fresno, and another 15% in the City of Madera.

**Table 4. Home Location for Study Area Workers (2021)**

Home Location	Number Working within Study Area	Share
<b>City of Fresno, CA</b>	94	25.5%
City of <b>Madera, CA</b>	56	15.2%
<b>Clovis, CA</b>	18	4.9%
<b>Bonadelle Ranchos CDP, CA</b>	13	3.5%
<b>Coarsegold CDP, CA</b>	6	1.6%
<b>Kerman, CA</b>	6	1.6%
<b>Kingsburg, CA</b>	6	1.6%
<b>Madera Ranchos CDP, CA</b>	6	1.6%
<b>Chowchilla, CA</b>	5	1.4%
<b>Madera Acres CDP, CA</b>	5	1.4%
<b>All Other Locations</b>	153	41.6%

Source: 2021 LEHD

Table 5 shows the average commute distance of study area workers. Approximately 34.2% of study area workers commute less than 10 miles and 17.7% commute more than 50 miles.

**Table 5. Commute Distance for Study Area Workers, 2021**

<b>Distance from Home to Work</b>	<b>Number of Workers</b>	<b>Share</b>
<b>Less than 10 miles</b>	126	34.2%
<b>10 to 24 miles</b>	142	38.6%
<b>25 to 50 miles</b>	35	9.5%
<b>Greater than 50 miles</b>	65	17.7%

Source: 2021 LEHD

## Network Barriers

### SR-99

SR-99 acts as a regional connector transporting automobiles connecting cities like Fairmead, Madera, Borden, Herndon, Fresno etc. along the roadway. However, there are no pedestrian or bicycle connection opportunities along the roadway due to its freeway nature. To the north of SR-99/Avenue 12, there are no crossing opportunities for pedestrians or bicyclists present across SR-99 present for 3.6 miles till the SR-99/S Madera Avenue within the City of Madera.

### Rail line

The BNSF rail line runs north-south to the east of the study area and there are no crossing opportunities across the rail line near the study area, thus serving as a barrier for general circulation and prevents pedestrian and bicycle connections further east from the study area. Avenue 12 corridor is above the rail line grade and hence serves as the only east west connection across the rail line from the study area.

# PARKING

The following section describes the existing parking policies that apply to the study area as well as the existing and planned parking inventory at major destinations.

## Existing Parking and Policies

### City of Madera General Plan (2009) Parking Policies

- Use shared parking where applicable to reduce total number of parking spaces (Policy CD-43)
- Parking shall be landscaped, including shade trees to create an attractive pedestrian environment and reduce the impact of heat islands (Policy CD-50)
- Safe and well defined pedestrian connections from buildings to parking areas...shall be provided. (Policy CD-51)
- Locate parking lots behind or on the side of buildings to reduce their visual impact (Policy CD-57)
- Parking for alternative modes of transportation, such as preferential parking for carpool/vanpool, motorcycles or alternative fuel vehicles and bicycles, should be incorporated into parking plans for all significant commercial development projects. Transit plazas may be required to be incorporated into significant projects. (Policy CD-59)
- Parking for all uses shall be provided on-site and shall not require the use of parking spaces in the right of way of a public or private street to provide required parking. Parking for non-standard uses (those requiring either more or less parking than typical uses) may be determined and imposed on a case-by-case basis. (Policy CI-25)
- Projects providing significantly more than the required amount of parking shall be allowed only when the City determines that there is a demonstrated need for additional parking. (Policy CI-26)
- The City shall support the active participation of City Council members, Planning Commissioners, city staff, and other local leaders in addressing and resolving regional issues such as traffic, housing, parking, open space, and air quality. (Policy SUS-7)
- The City shall ensure that new parks provide adequate and secure onsite and offsite parking as identified in the Parks and Recreation Master Plan. (Policy PR-20)

### County of Madera General Plan (1995) Parking Policies

- The County shall identify appropriate areas for public parking lots. (2.A.25)
- The County shall require that new non-residential development provide for off-street parking, either on-site or through contributions to consolidate lots or structures, particularly where these facilities are located in or near residential areas. (2.A.26)
- The County shall ensure that new automobile parking facilities are designed to facilitate safe and convenient pedestrian access, including clearly defined corridors and walkways connecting parking areas with buildings. (2.A.27)

### Madera County Parking Policies / Municipal Code

[Chapter 18 of the Madera County municipal code](#) delineates parking regulations that apply to land uses in the unincorporated area of the county. Relevant regulations and requirements are listed below.

- Off street parking shall be provided in commercial, industrial, institutional, and any other projects requiring parking spaces on the parcel where the use occurs.
- Parking minimums by use case are listed in Municipal Code Chapter 18 Table 18.102.040.
- Shared Parking: Requests for shared parking arrangements must follow these guidelines:

- Parking plan shall be submitted to planning department which identifies hours operation and peak hour demand for the uses proposed
- Shared parking may reduce required parking by a maximum of 20% from the total number of spaces which would be required under parking minimums
- Parking facilities designated for joint use may not be located further than 500 feet from any structure or use served
- A written agreement assuring continued availability of the parking facilities designated for joint use shall be drawn up by the applicant to the satisfaction of county counsel.
- Shared parking shall be possible for all types of uses with the exception of residential uses

## City of Madera Parking Policies / Municipal Code

Chapter 10 of the City Municipal Code delineates parking regulations that apply to land uses within the City. Parking minimums are calculated by land use and listed in section 10-3.1202.

- Parking requirements for uses not specified in the municipal code shall be determined by the Commission.
- Exemptions from parking requirements do not apply to vacant parcels or on parcels where existing buildings are demolished and a new facility is constructed.
- Required improvement and maintenance of public and private parking areas that have a capacity of five or more vehicles is defined in section 10-3.1206 and includes:
  - Surface of parking area
  - Border barricades, screening, and landscaping
  - Ingress and egress
- General regulations and conditions applicable to off-street parking facilities are outlined in section 10-3.1207.

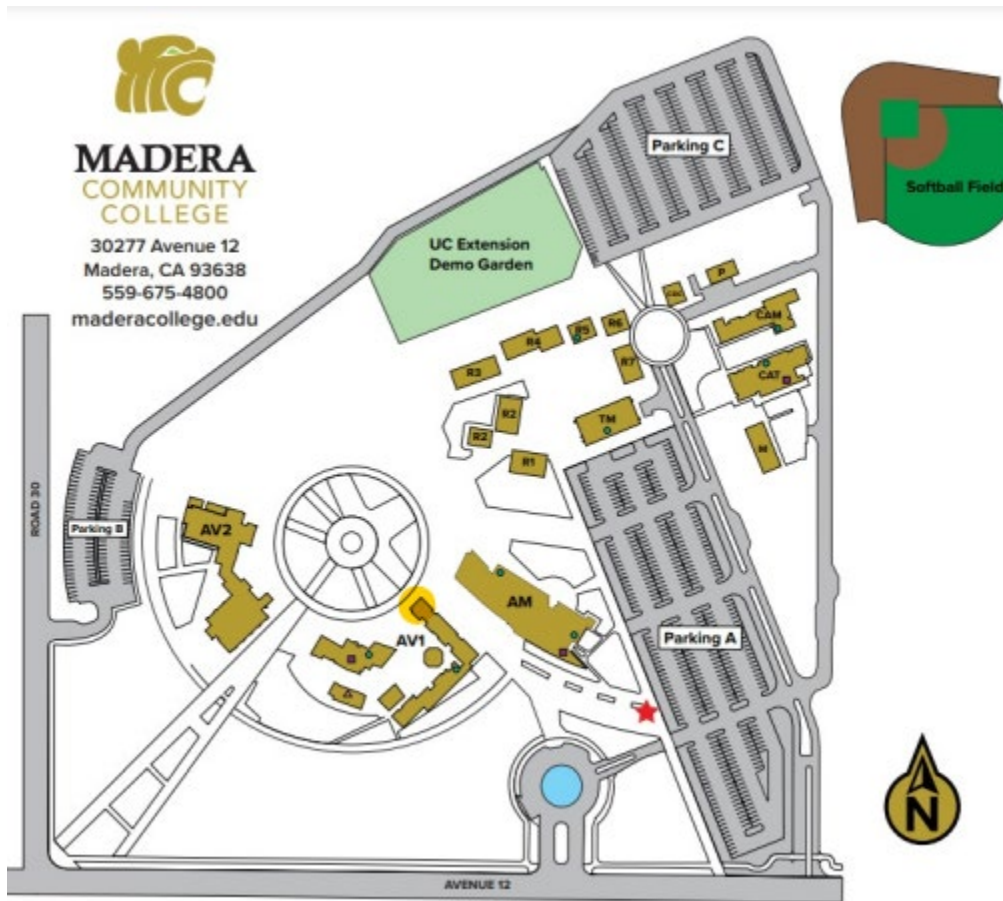
## Madera Community College

The Madera Community College is approximately 1.5 miles southwest of the relocated station site. The college has three surface parking lots with an estimated capacity of 830 vehicles.

### Permits:

- Student parking permits are \$30 for the Fall and Spring semesters and \$20 for the summer semester. Daily permits may be purchased for \$1.
- Annual faculty permits may be purchased for \$80.
- Motorcyclists may park for free in a designated parking area.
- Eligible students with DMV-issued accessible placards may park for free in any ADA stall.

Figure 19 Madera Community College Campus Map



Source: Madera Community College Parking

## HSR Planned Parking

The construction of the HSR station is parceled into phases. Phase 1 will provide a surface parking lot with a 98 space capacity and will include an area for pick-up/drop-off within the westernmost area of the lot as well as parking for people with disabilities (Madera Station Relocation Project, 2021). In Phase 2, an additional 179 surface spaces will be added to the Phase 1 lot for a total capacity of 277 spaces. Phase 2 would also expand the pick-up/drop-off curb by 530 feet.