CITY OF CORNING

BICYCLE AND PEDESTRIAN TRANSPORTATION IMPROVEMENT PLAN

ECHELON
TRANSPORTATION GROUP

CITY OF
CORNING

Made possible by a Community-Based
Transportation Planning Grant provided by the
State of California Department of Transportation

This page intentionally left blank

BICYCLE AND PEDESTRIAN TRANSPORTATION IMPROVEMENT PLAN

Prepared for:

City of Corning

794 Third Street

Corning, CA 96021

Funded by:

Caltrans

Community-Based Transportation Planning Grant

Fiscal Year 2013/2014

February 2016

ACKNOWLEDGEMENTS

The Corning Bicycle and Pedestrian Transportation Improvement Plan resulted from a dedicated effort by community members, key stakeholders, and staff from the City of Corning who worked with a multidisciplinary Consultant Team to articulate a vision that will create mobility, economic development and increased active transportation activity, and guide future transportation infrastructure in the City of Corning and surrounding community.

Corning City Council

Mayor Gary Strack,
Council Member Tony Cardenas
Council Member Darlene Dickison,
Council Member Dave Linnet
Council Member Willie Smith

Corning Planning Commissioners

Diana Robertson, Chairman
Frank Barron
Melodie Poisson
Brant Mesker
Doug Hatley

City of Corning Staff

Kristina Miller, City Manager
John Stoufer, Planning Consultant
Dawn Grine, Director of Public Works
Laura Calkins, Police Department Administrator
Lisa Linnet, City Clerk
Martin Spannaus, Fire Chief

Consultant Team

Echelon Transportation Group, Project Management and Active Transportation
Local Government Commission, Community Engagement
Fehr & Peers, Transportation Analysis
Callander Associates, Wayfinding and Urban Design

Made possible by a Community-Based Transportation Planning Grant
provided by the State of California Department of Transportation

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
Existing Conditions

Setting

The City of Corning is located in Tehama County, a predominantly agricultural county in the northern Central Valley of California. Home to 7,636 residents, Corning has long been recognized for its contributions to the olive industry and is widely known as the Olive City. Corning has a traditional "Main Street" downtown oriented around Solano Street, the former Highway 99 thoroughfare prior to the construction of Interstate 5.

Bordering the western side of Corning, Interstate 5 provides the primary regional access into and out of the City at the Solano Street and South Avenue interchanges. California Northern Railroad (CNFR) operates a rail line running north-south through the middle of Corning, with four at-grade crossing locations within city limits. Solano Street and the rail line divide Corning into four similarly sized quadrants.

Corning is characterized by temperate year round climate and gently rolling topography. Two small intermittent water streams – Jewett Creek and Burch Creek – run through the City to the Sacramento River.

Measuring just over 2 miles across, Corning occupies approximately 3.5 square miles. Corning is served by a grid street network of arterial, collector, and local roads connecting residents to employment, education, and shopping destinations. The short travel distances, comfortable climate, and well-connected roadway network provide the foundation for an ideal walking and cycling environment for Corning residents of all ages and physical abilities.

Corning displays many of the underlying conditions necessary for a successful active transportation network.

Existing Plans and Policies

Existing plans and policies at the local and regional level provide guidance for future improvements to bicycle and pedestrian facilities in Corning.

Local

Local transportation policies, including those related to bicycle and pedestrian facilities, are outlined in the Corning General Plan, most recently updated in 2015. Bicycle- and pedestrian-related policies are included in a number of elements in the General Plan:

Open Space and Scenic Resources

Implementation Measures

OSR-(1) Evaluate the establishment of a network of bike and pedestrian trail systems extending throughout the City. The system could be a combination of the existing and future road and sidewalk system linking to and through greenbelt areas along existing creeks, streams, floodplains, and natural open space.

Park and Recreation Facilities and Resources

Objectives

PR-2 Establish, integrate, and maintain "natural" and "man-made" recreation opportunities along existing creeks, floodplains, and natural open space areas. Where applicable, include parks, roadways, bicycle and trail systems in these areas.

Policies

PR-d Provide off-road pedestrian and non-motorized bike facilities, where feasible.

Circulation

Goal: Provide an efficient, balanced and maintained road circulation system that, not only serve the needs of vehicular traffic, but must also serve the needs of bicyclists and pedestrians, in particular school children.

Objectives

C-1 Provide for safe efficient vehicular, bicycle and pedestrian movement that meets existing needs and accommodates growth in an orderly manner

C-2 As the City grows, connections between neighborhoods, commercial and industrial areas need to serve the transportation needs of residents and businesses.

C-3 Promote alternative travel modes, including transit, pedestrian and bicycle circulation systems.

C-4 Coordinate policies for land development and circulation.

C-5 Coordinate local transportation planning and administration with the activities of other government agencies and concerns of local citizens and businesses

C-6 Design and implement the circulation system to protect natural features, conserve energy, and mitigate, to the degree feasible, air and noise pollution

C-7 Designate local scenic routes and enhance and protect their scenic qualities

Policies

C-b Improve unpaved roads, driveways and parking areas

C-c Provide for adequate, safe, and direct, and if necessary, alternative access to public facilities, schools, parks and shopping areas.

C-e Encourage the continued development and expansion of local and regional public transit systems.

C-f Encourage bicycle and pedestrian transportation, both on- and off-street

C-g Construct, improve and maintain the system of curb, gutters, sidewalks and crosswalks for pedestrian circulation safety and drainage control.

C-h Promote the use of programs and strategies to reduce overall vehicle travel, particularly during peak commute periods.

C-i Coordinate transportation planning and implementation with regional and local plans.

C-j Protect natural features, to the degree feasible, when maintaining and expanding the City's circulation system.

Implementation Measures

C-(6) Complete all "Safe Route to School" studies to determine requirements for new walkways, school crossings, traffic control and roadway improvements.

C-(10) An evaluation should be undertaken to prioritize the streets where curb, gutter, sidewalk and tie-in paving improvements (whichever combination of improvements are applicable) are necessary. For those streets where deferral agreements have been made, a prioritization of the streets to be improved should also be undertaken.

<u>Air Quality</u>

Objectives

AQ-3 Encourage integration of land use, transportation, and energy planning efforts which help to reduce air pollution.

Policies

AQ-d Encourage a land use pattern that reduces reliance on the automobile and encourages alternative modes of transportation for travel to employment and shopping by encouraging:

- Infill development
- Mixed use development near employment centers (day care, restaurant, and bank)
- Increased residential densities near employment and shopping, and along major traffic corridors
- Employment opportunities and shopping near to residential development

AQ-e Encourage a reduction in vehicle trips and vehicle miles traveled by encouraging:

- Public transportation
- Carpooling, ridesharing, and vanpooling
- Shortened and combined motor vehicle trips for work, shopping, and services
- Use of bicycles
- Pedestrian access and walking

AQ-g The City should develop a bikeway plan to encourage the use of bicycles, where practicable

AQ-h The City should develop a pedestrian plan to encourage walking, where practicable.

Climate Change

Objectives

CC-1 Adopt and implement a development pattern that utilizes existing infrastructure; reduces the need for new roads, utilities and other public works in new growth areas; and enhances non-automobile transportation

CC-3 Reduce GHG emissions by reducing vehicle miles traveled and by increasing or encouraging the use of alternative fuels and transportation technologies

Policies

CC-d Ensure that new developments incorporate both local and regional transit measures into the project design that promote the use of alternative modes of transportation

Rules related to bicycle parking and facility design are also included in the City of Corning Municipal Code:

- Code 10.46.040 states, "No person shall park, leave or place any bicycle on any sidewalk in such a manner as to block access on, or to be a hazard to, any pedestrian use of the sidewalk."
- Code 16.21.040 states, "Where bicycle lanes or bikeways are required by the city, an additional seven feet in each direction shall be added to the required arterial, minor arterial, collector or local street."

Regional

The Tehama County Bikeways Plan, adopted in 1999 and readopted in 2003, outlines the future countywide bicycle network, including bike facilities, bicycle parking, policies, design guidelines, and funding opportunities. The plan identifies a need for safe north-south and east-west bicycle connections traversing Corning. The recommended Corning bicycle network consists of a combination of Class II and III bicycle facilities to improve bicycle connections to major local destinations (see Figure 1).

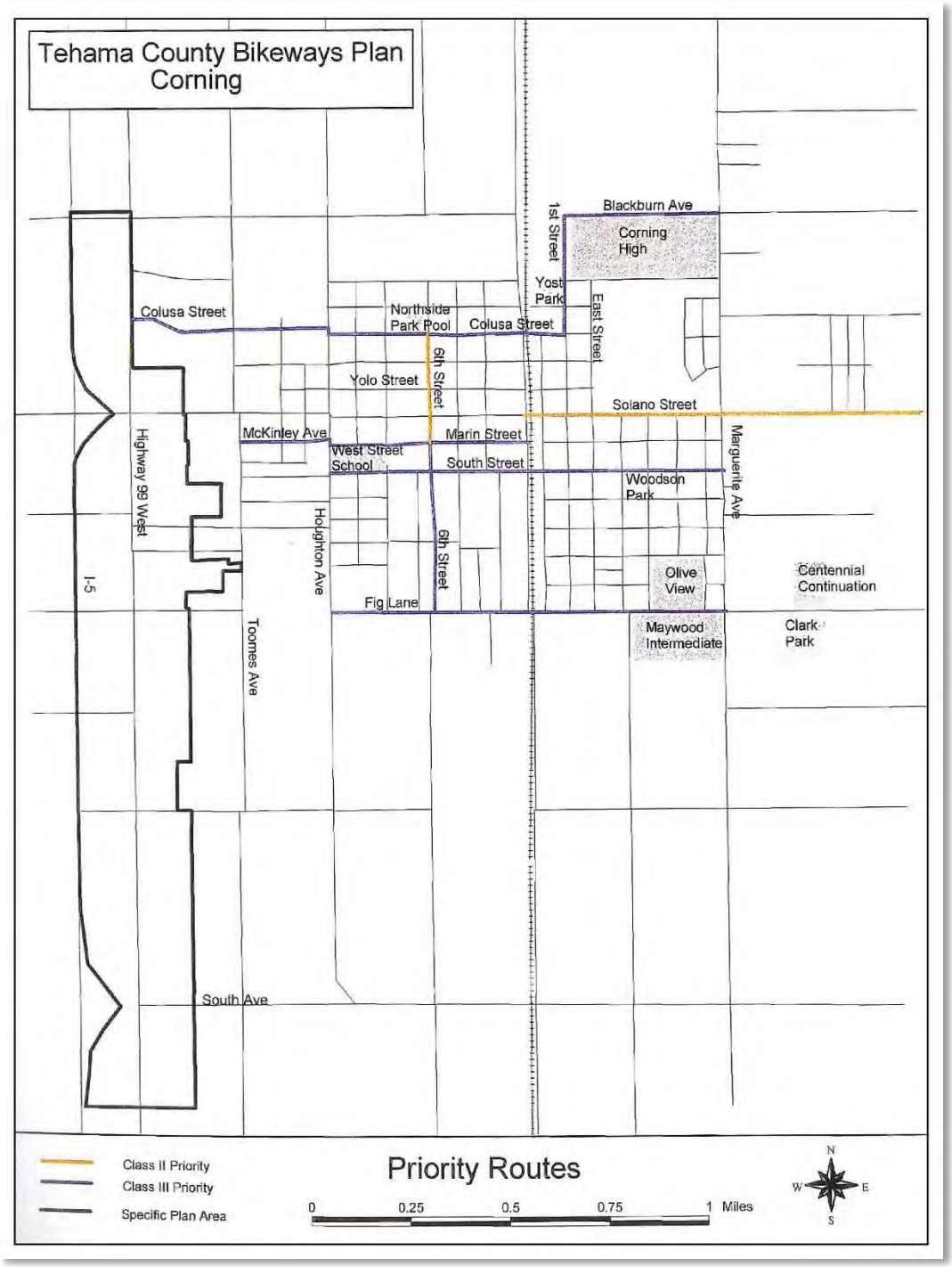


Figure 1 - Tehama County Bikeways Plan: Corning Priority Routes. Source: Tehama County.

Market Conditions

An examination of the existing demographics and land use in Corning provides valuable information regarding the underlying market conditions necessary to support a successful bicycle and pedestrian transportation system. The demographic composition of Corning coupled with the physical layout of the City suggests strong demand for walking and biking as a viable mode of transportation. Except where otherwise noted, demographic data is derived from the 2008-2013 American Community Survey (ACS).

Population

As of January 2015, 7,636 residents live in Corning, with a residential density of approximately 3.4 people per acre. After decades of steady growth, population growth has flattened since the 2008 economic downturn.

With a median age of just 27 years old and nearly a quarter of its residents aged between 5 and 17 years old, Corning residents are considerably younger compared to the rest of the California population. Corning has become increasingly younger in recent years – in 2000, the median age was just 31 years old. Representing 11.5 percent of Corning residents, the senior population (over 65 years old) is comparable to the rest of California, while older adults aged between 45 and 65 years old represent just 16.6 percent of the population compared to the statewide average of 25 percent. Residents aged 25 to 44 years old represent single the largest age group in Corning.

Bicycle and pedestrian amenities are especially important for youth and senior populations who are unable to drive.

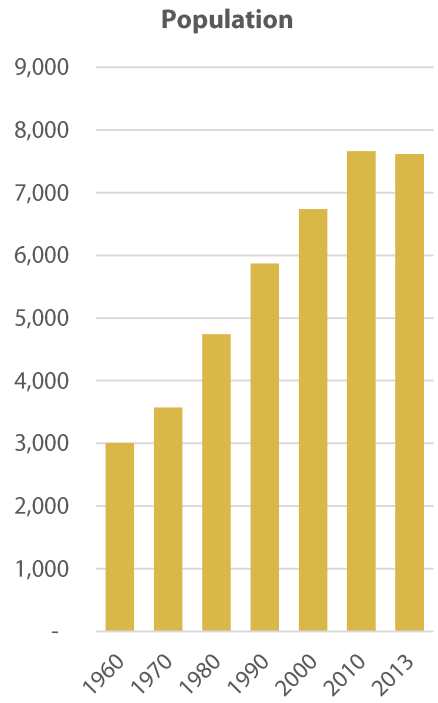


Table 2 - Corning Population Change
Source: 2008 – 2013 ACS.

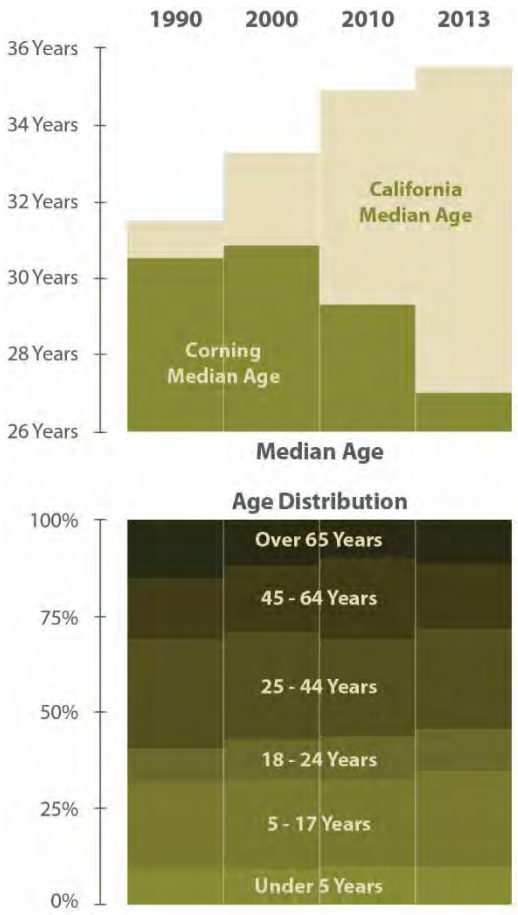


Table 1 - Corning Age Distribution
Source: 2008 – 2013 ACS.

Economic Conditions

Median household income in Corning is $42,590 per year, approximately two-thirds of the statewide median household income of $61,094. Nearly 20 percent of Corning families live below the poverty level, compared to just 12 percent of California families. Approximately 7 percent of Corning households do not have access to a vehicle, double the rate for all California households. In lieu of driving, walking and biking provide an invaluable lifeline to completing daily travel for these households with limited financial resources.

Corning is considered a Disadvantaged Community by meeting two of the three criteria outlined by the State of California Active Transportation Program:

- The median household income in Corning ($42,580) is less than 80% of the statewide median ($61,094).
- At least 75% of public school students in Corning are eligible to receive free or reduced-price meals under the National School Lunch Program (82% of Corning students are eligible).

By qualifying as a Disadvantaged Community, Corning is very competitive for Active Transportation Program funding opportunities, particularly for projects that improve bicycle and pedestrian connections to local schools.

Bicycle and pedestrian travel offers an affordable transportation option for families with limited financial resources, freeing up income for spending on important goods and services.

Commute to Work

The majority of Corning commuters utilize automobiles for work trips. According to the 2013 American Community Survey, active transportation accounts for 5 percent of all work trips in Corning, with walking and cycling representing 3.2 percent and 1.8 percent of all work trips, respectively. Corning residents utilize active transportation for commute trips at a greater rate than communities statewide, despite the lack of bicycle facilities and relatively limited pedestrian network locally. This suggests an underlying demand for active transportation, possibly due to a reliance on non-automobile transportation for lower income Corning residents in combination with a lack of peak-hour transit service for work trips. Zero percent of Corning residents utilize public transportation for work trips, compared to 5.2 percent statewide. This low transit use can be attributed to the relatively small city area, well-connected roadway network, and limited transit frequency.

	Corning		Tehama County	California
Commute Mode	**Total**	**%**	**%**	**%**
Walked	84	3.2%	2.6%	2.7%
Bicycled	48	1.8%	0.3%	1.1%
Car, truck, or van - Drove alone	1,940	73.3%	75.3%	73.2%
Car, truck, or van - Carpooled	363	13.7%	13.7%	11.3%
Public transportation	-	0.0%	1.0%	5.2%
Taxicab, motorcycle, or other means	98	3.7%	1.5%	1.3%
Worked at home	113	4.3%	5.6%	5.2%

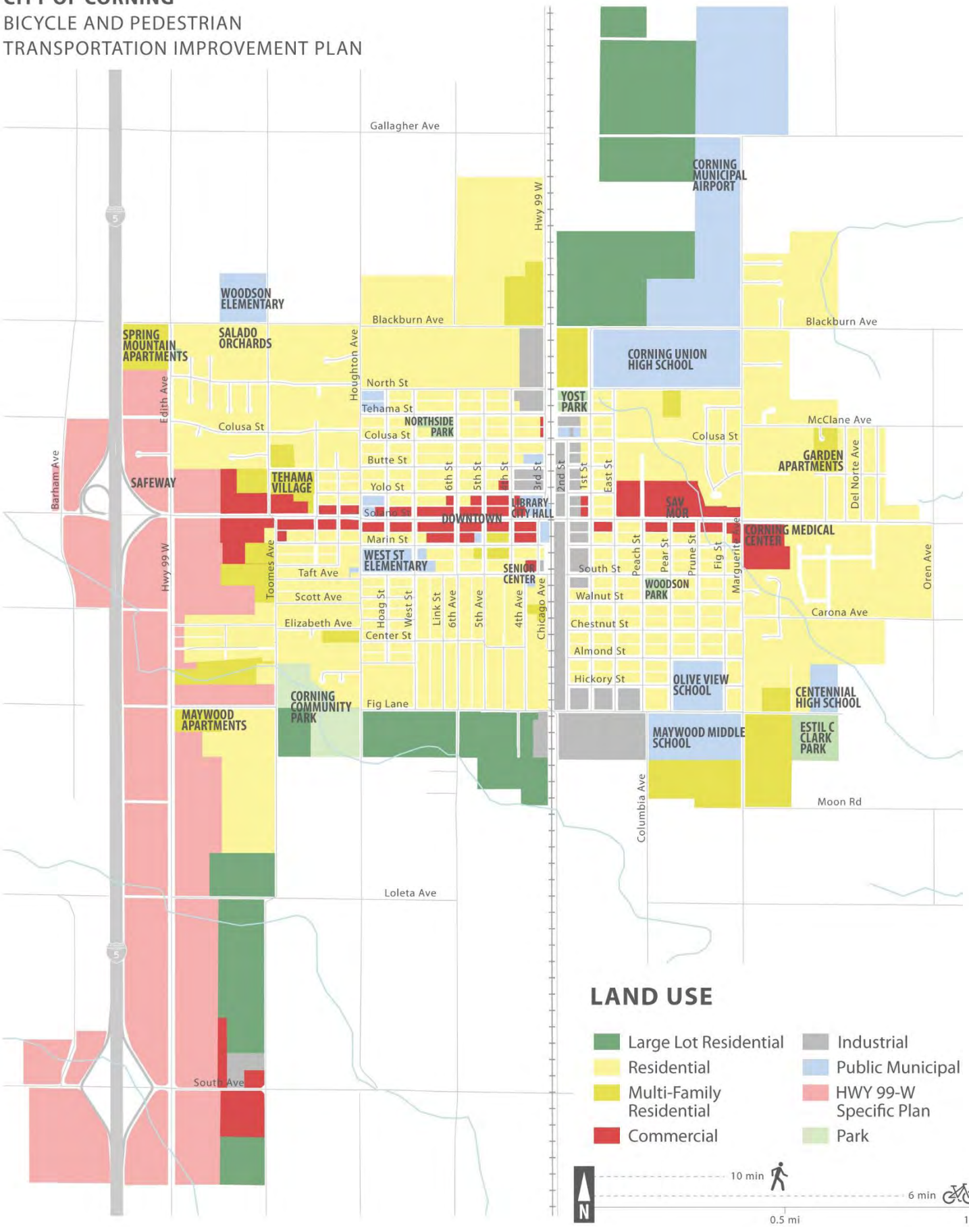
Table 3 - Corning Commute to Work. Source: 2008 – 2013 ACS.

Land Use

Developed land within Corning city limits is predominantly low density residential, with smaller clusters of multi-family residential land uses spread throughout the City. Neighborhood commercial uses are concentrated along Solano Street, while highway commercial uses are located along Highway 99 W between the Solano Street and South Avenue interchanges. Public facilities, including parks and schools, are evenly scattered throughout Corning's four quadrants, imbedded in the residential neighborhoods. Industrial land uses are concentrated along the CNFR rail line running north-south through Corning.

Without a commitment to infill development, future residential development is largely directed towards the northern, eastern, and southern edges of the city limits. New multi-family residential land uses are identified south of Maywood Middle School off of Marguerite Avenue, west of Community Park, and along the CNFR rail line near 1st Avenue and Blackburn Avenue. New low density and large lot residential land uses extend north towards Corning Airport, east between Solano Street and Fig Lane, and south adjacent to the Highway 99 W corridor. Future highway-oriented commercial land uses are identified along the Highway 99 W corridor and west of Interstate 5 at the Solano Street and South Avenue interchanges.

Figure 2 - Corning Land Use. Source: City of



Active Transportation Activity Centers

A successful active transportation network provides safe and convenient bicycle and pedestrian connections to key community activity centers. Activity centers include community destinations that regularly attract residents for educational, employment, recreational, shopping, and medical purposes. These include public facilities (parks and community centers), schools, shopping centers, employment centers, and medical and social service facilities.

Public Facilities

As designated spaces for recreation, public gatherings, and community events, parks and community centers are popular destinations for pedestrians and cyclists. Seven public parks are located throughout Corning, each owned and maintained by the City. The even distribution of parks in all four quadrants of Corning allows for convenient access from neighboring residential areas, particularly for residents traveling short distances by foot or by bike. Other community centers are centrally located along the Solano Street corridor, providing convenient access from all four quadrants.

- Estil C. Clark Park, located at the end of Fig Lane east of Marguerite Avenue, hosts baseball and tee ball events at the two on-site ballfields. The park also includes a small rodeo for year round events.
- Woodson Park, bounded by South Street, Pear Street, Walnut Street, and Peach Street, is the oldest park in Corning and contains a playground and array of picnic areas.
- Yost Park, located at the corner of Tehama Street and First Street, includes a playground and softball field.
- Flournoy Memorial Park, adjacent to the Senior Center at 4th Street and South Avenue, includes a picnic area and playground.
- Children's Memorial Park, located on Edith Avenue between Gardiner Road

Corning parks, including the new Corning Community Park, provide recreational opportunities to residents of all ages.

and North Street, includes a playground and grassy area.

- Northside Park, bounded by Tehama Street, 6th Street, Colusa Street, and West Street, includes the Corning community pool, tennis courts, basketball court, beach volleyball court, playground, and picnic areas. The park is a popular destination citywide, especially during the summer months.
- Corning Community Park, the newest and largest park in the City, occupies eighteen and a half acres between Toomes Avenue and Houghton Avenue near Fig Lane. The expansive park includes a skate park, soccer fields, basketball court, picnic areas, playground, and amphitheater tied together by a trail system meandering along and over Jewett Creek. Since its completion in 2014, the skate park has become a regional draw, and the soccer fields are used extensively by local youth soccer leagues. Improved active transportation connections, including along Toomes Avenue, Houghton Avenue, and Fig Lane, would greatly enhance accessibility to the park.
- Corning City Hall, located downtown at Solano Street and 3rd Avenue, houses the Corning City Council Chambers, City of Corning administrative offices, and the Corning Police Department.
- The Corning Senior Center, located at the corner of South Street and 4th Avenue, offers meals, classes, and recreational activities to local seniors.
- The Corning City Library, located just north of City Hall on 3rd Avenue, is a branch of the Tehama County Library system. The library provides access to 100,000 books housed in the countywide system, as well as free computer and internet resources for the general public.
- The Corning Veterans Memorial Hall, located on Solano Street at Houghton Avenue, hosts regular recreational and community events, including a popular weekly bingo night.

Other regional recreation destinations include Black Butte Lake and Woodson Bridge State Recreation Area.

Schools

Schools represent significant potential generators of bicycle and pedestrian activity, serving as a major daily destination for children who are too young to drive and are instead reliant on walking and cycling as a primary mode of independent travel. The Corning Union Elementary School District and the Corning Union High School District operate six schools throughout the City.

Olive View Elementary (K-5) is located at Fig Street and Almond Street, across Fig Lane from Maywood Middle School. Recent Safe Routes to School projects along Marguerite Avenue and Fig Lane provided sidewalk and crosswalk improvements for children traveling to the campus, although sidewalk amenities elsewhere in the surrounding neighborhood are sparse.

Woodson Elementary (K-5) is located at Toomes Avenue and Gardiner Road. Campus facilities are also used for after-school community programs, including adult exercise classes. Pedestrian access to the campus is limited by its remote location and minimal sidewalk connections to the surrounding neighborhood.

Woodson Elementary School

West Street Elementary (K-2) is located at West Street and South Street. During school hours,

West Street Elementary School

West Street between Marin Street and South Street is closed to automobile traffic to allow for safe crossing to school facilities east of West Street. The central location of the campus is ideal for short walking and cycling trips for students throughout Corning, however, sidewalks and crosswalks are limited in the surrounding neighborhood, particularly west and south of the campus.

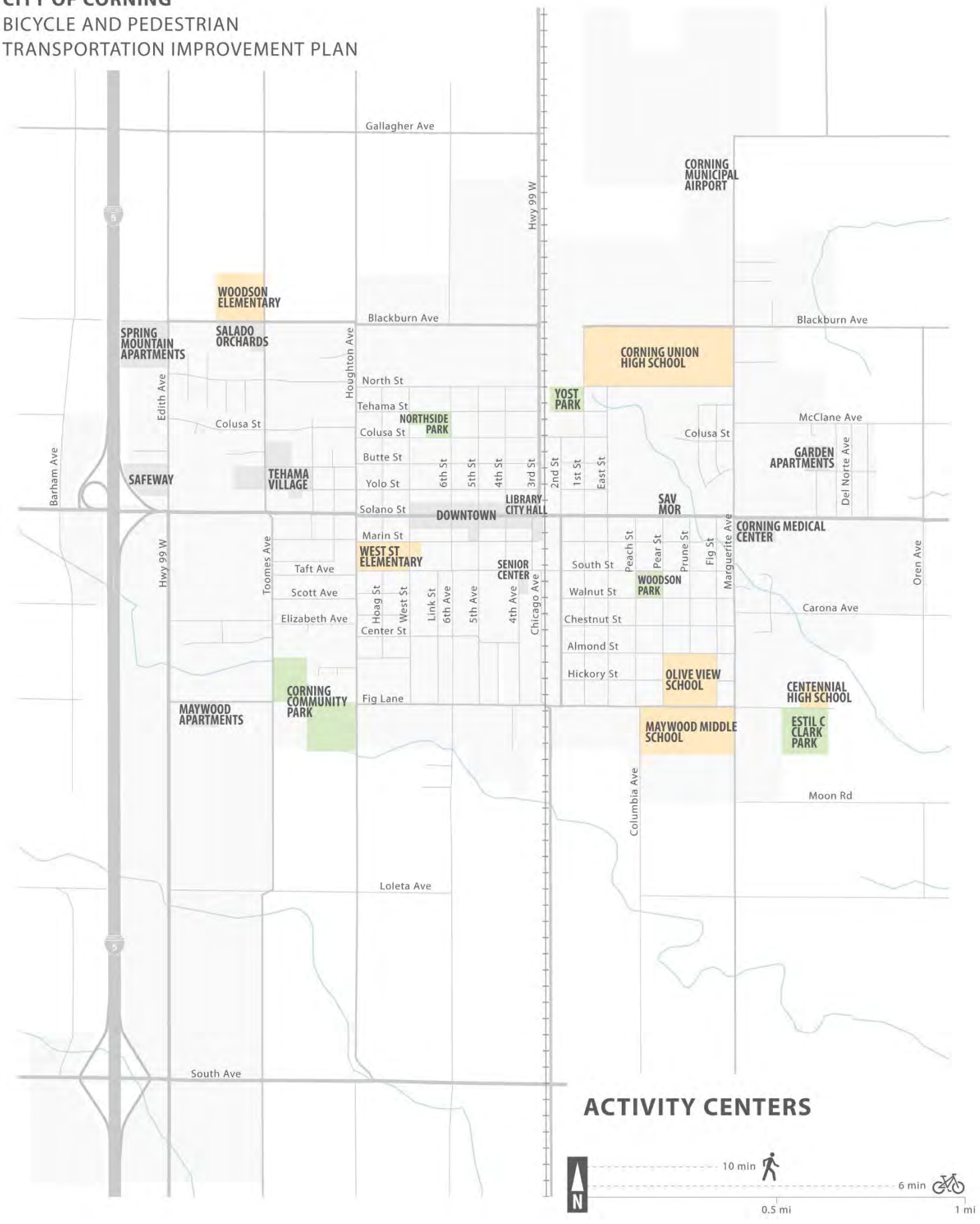
Maywood Middle School (6-8) is located at Marguerite Avenue and Fig Lane, across the street from Olive View Elementary. Recent Safe Routes to School projects along Marguerite Avenue and Fig Lane provided sidewalk and crosswalk improvements for children traveling to the campus, although sidewalk amenities elsewhere in the surrounding neighborhood are significantly disjointed.

Corning Union High School (9-12) is located on Blackburn Avenue between 1st Street and Marguerite Avenue. The campus is host to popular athletic events for the Corning Union Cardinals, including football, basketball, and baseball games. Despite its remote location in the northeast corner of Corning, recent Safe Routes to School sidewalk and crosswalk improvements along 1st Street and Marguerite Street have improved pedestrian connections to the rest of the City.

Centennial High School is a continuation high school located at the end of Fig Lane west of Marguerite Avenue, across the street from Estil C. Clark Park. A recent Safe Routes to School project installed sidewalks on the north side of Fig Lane between Marguerite Avenue and the campus, improving student access from other Safe Routes to School improvements on Marguerite Avenue.

Improving pedestrian access to schools has been a primary focus for the City of Corning in recent years, marked by several Safe Routes to School projects near Corning Union High School, Centennial High School, Maywood Middle School, Olive View Elementary, and Woodson Elementary. Additional improvements to active transportation facilities, including bicycle amenities on key corridors, will further enhance vital student access to schools citywide. Given the relatively short travel distances between Corning schools and residential areas throughout the City, walking and cycling trips to schools can be significantly increased with low cost investments in new active transportation facilities.

Figure 3 - Corning Activity Centers.



Retail and Employment Centers

While most regional commercial destinations are located outside of Corning, a number of local shopping destinations provide residents with basic grocery and retail needs. Nearly all local shopping destinations are concentrated along Corning's main thoroughfare, Solano Street, with the exception of a few locations in the South Avenue commercial area. This concentration of shopping destinations positions the City to make cost-effective improvements to active transportation facilities on its main thoroughfare, better connecting residents to retailers. The bike lanes included as part of the Solano Street Streetscape Improvement Project represent the first step in transforming Corning's main street into a true complete street.

Located in the heart of town along Solano Street, downtown Corning offers an array of small shops, restaurants, banks, and auto repair services. Corning City Hall and Library are also located in downtown. Larger retail and grocery stores, including Safeway, Rite Aid, Sav-Mor Foods, Dollar Tree, and Dollar General, are clustered east and west of downtown along Solano Street. Fast food restaurants are concentrated around Old Highway 99 W at the intersections with Solano Street and South Avenue, where strip development is more prevalent.

In addition to local retailers and schools, primary employers include the Bell Carter Olive Company, the largest ripe olive producer in the country, and Rolling Hills Casino, located just south of Corning off of Interstate 5.

Medical and Social Services

For people who are unable or choose not to drive, bicycle and pedestrian facilities can provide a critical link to medical and social services. In Corning, all medical and social services are located at Corning Medical Center at the intersection of Solano Street and Marguerite Avenue, including the Corning Healthcare District, the Tehama County Social Services Department, and the Family Resource Center. A broader range of services are available outside of Corning at larger healthcare facilities in Chico and Red Bluff. Walking and biking access to transit can provide an essential lifeline to travelers who rely on medical and social services located outside of Corning.

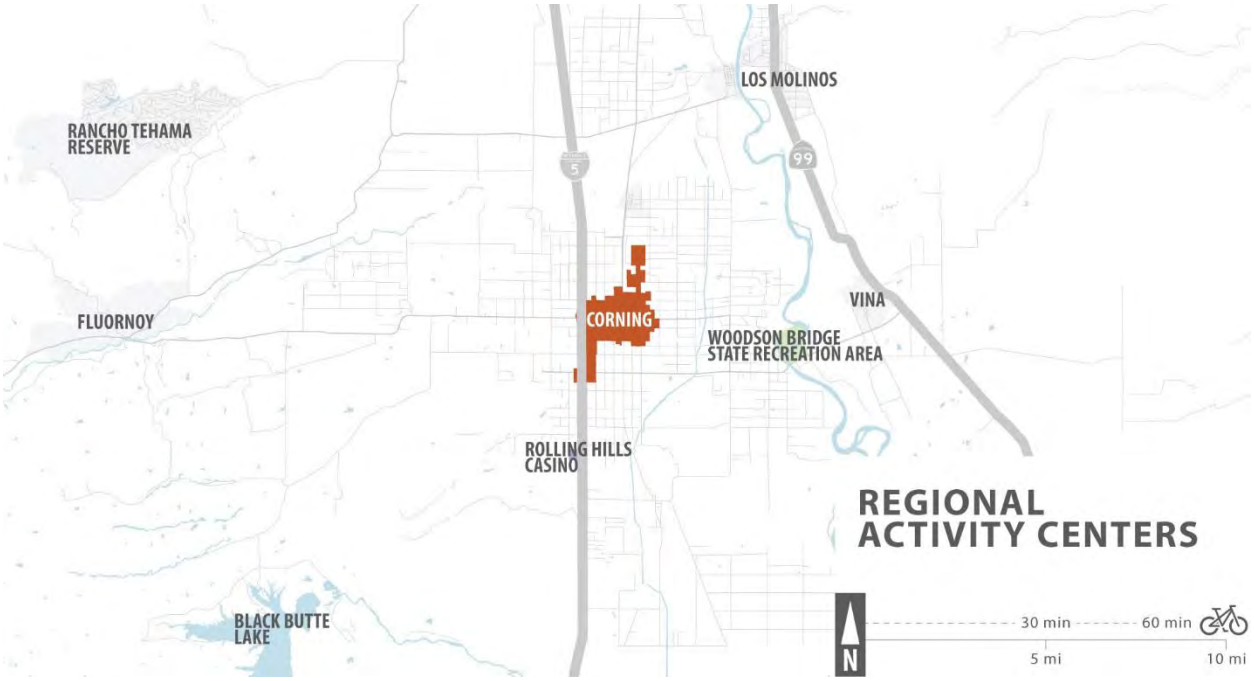


Figure 4 - Regional Activity Centers.

Existing Transportation Network

Roadway Conditions

Corning is served by a grid roadway network featuring a combination of arterial, minor arterial, collector, and local streets. Local streets provide access to residential neighborhoods as well as the primary circulation network:

- Arterial – Arterials are major streets that carry high volumes of vehicular traffic for travel between major Corning destinations as well as for access to the surrounding county transportation system. According to the Corning Municipal Code, arterials must have a minimum right-of-way of eighty-eight feet, with four twelve-foot travel lanes, ten-foot parking lanes, and ten-foot parkways.
  Corning Arterials: Solano Street, Highway 99 W, 3rd Street, and South Avenue.
- Minor Arterial – Minor arterials fulfill a similar role as arterials, but on less trafficked corridors. In Corning, minor arterials must have a minimum right-of-way of seventy-eight feet, with two fourteen-foot travel lanes, a fourteen-foot raised median/left turn lane, eight-foot parking lanes, and ten-foot parkways.
  Corning Minor Arterials: Blackburn Avenue, 2nd Street, and Kirkwood Road.
- Collector – Collector streets connect local roads serving residential neighborhoods and commercial and industrial areas with the primary roadway network of arterials and minor arterials. In Corning, collectors must have a minimum right-of-way of sixty-four feet, with two twelve-foot travel lanes, ten-foot parking lanes, and ten-foot parkways.
  Corning Collectors: Edith Avenue, Toomes Avenue, Houghton Avenue, Marguerite Avenue, Olive Avenue, Oren Avenue, Gallagher Avenue, Neva Avenue, and Fig Lane.
- Local – Local roads, primarily residential in nature, emphasize circulation and access over through traffic. Corning local roads must have a minimum right-of-way of sixty-feet, with two twelve-foot travel lanes, eight-foot parking lanes, and ten-foot parkways.

A typical local road in Corning

Most major Corning destinations – schools, parks, commercial areas, and services – are clustered around the primary circulation network of arterial, minor arterial, and collector streets. Within city limits, streets generally have a posted speed limit of 25 MPH. Along the periphery of the city limits and beyond, posted speed limits range from 35 to 50 MPH.

Corning roadways are generally wide, with roadway widths often exceeding 50' even on low volume residential streets. Wide roads lend themselves to high automobile speeds to the detriment of comfortable bicycle and pedestrian use. Wide roads are especially prevalent in the older neighborhoods of Corning, including the southeast quadrant and the residential areas immediately north and south of downtown Corning. The walking and biking environment in these neighborhoods stands in stark contrast to the more pleasant experience traveling through recent residential developments in Corning featuring narrower roadway widths (Blossom Avenue, North Street, Stanmar Drive, etc.).

Transit

Active transportation is an essential component of a rider's transit experience, often marking the beginning and ending of a transit trip as riders travel to and depart from transit stops. In areas like Corning, where transit stops are spread far apart and routes operate infrequently, this first- and last-mile connection is an important factor in access to transit. Direct, comfortable, and clearly marked walking and cycling paths connecting riders to transit stops from residences, work, and shopping destinations help to reinforce transit as a viable travel mode.

Corning receives transit service from Tehama Rural Area eXpress (TRAX), the provider of local, regional, and paratransit service throughout Tehama County. Fares are $1 and $2.50 for local and regional riders, respectively, and free for children under six. Discounted fares are available to senior, student, disabled, and military riders. Riders may board at designated stop locations, or riders can "flag down" any TRAX bus along a marked route.

Currently, three fixed route services operate in Corning:

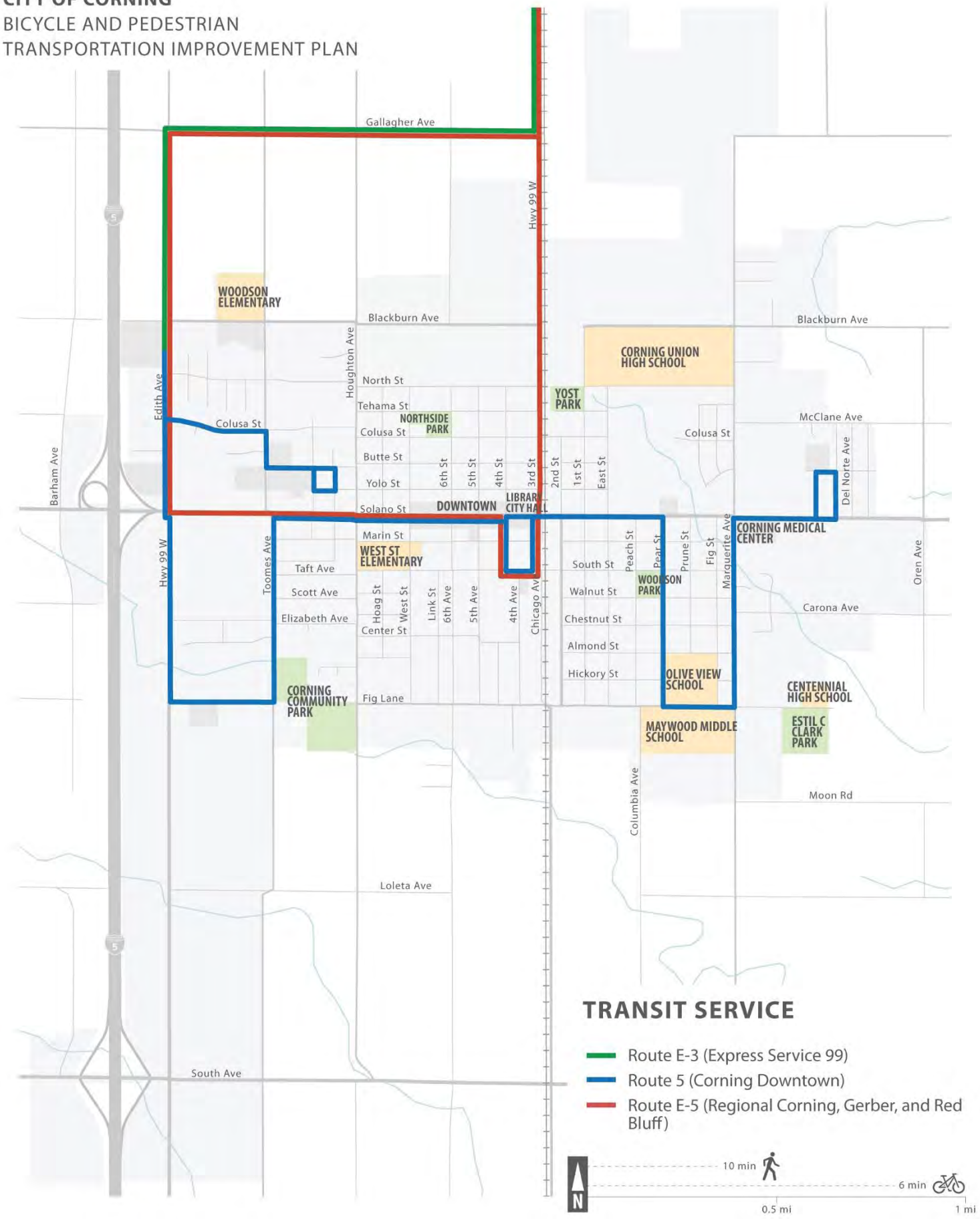
Route E-3 (Express Service 99) provides regional connections into Corning from Tehama, Los Molinos, and Red Bluff. Route E-3 offers one morning inbound trip and one afternoon outbound trip. Traveling into Corning, the route terminates at the Spring Mountain Apartments, where it converts to Route 5.

Route 5 (Corning Downtown Area) provides local circulation throughout Corning during the morning and early afternoon. After picking up from the Route E-3 terminus, Route 5 serves multifamily housing, medical, and civic destinations. Route 5 offers four round trips through Corning before departing for Red Bluff in the early afternoon as Route E-3.

Route E-5 (Corning, Gerber, and Red Bluff) is a regional route providing seven daily round trips between Corning, Gerber, and Red Bluff. Route E-5 circulates counterclockwise through Corning via Gallagher Avenue, Edith Avenue, Solano Street, and 3rd St, serving the Spring Mountain Apartments, Corning Senior Center, and Corning Transportation Center along the way.

In addition to providing transit circulation throughout Corning, TRAX service provides a valuable connection for Corning residents in need of medical and social services elsewhere in the region. Future plans for TRAX service in Corning includes new bus shelters at Safeway, Solano Street/Lincoln Avenue, and Solano Street/West Street stops and potential service expansion to the South Avenue commercial area. Improved bicycle and pedestrian connections to TRAX stop locations will enhance rider access to transit service and further support a multi-modal transportation network throughout Corning.

Figure 5 - Corning Transit Service.



Pedestrian Facilities

A complete pedestrian network affords communities the convenience of walking for commuting to work, traveling to school, running errands, and other regular travel needs. A successful pedestrian network consists of contiguous walking routes linking residences and key community destinations, complete with facilities designed to encourage and support pedestrian use. Pedestrian facilities encompass a variety of walkway types and related support facilities including:

- Sidewalks, trails, and roadway shoulders
- Curb ramps and crosswalks
- Signage
- Street furniture and lighting

Basic pedestrian amenities such as sidewalks, curb ramps, and crosswalks are sufficient to support some level of pedestrian activity in most contexts. Additional support facilities, including street furniture, signage, and street lighting can further enhance the pedestrian environment and attract new discretionary walkers.

Existing Pedestrian Network

In Corning, pedestrians are primarily accommodated through a network of on-street sidewalks and crosswalks. Off-street pedestrian pathways and trails located in many of the City's local parks and schools, such as those that meander through Corning Community Park and Woodson Park, augment the City's on-street sidewalk network.

An inventory of the City's sidewalks reveals that the pedestrian network is most complete towards the center of Corning, while contiguous walking paths grow increasingly sparse in neighborhoods located further away from downtown Corning. The southeast, southwest, and northwest corners of Corning display particularly large areas unserved or underserved by pedestrian facilities:

- Southeast: area bounded by Solano Street, Marguerite Avenue, Fig Lane, and the CNFR rail line.
- Southwest: area bounded by and including Marin Street, West Street, Fig Lane, and Toomes Avenue.
- Northwest: area bounded by and including Blackburn Avenue, 6th Street, Yolo Street and Toomes Avenue.

The sidewalk inventory also suggests that many of Corning's intersections may not be ADA-compatible. ADA improvements can be blended with a broader range of pedestrian facility improvements as part of this plan.

Safe Routes to School projects have addressed some pedestrian gaps in these areas, including those along Fig Lane, Marguerite Avenue, and 1st Street. However, some neighborhoods and key community destinations require additional improvements to minimize walking gaps and ensure safe pedestrian access for residents of all abilities. Corning activity centers located near deficient sidewalk networks include:

- Woodson Elementary School
- West Street Elementary School
- Olive View School
- Maywood Middle School
- Corning Community Park
- Woodson Park
- Maywood Apartments

Barriers to Walking

A pedestrian's journey can be impeded by a variety of barriers, including pedestrian network gaps caused by dead-end sidewalks or railroad tracks. These impediments at critical locations can be enough to deter pedestrian activity along an otherwise pedestrian-friendly corridor.

Pedestrians come in all forms of physical abilities, ranging from the able-bodied to the physically impaired. Non-ADA compatible curb ramps and uneven sidewalks can create a challenging travel environment for pedestrians of all abilities.

The on-going maintenance of pedestrian facilities ensures that people will be able utilize facilities long after their construction. If not properly addressed, overgrown vegetation and drainage issues can render pedestrian facilities unusable.

Figure 6 - Corning Sidewalk Inventory.

Bicycle Facilities

The California Department of Transportation recognizes four classifications of bikeways:

- Class I – A Class I facility, commonly referred to as a Bikeway or Bike Path, is a separated facility from automobile traffic for the exclusive use of bicyclists. Class I facilities can be designed to accommodate other modes of transportation, including pedestrians and equestrians, in which case they are referred to as shared use paths.
- Class II – Class II facilities, commonly referred to as Bike Lanes, are dedicated facilities for bicyclists immediately adjacent to automobile traffic. Class II facilities are identified with striping, pavement markings and signage.
- Class III – Class III facilities, commonly referred to as Bike Routes, are on-street routes where bicyclists and automobiles share the road. They are identified with pavement markings and signage, and are typically assigned to low-volume and/or low-speed streets.
- Class IV – Class IV facilities, commonly referred to as protected bicycle lanes or cycle tracks, are a facility that combines elements of Class I and Class II facilities. They offer an exclusive bicycle route immediately adjacent to a roadway similar to a Class II facility, but provide a physical separation from traffic with plastic delineators, raised curb, or parked automobiles.

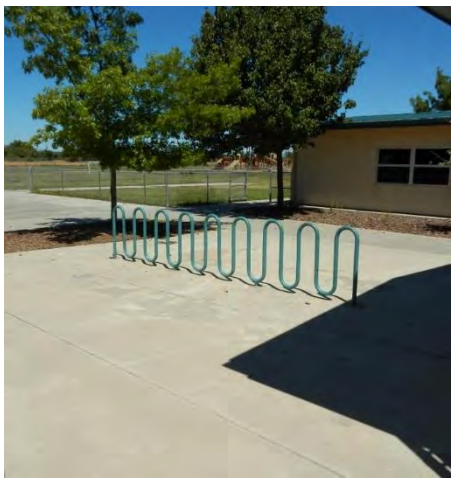
End-of-trip bicycle facilities include bike storage (racks, lockers, etc.) and showers. Current bike parking locations in Corning are listed below.

Bicycle Parking Locations	
Corning High School	Yost Park
Maywood Middle School	Woodson Park
Olive View Elementary	Estil C. Clark Park
West Street Elementary	Corning Community Park
Northside Park	Bell Carter Olive
Corning Medical Center	Safeway

Existing Bicycle Network

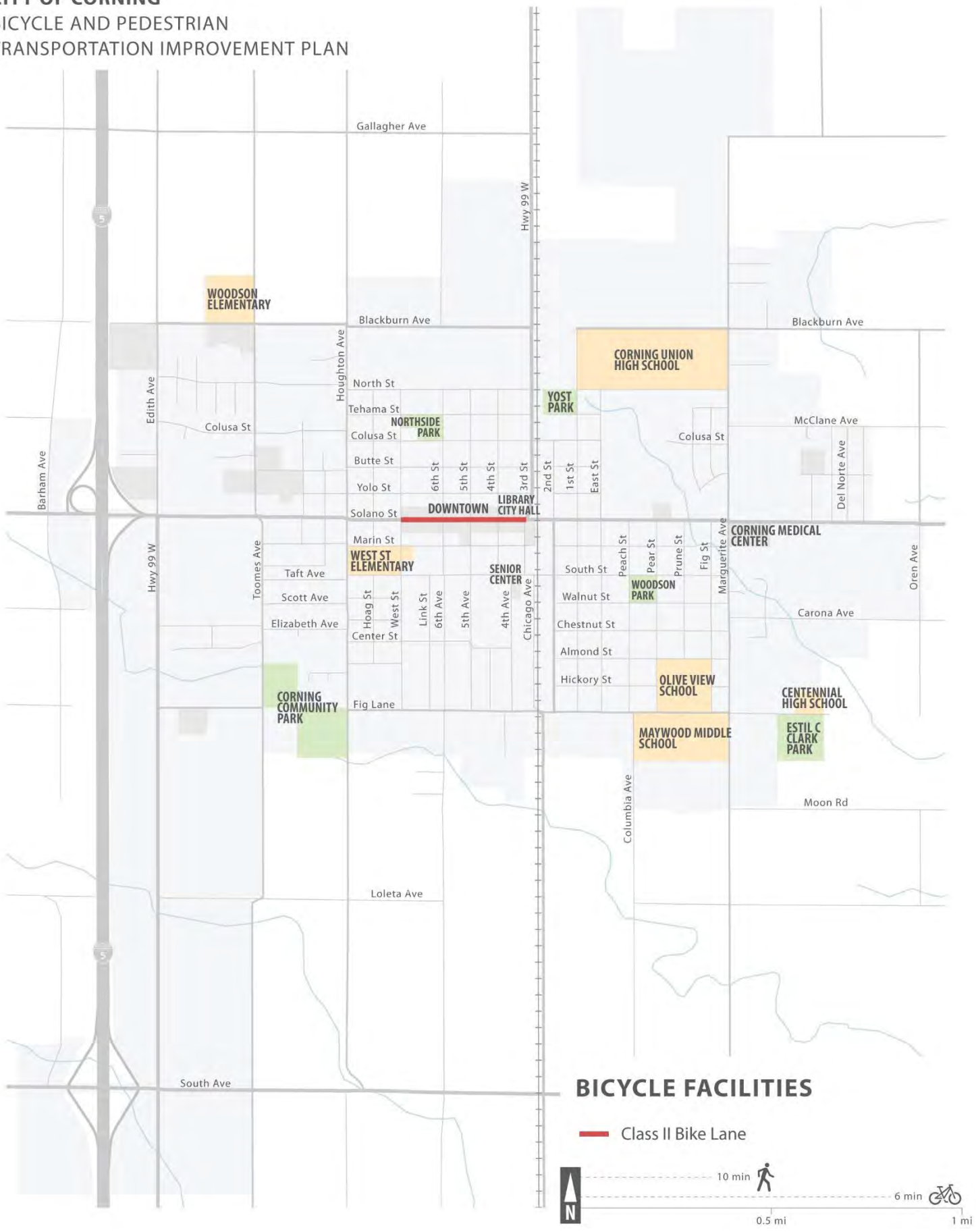
Today, the City of Corning has extremely limited bicycle facilities. Prior to 2015, the City of Corning lacked formal bicycle facilities on any of its streets. Moreover, beyond trails running through local parks, limited off-street bicycle facilities exist. Some bike racks are available to cyclists, mainly at schools and the library.

Recent active transportation improvements featured in the Solano Street Streetscape Project represent the first step towards developing a citywide bicycle network throughout Corning. The new Class II bike lane on Solano Street through the heart of downtown, the first such bicycle facility in Corning, demonstrates a new commitment to active transportation and will serve as a catalyst for future bicycle facility improvement projects.



Bicycle parking for school children

Figure 7 - Corning Bicycle Facilities.



Cycling Conditions – Level of Traffic Stress

Although Corning is in the early stages of developing a formal bicycle network, residents still utilize bicycles as a means of transportation, with 1.8 percent of commuters riding to work. An examination of the current cycling conditions identifies where cyclists of all abilities can comfortably ride today, as well as where cycling conditions are favorable only for the most experienced cyclists. This Level of Traffic Stress (LTS) analysis assists in the identification of corridors and roadway segments for future investments in bicycle infrastructure. Improvements to the bicycle network help to reduce LTS experienced by cyclists, and, in turn, attract new cyclists.

Lightly trafficked local roads can provide comfortable cycling routes, even without bicycle facilities

The likelihood that a person will choose to complete a trip via bicycle is linked to the expected quality of the bicycle riding experience. This is determined by the level of comfort and perceived safety that a cyclist experiences while completing a trip, an experience captured by the LTS measure. LTS is derived from an analysis of typical roadway conditions – speed limit, roadway width, and presence of bicycle facilities, among others – to characterize the level of stress felt by cyclists while using a given stretch of roadway. Varying levels of stress correlate with four different types of cyclists, categorized by cycling ability and experience:

- Children and new riders
- Mainstream adults
- Enthused and Confident Riders
- Strong and Fearless Riders

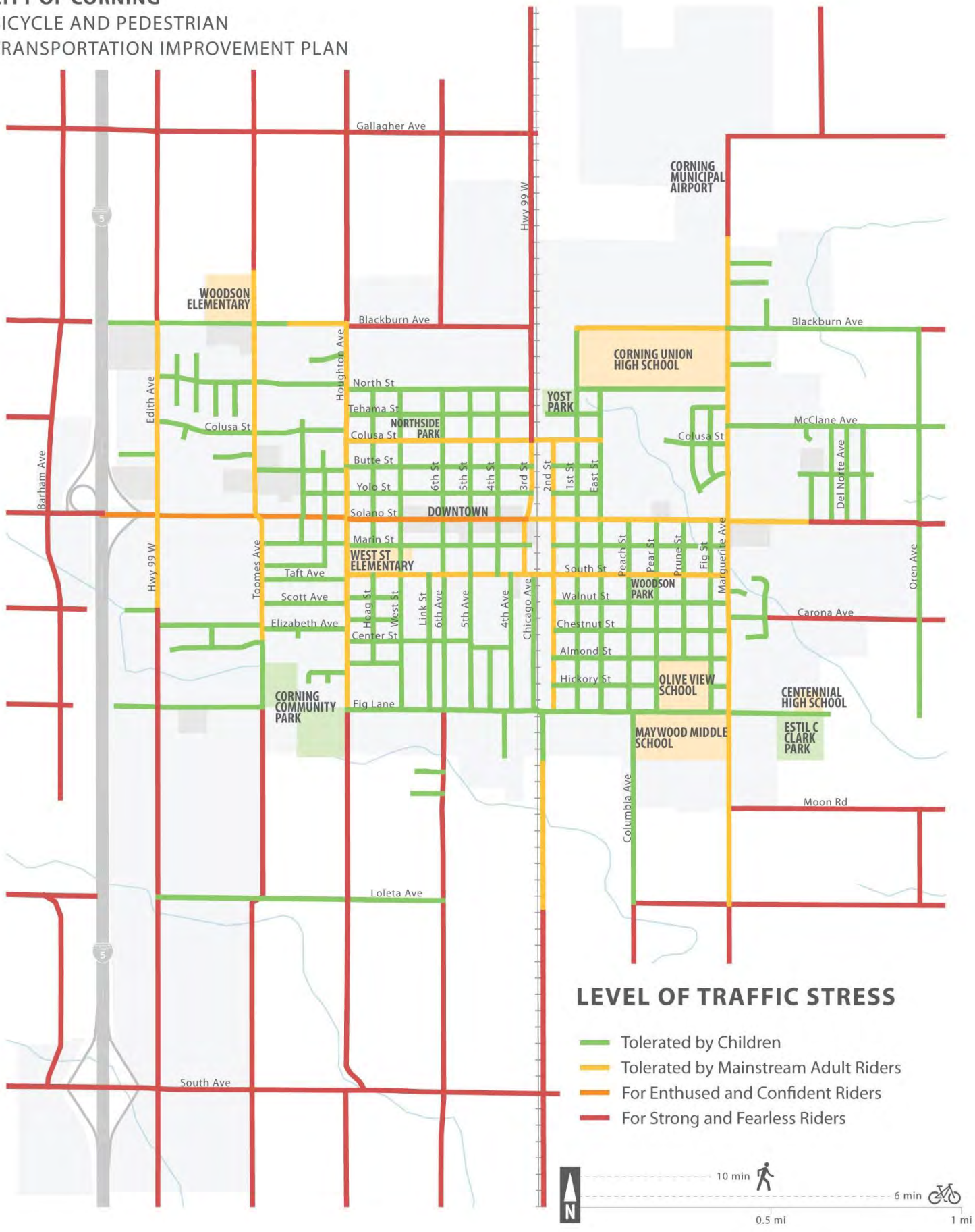
In Corning, most residential streets experience low traffic volumes and speeds, resulting in a cycling environment that is tolerated by cyclists of all abilities and experience levels, including children. However, many of the more heavily traveled crosstown collectors and arterials exhibit higher levels of traffic stress only suitable for more experienced riders. These include Colusa Street, South Street, and Solano Street, which represent three of the four CNFR rail line crossings in Corning. Solano Street between Interstate 5 and 3rd Street displays among the highest LTS within the developed neighborhoods of Corning.

Less confident riders may choose to ride on sidewalks if on-street bicycle facilities are unavailable

Primary north-south roads, including Edith Avenue, Toomes Avenue, Houghton Avenue, 3rd Street, 2nd Street, and Marguerite Avenue, display an elevated LTS. Many of these roads serve local schools and provide access to Solano Street retail destinations. Major regional routes into and out of Corning, including 3rd Street and State Route 99 W, exhibit the greatest level of traffic stress for cyclists, likely due to heavy traffic volumes and high automobile speeds.

Figure 8 - Corning Level of Traffic

CITY OF CORNING
BICYCLE AND PEDESTRIAN
TRANSPORTATION IMPROVEMENT PLAN



Targeting bicycle facility improvements on high LTS roadway segments will establish the core Corning bicycle network and encourage bicycle travel for riders of all abilities. Bicycle improvements are especially important for crosstown streets that traverse Corning's two primary barriers to travel – Solano Street and the CNFR rail line. These corridors serve as essential connectors between residential neighborhoods and local destinations across Corning's four quadrants.

Table 4 - Local Destinations and their Level of Traffic Stress

Tolerated by Mainstream Adult Riders			
Solano Street	Sav Mor Corning Medical Center	**Houghton Avenue**	West Street Elementary School Community Park
Edith Avenue	Spring Mountain Apartments Safeway	**3rd Street**	City Hall Corning Library Transportation Center
Toomes Avenue	Woodson Elementary School Corning West Apartments Tehama Village Community Park	**Blackburn Avenue**	Corning Union High School
		Colusa Street	Northside Park
Marguerite Avenue	Corning Union High School Corning Medical Center Olive View School Maywood Middle School Centennial School Estil C. Clark Park	**South Street**	West Side Elementary School Senior Center Woodson Park
		For Enthused and Confident Riders	
		Solano Street	Downtown City Hall Transportation Center

Bicycle- and Pedestrian-Involved Collisions

Examining collisions involving cyclists and pedestrians may reveal high-risk conflict areas and potential gaps in the active transportation network. Locations with repeated incidents may warrant targeted safety interventions.

Between 2009 and 2013, six pedestrian-involved traffic collisions and twelve cyclist-involved collisions occurred in Corning. Of the 76 collisions that occurred in Corning during this period, pedestrian- and cyclist-involved collisions account for 8 percent and 16 percent of the total, respectively. All pedestrians involved in collisions suffered minor injuries, but no fatalities were reported. All bicyclists involved in collisions suffered injuries, two of them severe, but no fatalities were reported.

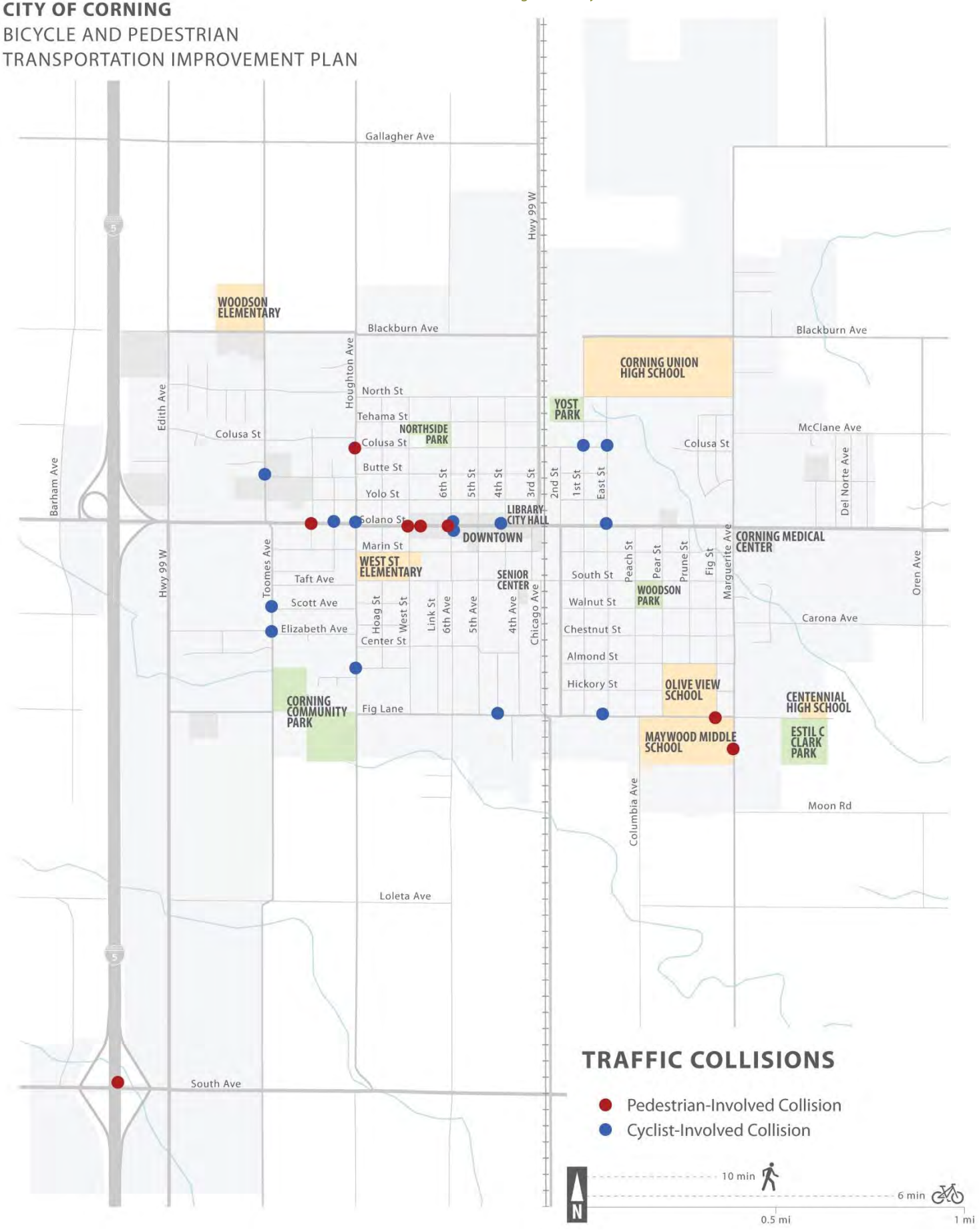
The majority of the recorded bicycle and pedestrian collisions occurred on the main Corning arterials and collectors. Solano Street displayed the highest collision rate for any single corridor, particularly the stretch between Toomes Avenue and 3rd Street, which experienced nearly half of all bicycle and pedestrian collisions in Corning. The Solano Street intersections with West Street and 6th Street each experienced multiple collisions over the five-year period. Colusa Street, Fig Lane, and Toomes Avenue are among the other corridors where multiple collisions have been recorded.

Year	Fatal					Injury - Severe				
	All	Pedestrian		Bicycle		All	Pedestrian		Bicycle	
	Total	Total	%	Total	%	Total	Total	%	Total	%
2009	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	1	-	-	1	100%
2012	-	-	-	-	-	1	-	-	1	100%
2013	-	-	-	-	-	-	-	-	-	-

Year	Injury - Complaint of Pain					Injury - Other Visible				
	All	Pedestrian		Bicycle		All	Pedestrian		Bicycle	
	Total	Total	%	Total	%	Total	Total	%	Total	%
2009	6	-	-	1	17%	7	1	14%	1	14%
2010	7	-	-	1	14%	8	2	25%	3	38%
2011	9	1	11%	-	-	5	-	-	1	20%
2012	12	1	8%	1	8%	6	-	-	2	33%
2013	11	1	9%	-	-	3	-	-	-	-

Table 5 - Bicycle- and Pedestrian-Involved Collisions. Source: California Statewide Integrated Traffic Records System.

Figure 9 - Bicycle- and Pedestrian Involved Collisions



Active Transportation Challenges

Despite many favorable underlying conditions, several impediments to active transportation exist today.

Auto-Oriented Streets

Many streets in Corning feature wide curb-to-curb distances, resulting in a travel environment that is welcoming to people traveling in automobiles but prohibitive to people traveling by foot or by bicycle. Wide streets increase pedestrian crossing distances and encourage high-speed automobile traffic, reducing both the perceived and actual roadway safety for cyclists and pedestrians. In many cases, roadway widths reach up to 50 or 60 feet across despite the presence of just two travel lanes and on-street parking, a roadway configuration that typically only requires 40 feet to be accommodated comfortably. Rethinking how this excess space can be utilized provides an opportunity for expanded bicycle and pedestrian amenities citywide.

Incomplete Pedestrian Network

The incomplete pedestrian network is a result of discontinuous walking pathways in many Corning neighborhoods. This can be attributed to the incremental development of older neighborhoods over time coupled with a lack of a sidewalk improvement program for areas long in need of basic pedestrian facilities. While sidewalk connectivity is strong in the core downtown area, within new developments, and along Safe Routes to School corridors, some peripheral neighborhoods are significantly isolated for residents who choose to or rely on walking as a primary mode of travel. Building off of the success of recent Safe Routes to School improvement projects and further enhancing pedestrian connectivity between neighborhoods and key community destinations is a primary goal of this plan.

The lack of pedestrian-friendly amenities can limit access to activity centers such as Olive View Elementary School.

Intersections/Crossings

In addition to a complete sidewalk network, pedestrian-friendly roadway crossings are integral to a successful pedestrian environment in Corning. Safe roadway crossings are especially critical along pedestrian routes featuring wide roadways and high automobile speeds, which alone are major deterrents to pedestrian travel. Well-designed crossing features can greatly enhance the pedestrian experience at a relatively low cost and minimal impact to automobile traffic. Crosswalk improvements,

Crosswalks support safe pedestrian passage of intersections.

.

complete with ADA design features, will ensure that the Corning pedestrian network is accessible for users of all abilities.

Lack of Bicycle Facilities

The recently completed Solano Street bike lanes represent the very first on-street bicycle facilities in Corning. Elsewhere in Corning, roads are shared by automobiles and cyclists without any mode segregation or indicators announcing the presence of bicycles, creating an unappealing environment for people on bicycles and potentially dangerous environment for all travelers. Expanding on the Solano Street improvements and implementing a citywide bicycle network can minimize safety concerns and encourage more residents to utilize a bicycle for daily travel. This plan will detail a bicycle network that is suitable for Corning by identifying bicycle facility designs that are well-matched to roadway conditions and residents' unique travel needs.

Physical Barriers

Two major physical barriers to active transportation separate the City into four quadrants: Solano Street and the California Northern railroad tracks. Solano Street, the former Highway 99 route running east-west through Corning, maintains its wide right-of-way and auto-oriented nature from its days as a state highway. Pedestrians and cyclists crossing Solano Street must traverse four wide lanes of high volume traffic at limited controlled crossing locations in order to pass between the north and south sides of town. Some uncontrolled, low visibility crosswalks are marked along the street, but automobiles seldom yield to pedestrians and cyclists attempting to cross.

Running north-south, the CNFR rail line divides the eastern and western portions of Corning. Freight trains pass through once a day via an automatic control system. Rail crossings are limited to four at-grade crossings at Colusa Street, Solano Street, South Street, and Fig Lane. Each of the four at-grade crossings lack sidewalks and other basic pedestrian amenities, creating a significant deterrent to movements across the tracks. The plan will address these crossing challenges along Solano Street and the Union Pacific tracks, evaluating improvement projects that will facilitate more seamless pedestrian and bicycle movement between Corning's four quadrants.

The CNFR rail line poses a substantial barrier to pedestrian pathways

This page intentionally left blank

CHAPTER 2
Public Outreach

Introduction

In order to better comprehend the mobility and access needs in the City of Corning, key stakeholder groups were identified early in the preparation of the Plan and invited to provide their input and observations about the study area in a series of focused meetings. These groups included local bicycle, transit, and advocacy groups, business owners, school officials, and law enforcement. These focused meetings were followed up with two bilingual community workshops where additional feedback about the corridor was collected. The information collected by both the focus groups and community workshop was organized by the project team and is summarized in this chapter.

Joint City Council and Planning Commission Meeting – January 2015

Adrian Engel and Greg Behrens of Echelon Transportation Group attended a joint Corning City Council and Planning Commission meeting to introduce the project to local decision makers. The 30-minute presentation and subsequent question and answer session addressed project goals, project schedule, potential stakeholders, and the purpose of completing a bicycle and pedestrian improvement plan.

Community participants and team members at the walk audit

Stakeholder Meetings

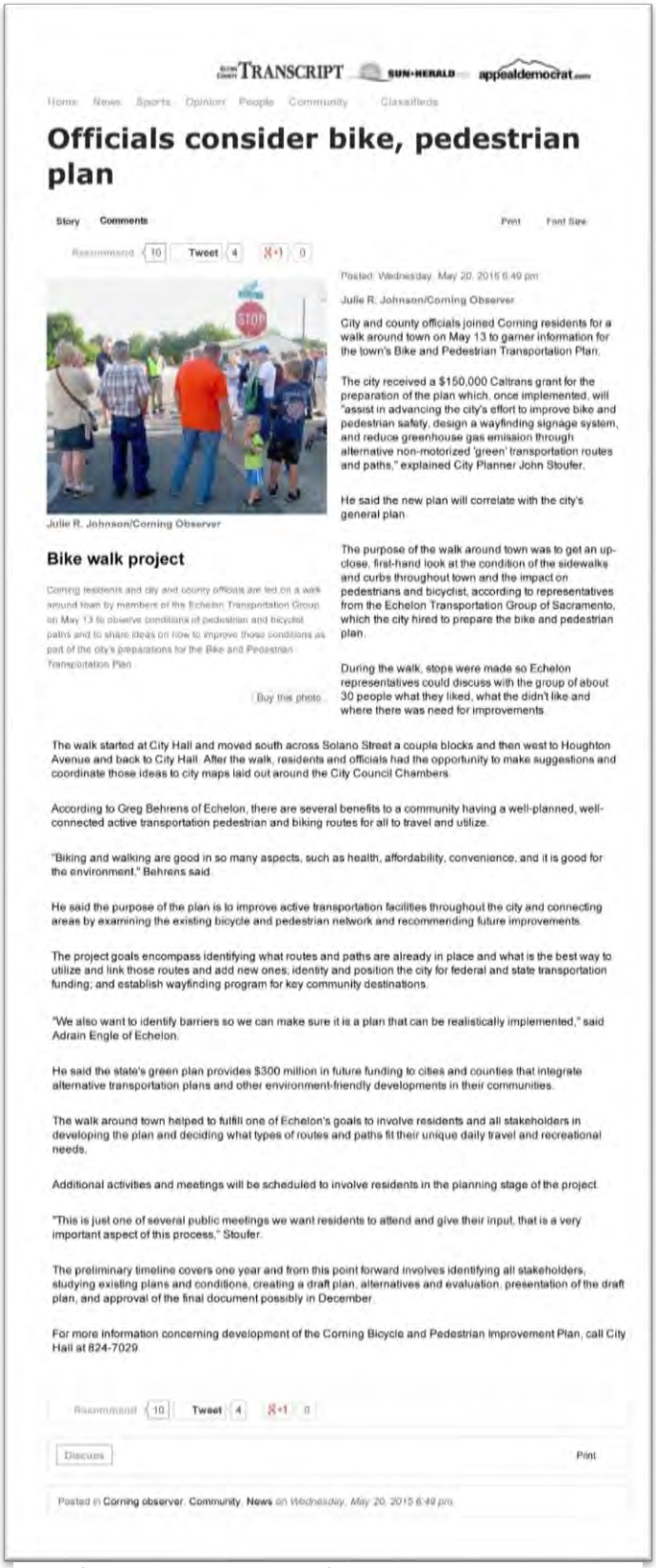
In March 2015, multiple stakeholders were interviewed with representatives from local schools, regional public agencies, civic groups, and members of the general public. The purpose of the interviews were to introduce the project to local stakeholders, and to begin to gather feedback regarding existing conditions and opportunities for improvements to the Corning bike and pedestrian network.

The following **stakeholder groups** participated in the interviews:

- Tehama County Transportation Commission
- Tehama County Air Pollution Control District
- CA State Parks
- Corning Police Department
- Corning Chamber of Commerce
- Corning Elementary School District
- Woodson Elementary School
- Various Corning residents

Stakeholders provided input on a variety of **themes**, including:

- Frequent destinations and activity centers
- Favored routes for walking and bicycling
- Perceived safety problems along the existing non-motorized transportation network
- Bike and pedestrian facility improvement needs
- New and future developments
- Upcoming community events
- Additional stakeholders to solicit for feedback
- Opportunities for regional funding



TRANSCRIPT SUN-HERALD appealdemocrat.com

Home News Sports Opinion People Community Classifieds

Officials consider bike, pedestrian plan

Story Comments Print Font Size

Recommend 10 Tweet 4 +1 0

Julie R. Johnson/Corning Observer

Bike walk project

Corning residents and city and county officials are led on a walk around town by members of the Echelon Transportation Group on May 13 to observe conditions of pedestrian and bicyclist paths and to share ideas on how to improve those conditions as part of the city's preparations for the Bike and Pedestrian Transportation Plan.

Buy this photo

Posted: Wednesday, May 20, 2015 6:49 pm

Julie R. Johnson/Corning Observer

City and county officials joined Corning residents for a walk around town on May 13 to garner information for the town's Bike and Pedestrian Transportation Plan.

The city received a $150,000 Caltrans grant for the preparation of the plan which, once implemented, will "assist in advancing the city's effort to improve bike and pedestrian safety, design a wayfinding signage system, and reduce greenhouse gas emission through alternative non-motorized 'green' transportation routes and paths," explained City Planner John Stoufer.

He said the new plan will correlate with the city's general plan.

The purpose of the walk around town was to get an up-close, first-hand look at the condition of the sidewalks and curbs throughout town and the impact on pedestrians and bicyclist, according to representatives from the Echelon Transportation Group of Sacramento, which the city hired to prepare the bike and pedestrian plan.

During the walk, stops were made so Echelon representatives could discuss with the group of about 30 people what they liked, what the didn't like and where there was need for improvements.

The walk started at City Hall and moved south across Solano Street a couple blocks and then west to Houghton Avenue and back to City Hall. After the walk, residents and officials had the opportunity to make suggestions and coordinate those ideas to city maps laid out around the City Council Chambers.

According to Greg Behrens of Echelon, there are several benefits to a community having a well-planned, well-connected active transportation pedestrian and biking routes for all to travel and utilize.

"Biking and walking are good in so many aspects, such as health, affordability, convenience, and it is good for the environment," Behrens said.

He said the purpose of the plan is to improve active transportation facilities throughout the city and connecting areas by examining the existing bicycle and pedestrian network and recommending future improvements.

The project goals encompass identifying what routes and paths are already in place and what is the best way to utilize and link those routes and add new ones; identity and position the city for federal and state transportation funding; and establish wayfinding program for key community destinations.

"We also want to identify barriers so we can make sure it is a plan that can be realistically implemented," said Adrain Engle of Echelon.

He said the state's green plan provides $300 million in future funding to cities and counties that integrate alternative transportation plans and other environment-friendly developments in their communities.

The walk around town helped to fulfill one of Echelon's goals to involve residents and all stakeholders in developing the plan and deciding what types of routes and paths fit their unique daily travel and recreational needs.

Additional activities and meetings will be scheduled to involve residents in the planning stage of the project.

"This is just one of several public meetings we want residents to attend and give their input, that is a very important aspect of this process," Stoufer.

The preliminary timeline covers one year and from this point forward involves identifying all stakeholders, studying existing plans and conditions, creating a draft plan, alternatives and evaluation, presentation of the draft plan, and approval of the final document possibly in December.

For more information concerning development of the Corning Bicycle and Pedestrian Improvement Plan, call City Hall at 824-7029.

Recommend 10 Tweet 4 +1 0

Discuss Print

Posted in Corning observer: Community: News on Wednesday, May 20, 2015 6:49 pm.

Article from the Corning Observer from May 20, 2015

Public Workshop and Walk Audit

In May 2015, the team conducted the first public workshop for the Corning Bicycle and Pedestrian Transportation Improvement Plan. The purpose of the workshop was to solicit feedback from the general public regarding existing conditions and potential improvements to the bike and pedestrian network in Corning. The workshop was publicly noticed through flyers and emails that were distributed throughout Corning.

Immediately before the workshop, attendees were invited to participate in a walk audit in the area surrounding Corning City Hall. The guided tour provided participants with an opportunity to see specific examples of bicycle and pedestrian challenges and opportunities that will be addressed in the plan. The South Street railroad crossing, West Street Elementary, and Solano Street were among the destinations of the walk audit. Approximately 30 people attended the walk audit.

Walk audit participants inspect sidewalk conditions along 3rd Street

Members of the ETG team discussed walking and cycling issues with walk audit participants

Following the walk audit, participants reconvened at Corning City Hall for the workshop. The project team delivered a presentation explaining the benefits of active transportation and introducing potential bicycle and pedestrian improvement concepts. After the presentation, participants were asked to visit work stations arranged around the Council Chambers and provide input on a variety of topics ranging from local bicycle and pedestrian improvement opportunities to wayfinding signage design and locations. Participants recorded their ideas on large-sized maps of Corning and the broader Corning region.

Workshop attendees settle in for the active transportation presentation delivered by Paul Zykofsky of LGC

Excerpt from bilingual presentation from the public workshop

Workshop attendees provided feedback at various mapping stations

Community comments from public workshop

Ayude a que Corning sea una ciudad más segura y saludable

Plan para mejorar condiciones para ciclistas y peatones

Help Make Corning Safer & Healthier for Everyone

Corning Bicycle and Pedestrian Improvement Plan

Community Design Workshop

Join your neighbors and colleagues to share ideas and identify strategies to:

- Improve walking and bicycling conditions for people of all ages and abilities.
- Create safe routes to schools, parks, trails and other destinations.
- Promote healthy, active neighborhoods and economic development.

A professional planning and design team will translate your input into solutions to improve safety and mobility for everyone in Corning.

For more info
John Stoufer, City of Corning
530-824-7036
jstoufer@corning.org

Greg Behrens, 916-442-4986
gbehrens@echelon
transportationgroup.com

Wednesday, May 13

Walk Corning Streets
(with the project team)
- 5:00-6:00 p.m.

Identify Problem Areas and Opportunities
- 6:00-8:00 p.m.

Corning City Hall, 794 3rd St.

Light dinner & refreshments provided.

Children welcome!

The meeting will be conducted in both Spanish and English.

Hosted by the City of Corning, in partnership with the Local Government Commission and the Echelon Transportation Planning Group. Funded by a Caltrans Community-Based Transportation Planning Grant received by the City of Corning

Example of flyer distributed throughout the community

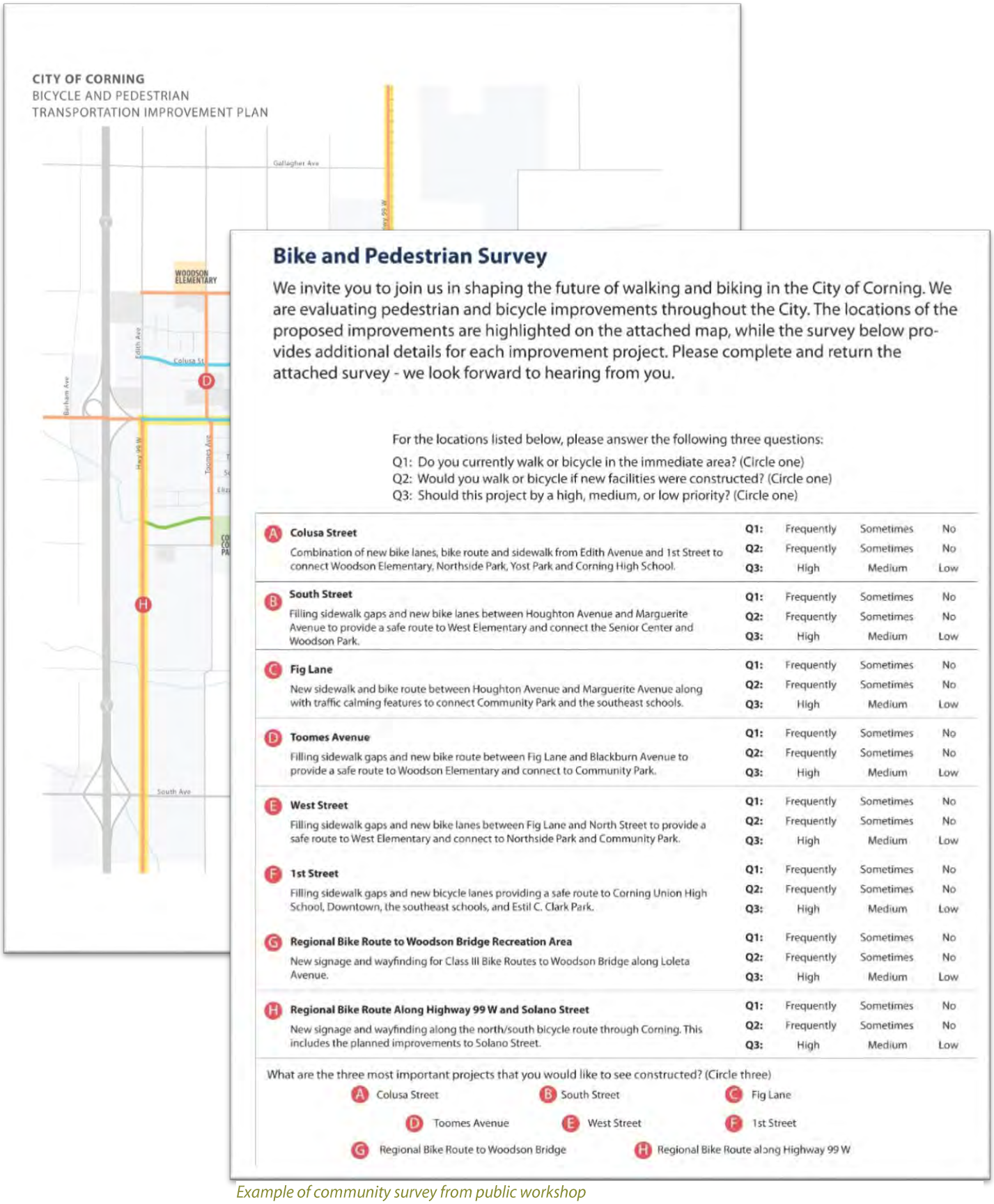
Second Public Workshop

In December 2015, the team conducted a second public workshop for the Corning Bicycle and Pedestrian Transportation Improvement Plan. The purpose of the workshop was to solicit feedback from the general public regarding the proposed bicycle and pedestrian improvements and expanded active transportation network in Corning. The workshop was publicly noticed through flyers and emails that were distributed to previous attendees and stakeholders.

The format of the workshop was a general open house that allowed people to circulate around the room observing the recommendations. Feedback was solicited through conversations with the project staff, through comment cards, and a survey form. The feedback from the public was used to finalize the recommendations in the document.

Discussions about the traffic calming toolbox

City staff describing the benefits of the Plan



CITY OF CORNING
BICYCLE AND PEDESTRIAN
TRANSPORTATION IMPROVEMENT PLAN

Gallagher Ave

WOODSON ELEMENTARY

Edith Ave

Colusa St

Barham Ave

Hwy 99 W

Toomes Ave

South Ave

Bike and Pedestrian Survey

We invite you to join us in shaping the future of walking and biking in the City of Corning. We are evaluating pedestrian and bicycle improvements throughout the City. The locations of the proposed improvements are highlighted on the attached map, while the survey below provides additional details for each improvement project. Please complete and return the attached survey - we look forward to hearing from you.

For the locations listed below, please answer the following three questions:

Q1: Do you currently walk or bicycle in the immediate area? (Circle one)
Q2: Would you walk or bicycle if new facilities were constructed? (Circle one)
Q3: Should this project by a high, medium, or low priority? (Circle one)

A Colusa Street Combination of new bike lanes, bike route and sidewalk from Edith Avenue and 1st Street to connect Woodson Elementary, Northside Park, Yost Park and Corning High School.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
B South Street Filling sidewalk gaps and new bike lanes between Houghton Avenue and Marguerite Avenue to provide a safe route to West Elementary and connect the Senior Center and Woodson Park.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
C Fig Lane New sidewalk and bike route between Houghton Avenue and Marguerite Avenue along with traffic calming features to connect Community Park and the southeast schools.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
D Toomes Avenue Filling sidewalk gaps and new bike route between Fig Lane and Blackburn Avenue to provide a safe route to Woodson Elementary and connect to Community Park.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
E West Street Filling sidewalk gaps and new bike lanes between Fig Lane and North Street to provide a safe route to West Elementary and connect to Northside Park and Community Park.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
F 1st Street Filling sidewalk gaps and new bicycle lanes providing a safe route to Corning Union High School, Downtown, the southeast schools, and Estil C. Clark Park.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
G Regional Bike Route to Woodson Bridge Recreation Area New signage and wayfinding for Class III Bike Routes to Woodson Bridge along Loleta Avenue.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low
H Regional Bike Route Along Highway 99 W and Solano Street New signage and wayfinding along the north/south bicycle route through Corning. This includes the planned improvements to Solano Street.	**Q1:**	Frequently	Sometimes	No
	Q2:	Frequently	Sometimes	No
	Q3:	High	Medium	Low

What are the three most important projects that you would like to see constructed? (Circle three)

A Colusa Street B South Street C Fig Lane
D Toomes Avenue E West Street F 1st Street
G Regional Bike Route to Woodson Bridge H Regional Bike Route along Highway 99 W

Example of community survey from public workshop

Survey Results

Although there were not enough survey responses to have a statistically valid representation of the population of Corning, the attendees were generally in favor of the project. The responses regarding prioritization were evenly distributed throughout the community, touching all four quadrants of the City. The results support the idea that the City needs to develop a connected network of bikeways and sidewalks to facilitate access to its many different social, retail, and institutional amenities. In alignment with City staff and stakeholder recommendations, the responses did highlight the need for traffic calming and complete street improvements for Fig Lane.

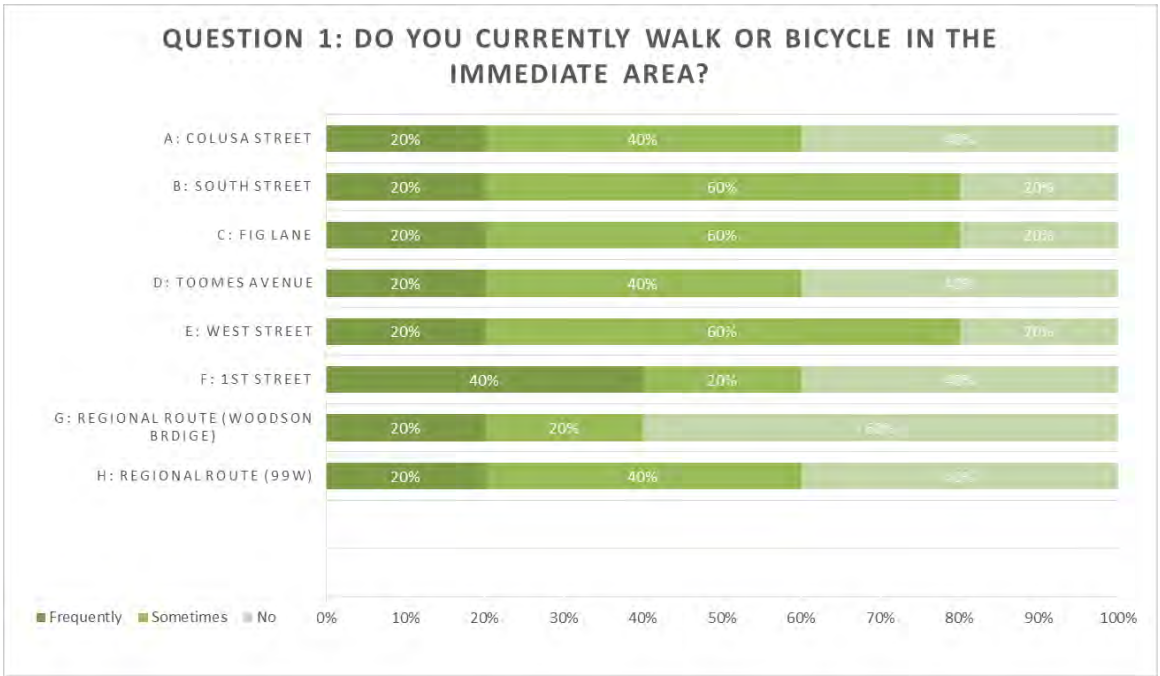


Figure 10 – Survey Question 1 Results

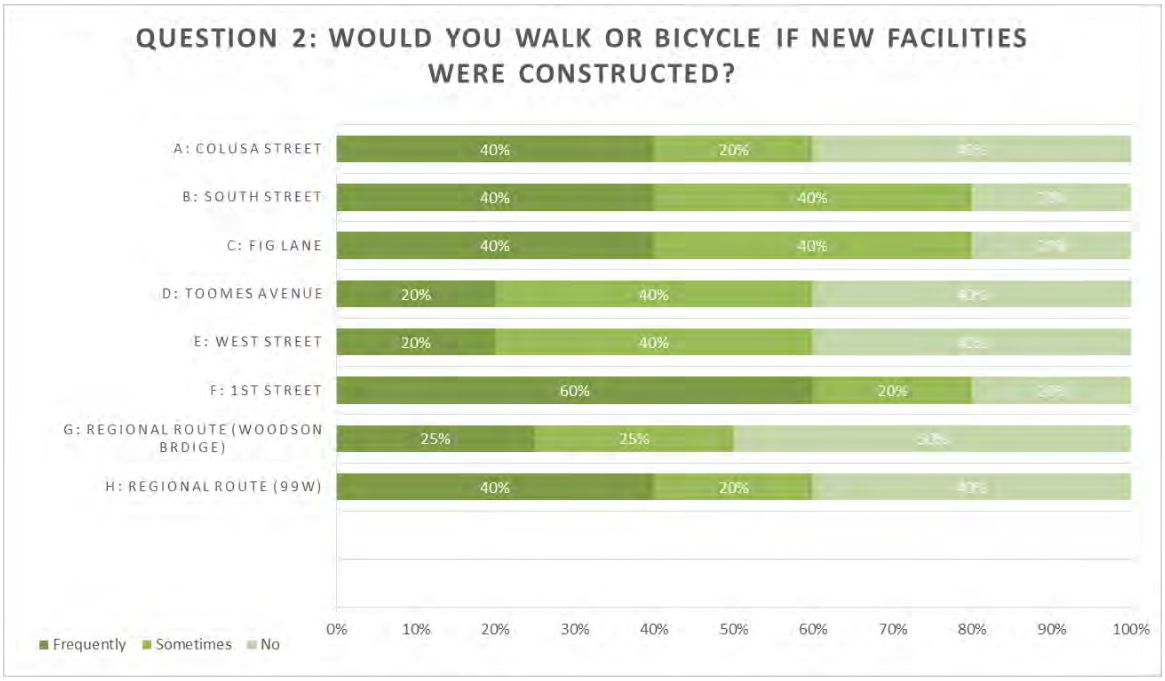


Figure 11 – Survey Question 2 Results

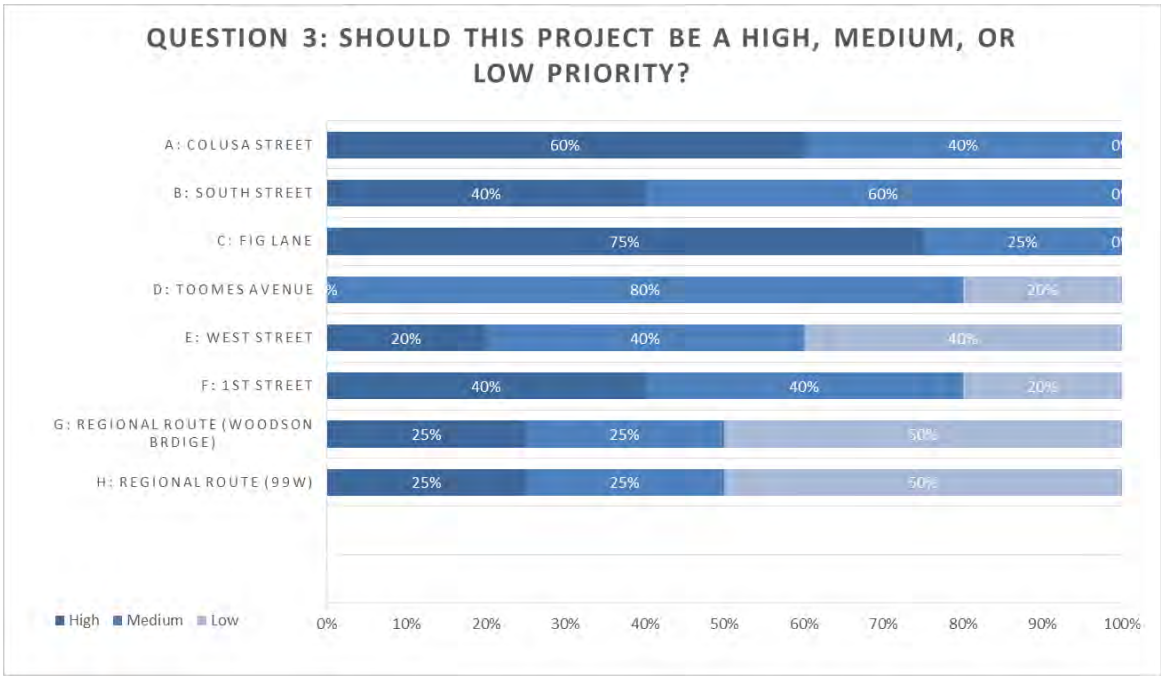


Figure 12 – Survey Question 3 Results

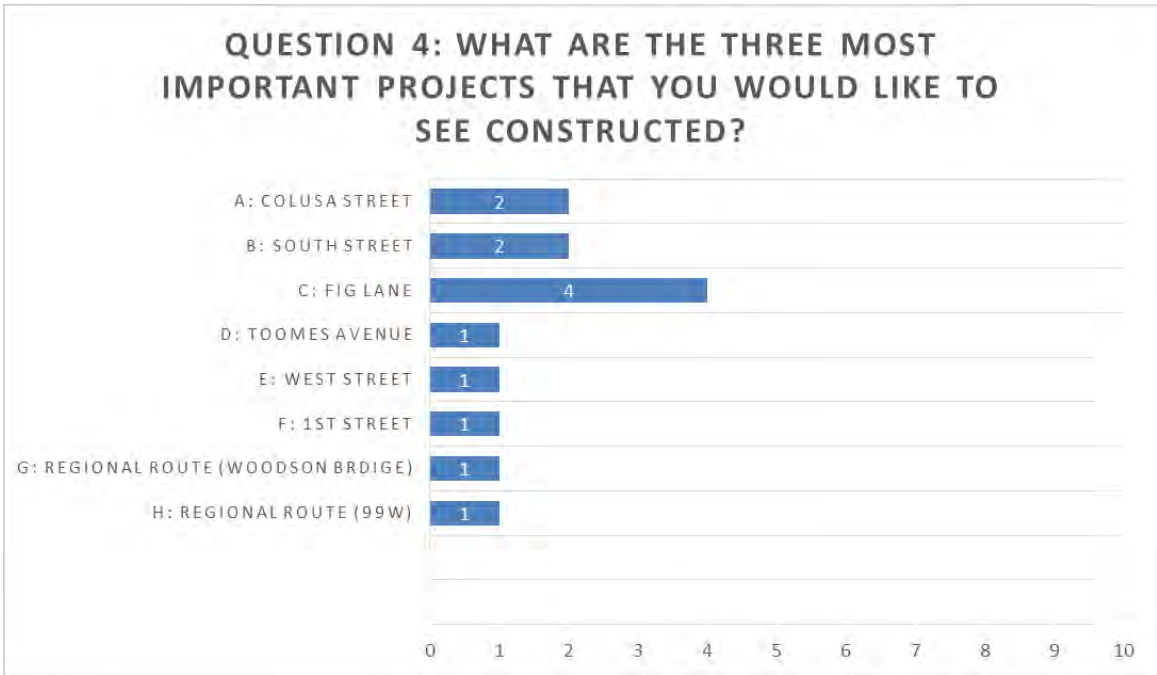


Figure 13 – Survey Question 4 Results

CHAPTER 3
Wayfinding

Introduction

Wayfinding signage serves to inform people of their surroundings in the built environment, showing information at strategic points and guiding people with clear directions. Successful wayfinding is exemplified by an orderly structuring of information and graphics enabling people to comfortably and successfully navigate the environment. When the information is provided in a thoughtful, structured fashion, the unfamiliar quickly becomes comfortable, friendly, and welcoming. A successful wayfinding system manages this experience using signage as a communication tool that not only facilitates access, but also reflects the civic culture and environment of its setting. Finally, wayfinding encourages accessibility and public safety, focusing on all modes of transportation, by foot, bicycle and automobile.

Wayfinding Principals

Effective wayfinding implemented in the City of Corning will address these primary principals:

- Provide a comprehensive, clear and consistent visual communication system with concise messaging.
- Include visitor & first time user-centric messaging on signs, which is logical, succinct and understandable outside the community
- Follow all federal guidelines for font legibility, viewing distance, placement and sign reflectivity.
- Show information that is relevant is to the space, location and navigation path.

In addition, addressing the following secondary principals will assure the wayfinding system remains effective for the City over the long term:

- Be flexible and updatable in order to address diverse functional present-day needs as well as future development
- Utilize easily obtained, cost effective materials and fabrication techniques
- Develop standardized signage types to maximize unit cost over time

Existing wayfinding near freeway on Solano Street

Wayfinding Signage Categories

There are several types and categories of wayfinding signs including: Vehicular, Bicycle and Pedestrian Directional signage, Pedestrian Orientation Kiosks, Bicycle Route and Trail Markers, Site Identification, Building identification, Building Directory, and Parking Identification. This report focuses on directional signage for vehicles, pedestrians and cyclists.

Three graphical options for the sign types were presented to the public at a workshop. The themes were all well received but the dark olive signs were preferred and are detailed below.

Vehicular Directional Signage

The purpose of vehicular signs is to direct vehicular traffic to specific sites, facilities and parking. These signs should be positioned perpendicular to the roadway and each sign should include no more than four destinations.

Pedestrian

Pedestrian signs are used to direct pedestrian traffic to specific destinations including: sites, facilities and parking.

Directional Signs: Pedestrian directional signs are used to direct pedestrian traffic within the City. They should be located at strategic locations where pedestrian paths cross, or where multiple destinations may be located within walking distance. These signs should be located adjacent to or within walkways, where space allows, and may be mounted to new poles or existing poles where available and introduction of new poles is not possible or desired.

Kiosks/Orientation Maps: Orientation kiosks provide a visual map of the City or neighborhood, and serve to provide context and location of specific destinations.

Bicycle Directional and Trail Marker Signs

Bicycle Directional signs are used to direct cyclists to entry points along the City's bicycles circulation system. Trail Markers signs are located along the bicycle system to supplement other bicycle route identification.

These signs should be positioned perpendicular to the bicycle lane or trail and should include only one arrow and a bicycle symbol visible from an appropriate distance

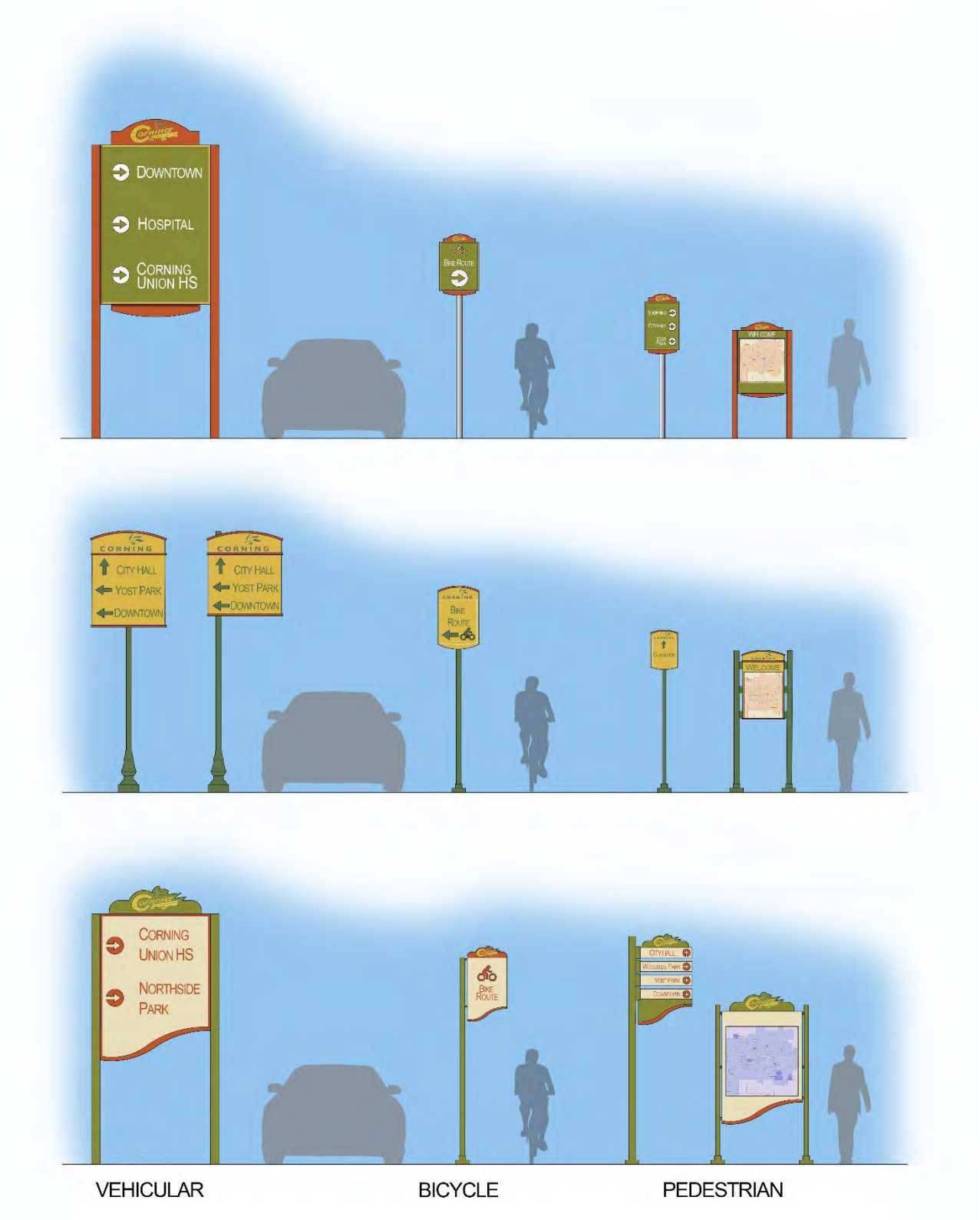


Figure 14 - Wayfinding aesthetic options presented at the first public workshop

Signage Guidelines

The following guidelines are intended to assist the City in the development and maintenance of a successful and cost effective wayfinding system. Wayfinding involves the development of a consistent vocabulary of design and materials which can function in creating a positive image, evoke a sense of history, quality, and character, establishing gateways and improving the streetscape. Additionally, wayfinding involves accessibility and public safety. It focuses the attention of walkers, cyclists, and drivers reducing accidents and liability costs.

Graphics

Consistency

A graphic standardization for the entire wayfinding system should be established so the same color palette, typography, form and construction of the various sign types are consistent over time throughout the City.

Branding

The City logo should be included on every sign, located consistently at the top of the sign. The size of the logo should be adjusted to the proportions of the sign on which is placed and the audience the sign is intended to serve. The City had a few different versions of its logo at the time of this study. The "Yellow Marketing Swoosh" version of the City logo would be the most appropriate as it will likely be best recognizable from a distance at a reasonable size for all Wayfinding signage sizes and categories.

No other logos should be included on the signs.

The color palette of red, yellow and olive green used in the City of Corning's logo and branding should be incorporated into the signs' frames, accents, borders and logo area. For the primary information fields, lettering and arrows of complimentary colors may be appropriate in order to provide the proper amount of visual contrast and reflectivity as indicated below.

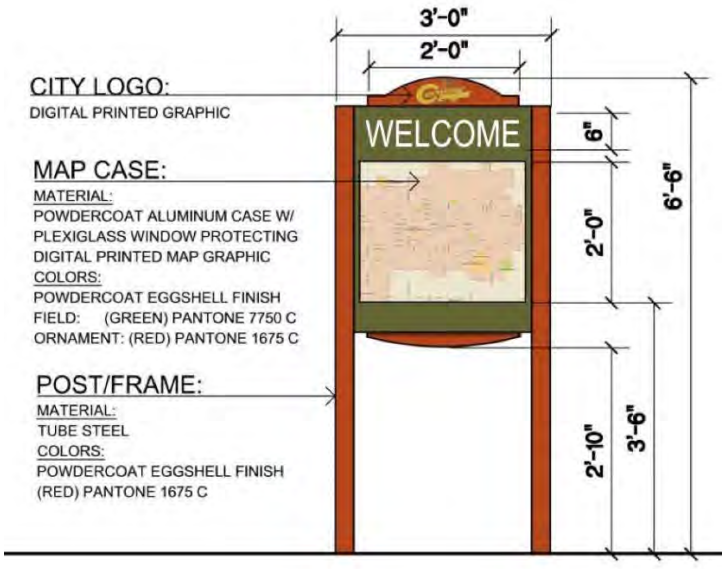


Figure 15 - Pedestrian kiosk schematic

Typography Style

With the exception of the City logo, a sans serif font should be used for all primary signage information All fonts should comply in width/height and stroke/width ratios of the latest ADA Accessibility Guidelines (ADAAG).

Destinations should use mixed case letters (e.g. upper case and lower case).

Typography Size

Vehicular oriented signs should have a minimum 4"cap for graphics (arrows) and destination information. An additional 1" increase in cap size should be provided for all traffic over 35 mph and/or additional 50' anticipated viewing distance.

Minimum text size for destinations on pedestrian and bicycle oriented signage should be 2" .

The sizing of a sign faces will need to be carefully considered to comfortably accommodate expected messages with appropriate spacing. In no case should text be tightly spaced just to fit on an improperly sized sign.

Contrast and Reflectivity

Characters and symbols should have a minimum 70% contrast with their background. Most paint and ink manufacturers will provide a list of reflectance values for specific colors.

All signs shall be designed for day and night conditions using reflective lettering or backgrounds to show the same shape and similar color by both day and night.

Finishes

Finishes of the informational components of signs shall have an eggshell, matte or other non-glare finish. Gloss or semi-gloss finish paints and inks or directional brushed finishes on metal are not appropriate. Signage designer and specifier should include reflectance values in their specifications, and manufacturers should have glossimeter tests made of actual samples to determine compliance.

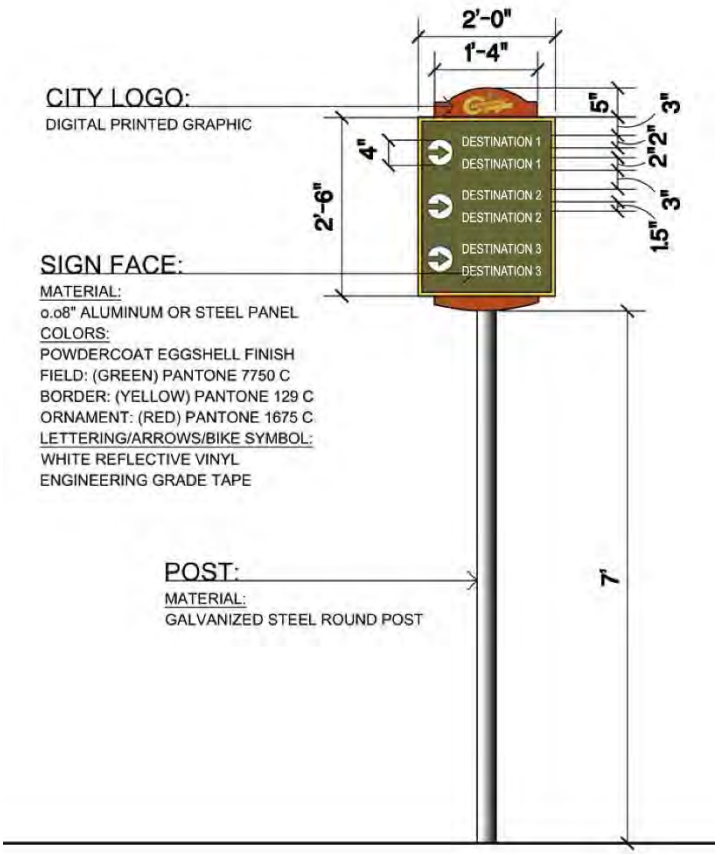


Figure 16 - Pedestrian and bicycle scale wayfinding schematic

Content

Destinations

Signs should not contain more than four destinations. Destinations should be limited to:

- Landmarks
- Districts (business, civic, shopping…etc)
- Neighborhoods
- Civic facilities such as government buildings, parks and schools
- Primary circulation routes such as trails, highways and major streets

Specific named business destinations should be avoided. No redundant or superfluous information should be included.

Generally, the closest destination should be listed on top and the furthest destination shall be listed on the bottom.

It is preferable for each destination to be on one line. For long destination names that do not fit on one line, these approaches should be used in the following order of preference:

- For destination names slightly longer than one line, compress the font horizontally to no less than 90% of its standard size.
- Use intuitive abbreviations in the destination name.
- Use a two-line entry for the destination name.

Arrows

One and only one arrow should be used per destination. Left, right, and compound turn arrows generally provide the clearest direction. Avoid the use of diagonal arrows wherever possible. Arrow symbols should be simple, sized appropriately for the sign type and audience and comply with contrast and reflectivity requirements identified above.

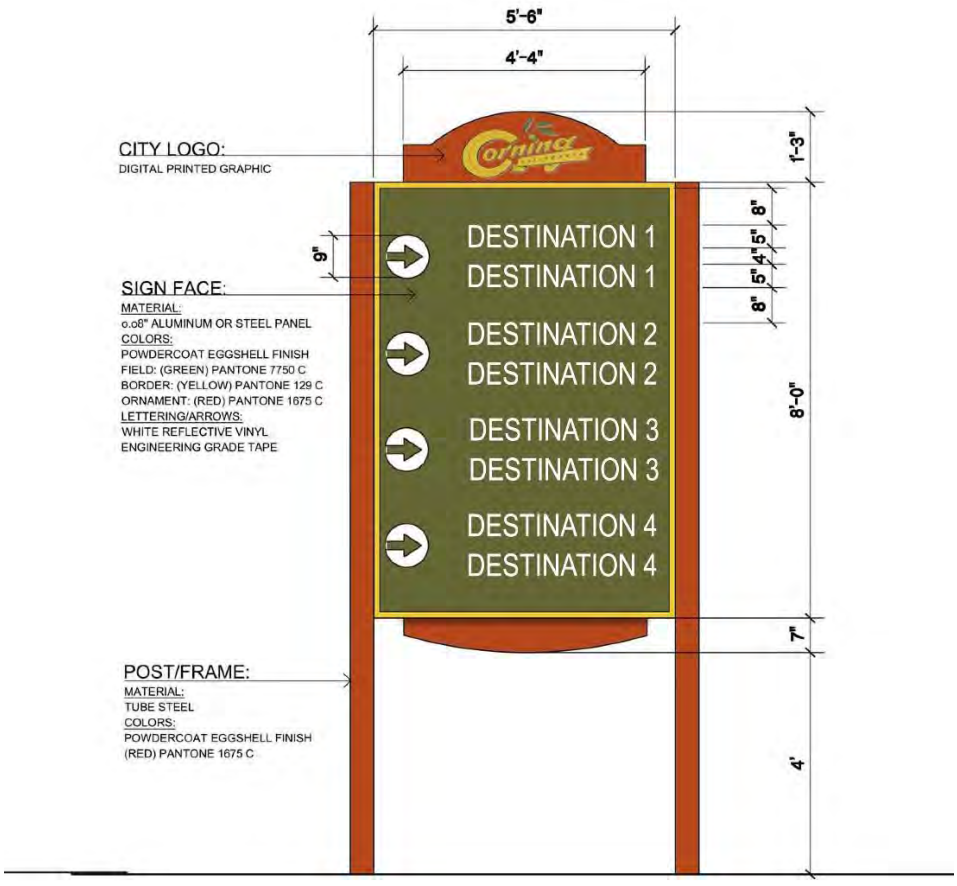


Figure 17 - Vehicular scale wayfinding schematic

Clearance Requirements

Post Mounted Signs

Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 7ft

Signs on posts may overhang 4" maximum where they are more than 27" and less than 80" above the adjacent ground surface. Signs on multiple posts, where the clear distance between the posts or pylons is greater than 12", shall have the lowest edge of the sign either 27" minimum or 80" maximum above the adjacent ground surface.

Signs should be a minimum distance of 5 ft from the bottom or leading edge of the sign to the near edge of curb or pavement.

Breakaway Supports

Ground-mounted signage adjacent to roadways should have breakaway or yielding supports.

Materials

Sign faces should be constructed of .0625" or .0800" thick aluminum or steel panels.

Signage faces and frames should be powder coated with an eggshell finish.

Destination characters and symbols, including arrows, should use reflective vinyl, engineering grade tape (3M or equivalent).

City logo should be digital printed graphic.

All signage surfaces should be vandal resistant and all sign and frame hardware should be concealed where possible.

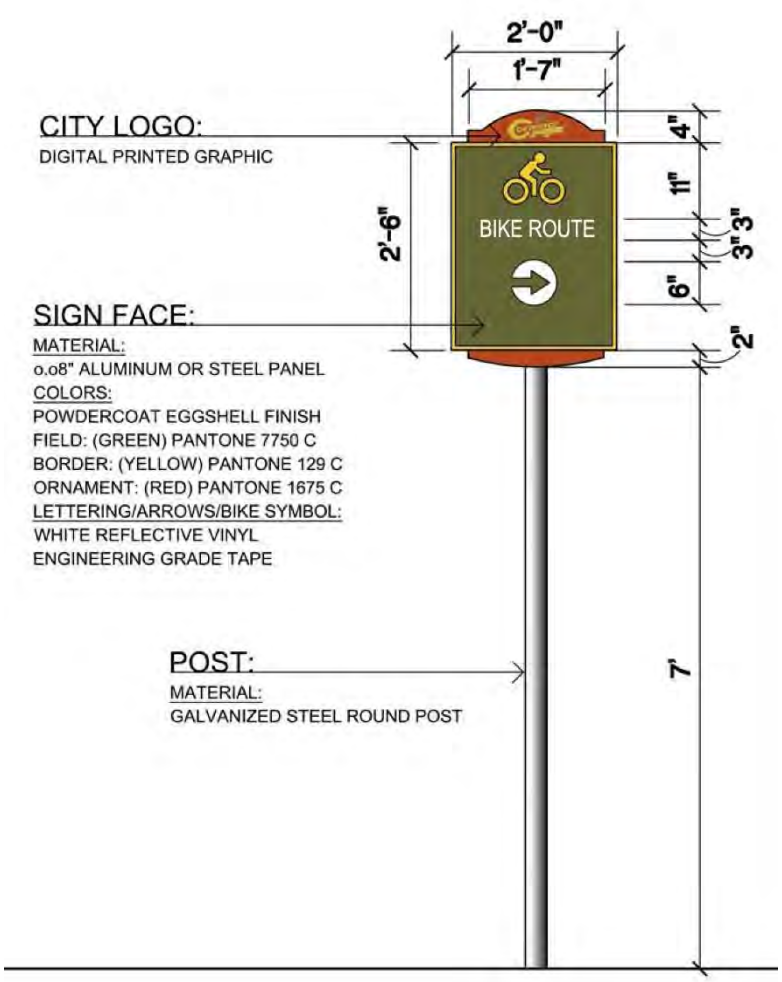


Figure 18 - Bicycle wayfinding schematic

This page intentionally left blank

CHAPTER 4
Proposed Enhancements

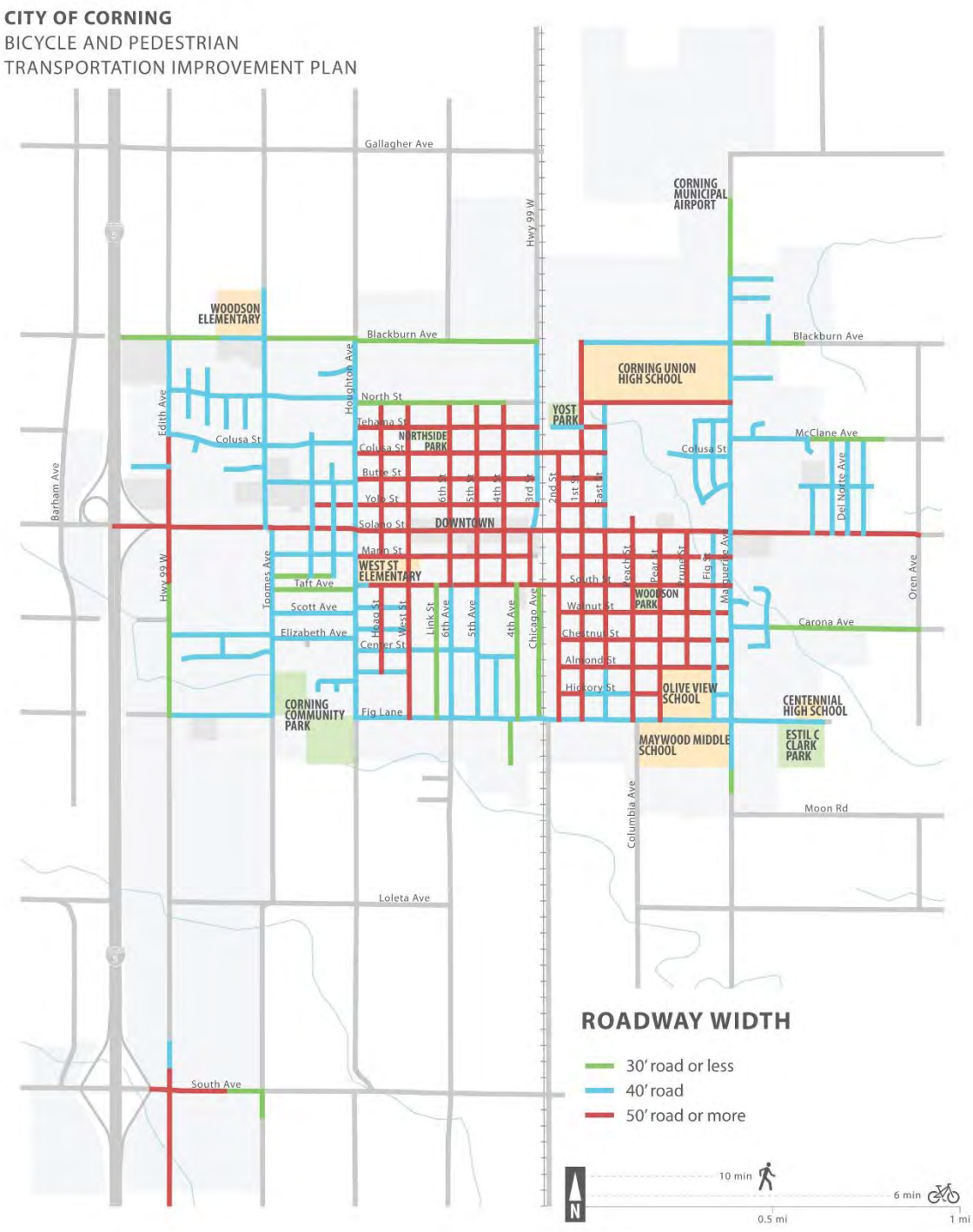
Introduction

Based on agency staff, stakeholder, and community input, the most pressing issue regarding active transportation in the City of Corning is the high vehicle speeds on routes frequented by residents, especially children walking and riding bicycles. Based on the accident data reported during 2009 to 2013, over 20% of the accidents attributed unsafe speed as a contributing factor. The high speeds are a result of low traffic volumes, uncontrolled intersections and exceptionally wide streets. The same roadway qualities that are currently encouraging excessive speeds also create an opportunity for safety enhancements at relatively low costs and straightforward implementation.

The robust gridded street network distributes automobile traffic coming off of Interstate 5 and traveling along Solano Street along multiple routes throughout the city. The gridded streets allow for the creation of a layered transportation network where different streets can be designed or enhanced to accommodate specific users without limiting access to other user types. Streets like 2nd Street and Kirkwood Road can be prioritized for large trucks and industrial traffic while parallel routes like 1st Street can be enhanced for pedestrians and bicycles. The specific pedestrian and bicycle priority networks are discussed in the next chapter.

Typical Corning Street with a greater than 50' curb-to-curb distance

Figure 19. Existing roadway widths



Bicycle Enhancements

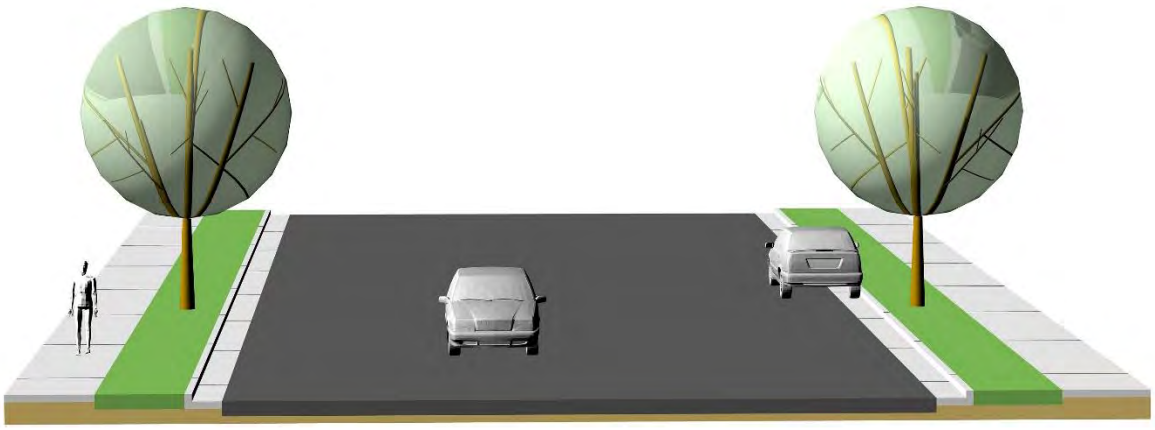


Figure 20 - Rendering that shows the typical lack of striping on Corning streets

Many of the existing roadways in Corning have a curb-to-curb width of over 50 feet. Even with on-street parallel parking accounted for, the resulting traveled way for automobiles is 18 feet wide. The wide lanes encourage automobiles to travel at higher speeds than desired on neighborhood streets. By repurposing the wide pavement, the City has the opportunity not only to calm traffic, but also to create new dedicated bicycle lanes. During scheduled pavement maintenance, or as standalone improvement projects, the City should consider adding striping to narrow traveled lanes and create on-street bicycle lanes.

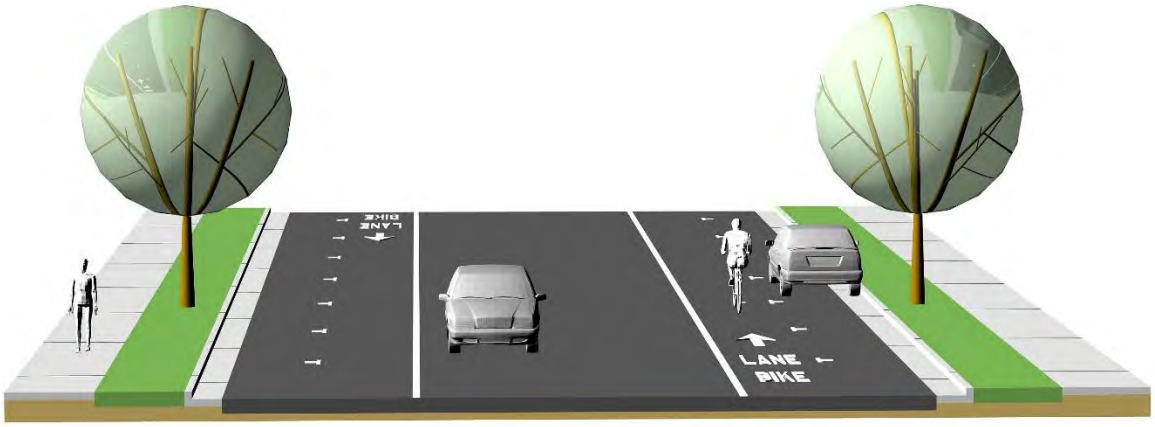


Figure 21 - Typical Class II striping with on-street parking

Bicycle lanes - The standard pavement markings for an on-street bicycle lane (Class II) include a 6-inch white strip, bike lane symbols, and bike lane arrows. Per the State standards, bike lane signs will also need to be added. Striping delineating the parking lane can be added as an option to denote parking opportunities and assist in keeping driveways clear. The resulting roadway cross section limits automobile lanes to 11 feet, creating a more constrained roadway with lower average speeds while still easily accommodating emergency response vehicles, delivery trucks, and buses.

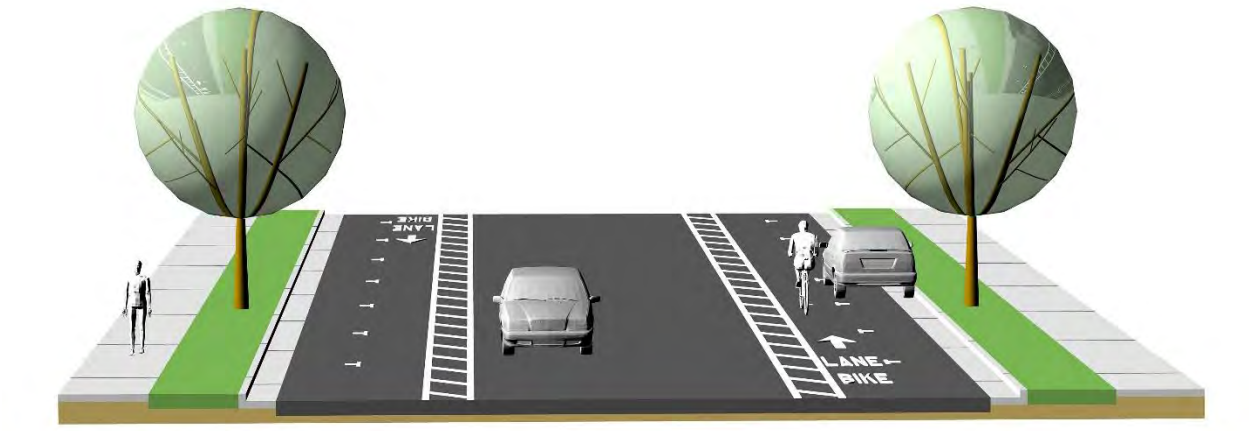


Figure 22 - Optional buffered Class II bike lane striping

Buffered Bicycle Lanes - On priority bicycle corridors, it may be advantageous for the City to increase the separation between automobiles and bicycles. A buffered bicycle lane, per the NACTO Urban Bikeway Design Guide, should be created. Similar in design to a Class II bike lane, buffered bike lanes are on-street facilities with a striped buffer painted on the roadway. A recommended buffer of 3 feet would help less confident bicycle riders feel more comfortable riding adjacent to traffic. A slight narrowing of the lanes to 9 or 10 feet would be required to accommodate the buffer. This narrowing would have an added benefit of calming traffic and inducing slower automobile speeds. Because the buffer is only paint, emergency vehicles would not be restricted and response times would not be adversely affected.

Figure 23 - Example of shared lane making (sharrow) use

Bicycle Routes - On newer neighborhood streets such as Fig Lane and the western portion of Colusa Street, the curb-to-curb width is around 40 feet wide. These roadways do not have the same opportunity to add cost effective bike lanes without eliminating on-street parking or widening the roadway. As an interim solution, Class III bike routes should be signed. In addition to Bike Route signs, shared lane markings or sharrows should be added to the travel lanes to inform drivers about the increased presence of bicycles and to share the road safely. As opportunities present themselves, or when there is an increased demand for better bicycle facilities, the City should explore widening these roadways or eliminating parking on key Class III bike routes to create dedicated bike lanes.

Figure 24 - Shared Lane Marking

Example of enhanced pedestrian crossing

Intersection Enhancements

Along with unsafe speeds, many of the accidents reported in Corning are located at the intersection of two roadways. There are a number of improvements that can be made to the intersections to increase safety for all users, especially pedestrians and bicycles. Similar to improvements being made on Solano Street, organizing crossing locations, increasing visibility, and slowing automobiles will help reduce conflicts between pedestrians, bicycles, and automobiles.

High Visibility Crosswalks - The methods available for intersection improvements can vary in effectiveness and cost of implementation. Along with striping and signing improvements, simple high visibility crosswalk delineations are a cost effective solution that can be implemented by City crews or as part of an annual pavement maintenance program. High visibility crosswalk markings should be consistent with Chapter 3 of the 2014 California Manual on Uniform Traffic Control Devices (California MUTCD). Figure 3B-19 depicts a potential high visibility crosswalk configuration. Additional warning signage and flashing beacons can be used in conjunction with the crosswalk markings.

Figure 3B-19. Examples of Crosswalk Markings

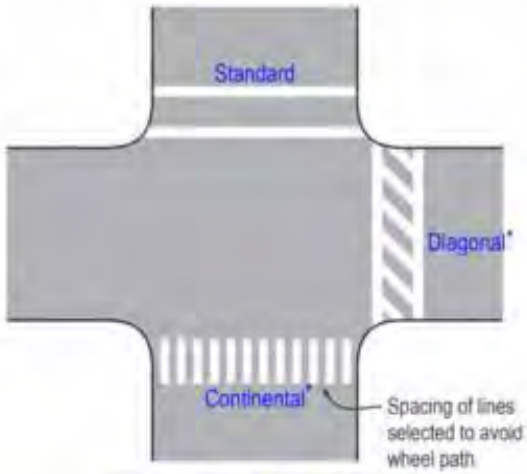


Figure 3B-19 (CA). Examples of Crosswalk Markings

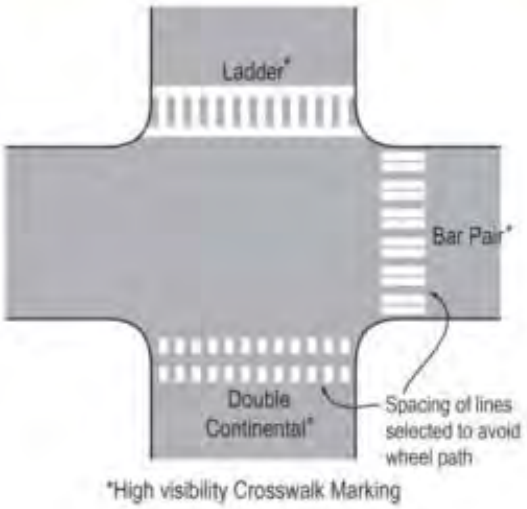


Figure 25 – Examples of Crosswalk Markings

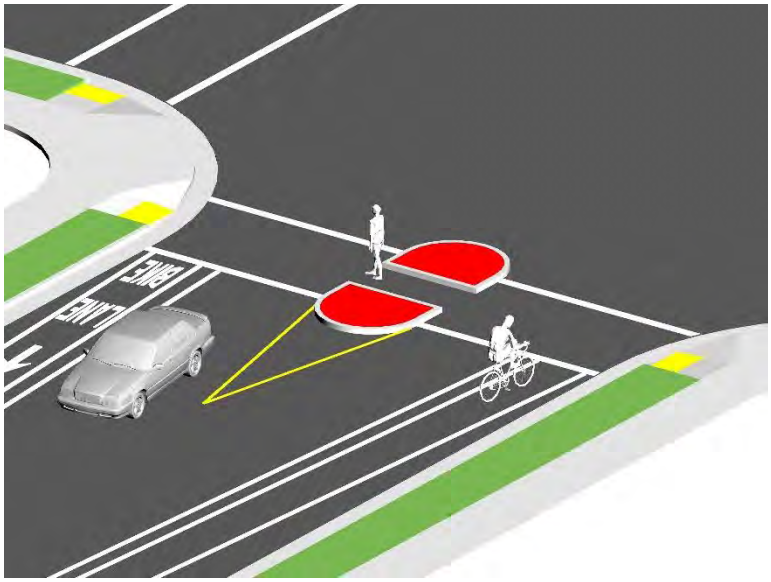


Figure 26 - Rendering of a median refuge island

Median Refuge Islands - The second tier of intersection enhancements require curb and gutter construction that create refuge areas and channelization for pedestrians. The inclusion of either a median refuge island or curb extensions (bulb-outs) can increase line of sight, shorten crossing distances, and slow automobiles at intersections. Either treatment should be designed with emergency vehicle, transit, and industrial vehicles in mind. On two-lane roadways, simultaneous implementation of curb extensions and median refuge islands may restrict access of larger vehicles. Median refuge islands allow pedestrians to cross one direction of automobile traffic at a time, waiting in the median refuge for another gap in traffic. Pedestrians in the refuge also increase the yield compliance of oncoming cars.

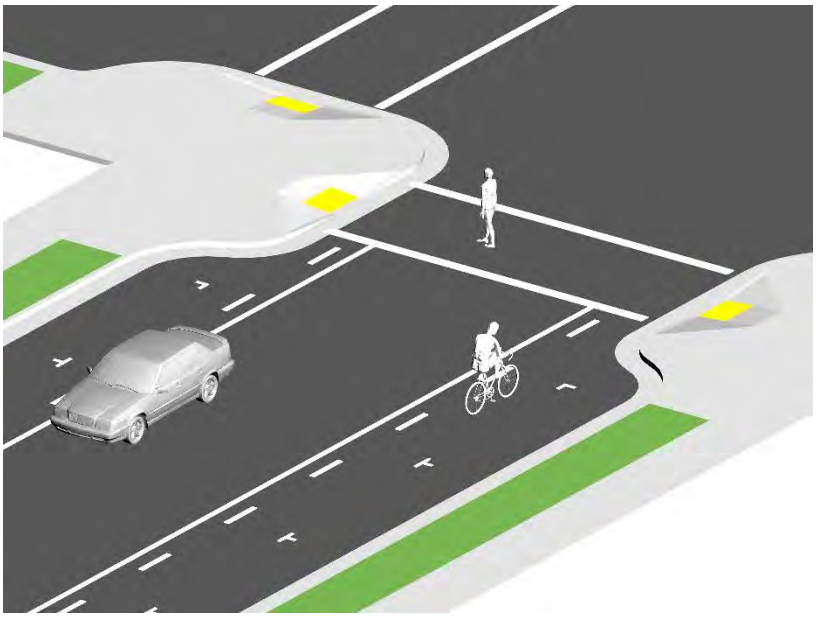


Figure 27 - Rendering of a curb extension or bulb-out

Curb Extensions - Shortening the crossing distance at intersections by bringing the outside curb and gutter closer to the center of the roadway creates a curb extension, or bulb-out. This treatment works best on roadways with on-street parking. Care should be taken to not encroach into or impede bicycle lanes. Besides a shorter crossing distance, curb extensions create better sight lines between waiting pedestrians and oncoming automobiles. Lastly, curb extensions slow right-turning vehicles by tightening the corner radius. The design and cost for implementation of curb extensions should account for maintaining or upgrading existing drainage patterns.

Example of a central island of a roundabout in a neighborhood context

Mini-Roundabouts or Traffic Circles - The final and potentially most costly improvement to increase safety and calm traffic at a Corning intersection is to implement roundabouts and traffic circles. As a retrofit improvement, roundabouts are usually cost prohibitive due to the right-of-way needs. However, the wider streets of Corning make this option feasible within the existing right-of-way. The central island significantly reduces traffic speeds and can change the travel characteristics of a corridor when used in succession. The central island also creates the opportunity for aesthetic improvements to a corridor with the inclusion of landscaping, public art, or wayfinding. Traffic circles primarily differ from mini-roundabouts by the type of traffic control at the intersection. Traffic circles may contain stop signs, whereas roundabouts are controlled with yield signs. Detailed design and analysis will need to be done to determine the best application for Corning.

The Traffic Calming Toolbox in the following chapter highlights many additional potential horizontal and vertical design elements that can be used to help slow automobile traffic and increase safety for all users.

CHAPTER 5
Traffic Calming Toolbox

Introduction

Traffic calming devices encompass a full menu of design treatments capable of encouraging additional walking and cycling trips by creating a safe and comfortable environment for people traveling by foot or by bike. When applied appropriately, traffic calming devices can improve the walking and biking environment without significantly impacting traffic flow. The following chapter describes traffic calming devices commonly implemented in jurisdictions across the country.

Traffic Calming Typologies

Generally, traffic calming devices fall into one of three typologies: vertical elements, horizontal elements, and narrowing elements.

Vertical elements are those that elevate above the ground plane, requiring drivers to reduce speed as they clear the device. Examples include:

- *Speed humps* – Rounded raised area placed evenly across the roadway.
- *Speed lumps* – Rounded raised areas placed across the road with wheel cutouts to allow large vehicles such as fire trucks or school buses through with minimal slowing.
- *Speed tables* – Flat-topped speed humps often constructed with brick or other textured material on flat section. Typically long enough for the entire wheel base of a passenger car to rest on top of them.
- *Raised Crosswalks* – A speed table at pedestrian crossings raised to sidewalk level or just below.
- *Raised Intersections* – A flat, raised area covering the entire intersection, often with brick or other textured material on flat sections.

Horizontal elements are those that require a lateral move at reduced speed for safe clearance. Examples include:

- *Mini-traffic circles* – Low volume neighborhood traffic circulates counter-clockwise around mountable center island that is generally within the existing right of way. They are typically operated with two-way stop controlled or all-way stop controlled intersections.
- *Mini-roundabouts* – Low volume traffic circulates counter-clockwise around mountable center island that is generally within the existing right of way. They do not use stop-control, relying on yield control for all approaches. Mini-roundabouts operate in a similar manner as larger roundabouts and are typically designed with splitter islands to channel traffic.

- *Roundabouts* – Traffic circulates counter-clockwise around the center island, relying on yield control for all approaches. They are used at higher volume intersections to allocate right-of-way among competing movements. Found primarily on arterial and collector streets, roundabouts often substitute for traffic signals.
- *Lateral shifts* – Curb extensions that cause travel lanes to bend one way and then back the other way.
- *Chicanes* – Shift traffic alternately from side to side of the street to create an S-shaped path of travel. They are often formed as a series of lateral shifts.

Narrowing elements are those that reduce the width of the travel way to encourage reduced travel speed and decrease crossing distances for cyclists and pedestrians. Examples include:

- *Neckdowns/Bulbouts* – Curb extensions that reduce roadway width from curb to curb – meant to make intersections more comfortable for pedestrians.
- *Chokers* – Curb extensions at midblock – meant to slow vehicles.
- *Center Island Narrowing* – Raised islands along centerline of street, often at entrance to neighborhoods, creating gateways.

Additional information regarding individual traffic calming devices is provided on the following page.

Case Study: City of Sacramento Speed Hump Program

Since 1980, the City of Sacramento has offered a Speed Hump Program, where neighborhoods may request the construction of a speed hump or similar traffic control device where speeding issues persist. Since the program's inception, the City has found that speed lumps are just as effective as speed humps, and are more commonly used. This can be attributed to the cut-out features of speed lumps that allow for unimpeded access by emergency vehicles and buses. The City evaluates requests for speed humps or speed lumps based on the following qualifying criteria:

- The two-lane street must be mainly residential or else have a park or school on the street.
- The residential street (or the part being considered) must be at least 750 feet long with no four-way intersections.
- There can be no other traffic control devices on the street segment such as four-way stop signs, traffic signals, etc.
- The speed limit must be 30 miles per hour or less.
- Speeding of 5 miles per hour or higher over the speed limit occurs on the street.
- Street must be approved by Regional Transit and the Fire Department.

The City of Corning may consider a similar program as part of a broader effort to improve roadway safety for travelers utilizing all modes of transportation.

Traffic Calming Elements

VERTICAL ELEMENTS

Speed Humps — Rounded, raised pavement placed evenly across the roadway.

Pros	Cons
Effective in reducing vehicle speed	Can have slightly jarring effect on vehicles
Effective in reducing vehicle volume (by 20%)	Should not be used on streets with posted speed limit over 30 MPH
Low cost tool	

Potential application in Corning: Neighborhoods

Speed Lumps — Rounded, raised pavement placed across the road with wheel cutouts to allow large vehicles such as fire trucks or school buses through with minimal slowing.

Pros	Cons
Effective in reducing vehicle speed	Can have slightly jarring effect on vehicles
Low cost tool	Should not be used on streets with posted speed limit over 30 MPH
Allows large vehicles (such as fire trucks or school buses) through with minimal slowing	

Potential application in Corning: Neighborhoods

Speed Tables — Flat-topped speed humps often constructed with brick or other textured material on flat section. Typically long enough for the entire wheel base of a passenger car to rest on top of them.

Pros	Cons
Effective in reducing vehicle speed	Some drivers will continue to maintain speed, might not be as effective as other calming devices
Effective in reducing vehicle volume (by 12%)	Should not be used on streets with posted speed limit over 30 MPH
Low cost tool	
Slightly higher speed suitability than speed humps	

Potential application in Corning: Neighborhoods

Raised Crosswalks — A speed table at pedestrian crossing raised to sidewalk level or just below.

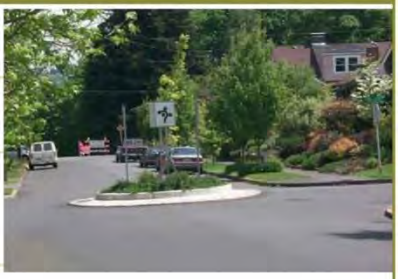
Pros	Cons
Effective in reducing vehicle speed	Can be expensive due to infrastructure needed to
Improves safety for pedestrians and motorists at midblock	Tactile treatments are needed at the sidewalk/street boundary so that visually impaired pedestrians can identify the edge of the street

Potential application in Corning: Downtown, Near Schools

Raised Intersections	A flat, raised area covering entire intersection, often with brick or other textured material on flat sections.			
Pros	Effective in reducing vehicle speed Improves safety for pedestrians and motorists at midblock Calms two streets at one location	Cons	Can be expensive due to infrastructure needed to Tactile treatments are needed at the sidewalk/street boundary so that visually impaired pedestrians can identify the edge of the street	
Potential application in Corning: Downtown				

Table 6 – Vertical Traffic Calming Elements

HORIZONTAL ELEMENTS

Mini-traffic Circles	Low volume neighborhood traffic circulates counter-clockwise around mountable center island that is generally within the existing right of way. They are typically operated with two-way stop controlled or all-way stop controlled intersections.			
Pros	Effective in reducing vehicle speed Additional right of way generally unnecessary	Cons	Motorist's visibility of pedestrians can be reduced User education generally needed Should not be used on streets with posted speed limit over 30 MPH Not suitable for route with high volume of trucks	
Potential application in Corning: Neighborhoods				
Mini-roundabouts	Low volume traffic circulates counter-clockwise around mountable center island that is generally within the existing right of way. They do not use stop-control, relying on yield control for all approaches. Mini-roundabouts operate in a similar manner as larger roundabouts and are typically designed with splitter islands to channel traffic.			
Pros	Effective in reducing vehicle speed Eliminates need for traffic signal or stop sign Improves traffic flow Additional right of way generally unnecessary	Cons	Motorist's visibility of pedestrians can be reduced User education generally needed Should not be used on streets with posted speed limit over 30 MPH Not suitable for route with high volume of trucks	
Potential application in Corning: Neighborhoods				

Roundabouts	Traffic circulates around center islands but they are used at higher volume intersections to allocate right-of-way among competing movements. Found primarily on arterial and collector streets, often substituting for traffic signals.			
Pros	Effective in reducing vehicle speed Eliminates need for traffic signal or stop sign Improves traffic flow Provides opportunity for landscaping	Cons	Motorist's visibility of pedestrians can be reduced User education generally needed	
Potential application in Corning: Downtown				
Lateral Shifts	Curb extensions that cause travel lanes to bend one way and then back the other way. Installed away from an intersection at midblock.			
Pros	Effective in reducing vehicle speed Can be used on collectors or arterials Provides opportunity for landscaping	Cons	Street sweeping may need to be done manually if sharp angles are used or if gutter pan is not accessible to street sweeping vehicles Can be expensive	
Potential application in Corning: Downtown, Neighborhoods				
Chicanes	Shift traffic alternately from side to side of the street to create an S-shaped path of travel. They are often designed as a series of lateral shifts rather than continuous curves. Installed away from an intersection at midblock. It is best to have some sort of vertical element (such as landscaping) so the narrowed section can be clearly seen by approaching motorists.			
Pros	Effective in reducing vehicle speed Can improve parking and driveway access Provides opportunity for landscaping	Cons	Street sweeping may need to be done manually if sharp angles are used or if gutter pan is not accessible to street sweeping vehicles Can be expensive	
Potential application in Corning: Downtown, Neighborhoods				

Table 7 – Horizontal Traffic Calming Elements

NARROWING ELEMENTS

Neckdowns/Bulbouts	**Curb extensions that reduce roadway width from curb to curb – intended to make** intersections more comfortable for pedestrians.			
Pros	Effective in reducing vehicle speeds at intersections Reduces pedestrian crossing distance at intersections Improves pedestrian visibility Allows for space for curb ramps	Cons	Street sweeping may need to be done manually if sharp angles are used or if gutter pan is not accessible to street sweeping vehicles Can be expensive	
Potential application in Corning: Downtown, Neighborhoods				

Chokers	Curb extensions at midblock that narrow both sides of the street. It is best to have some sort of vertical element (such as landscaping) so the narrowed section can be clearly seen by approaching motorists.			
Pros	Effective in reducing midblock vehicle speeds Provides opportunity for landscaping	Cons	Street sweeping may need to be done manually if sharp angles are used or if gutter pan is not accessible to street sweeping vehicles Can be expensive	
Potential application in Corning: Downtown, Neighborhoods				
Center Island Narrowing	Raised islands along centerline of street, often at entrance to neighborhoods. Landscaping provides a visual amenity and neighborhood identity.			
Pros	Can help make streets more comfortable for pedestrians by providing a mid-point refuge for pedestrian crossings Provides opportunity for landscaping	Cons	May restrict left turn access and/or reduce left turn capacity Can be expensive	
Potential application in Corning: Downtown, Neighborhoods				
Bicycle Boulevard	Streets with low motorized traffic volumes and low speeds, designated and designed to give bicycle travel priority. Bicyclists generally ride in the middle of the road.			
Pros	Effective in encouraging safe bicycle travel Increases awareness for all users that bicyclists are present Provide direct, attractive route for bicycle travel	Cons	Low speeds of bicyclists can be bothersome to motorized vehicles Requires many treatments, including intersection	
Potential application in Corning: Neighborhoods near schools, Continuous east/west and north/south streets				

Table 8 – Narrowing Traffic Calming Elements

CHAPTER 6
Future Bicycle and Pedestrian Network

The following chapter describes the proposed Corning bicycle and pedestrian transportation network and associated support facilities. Improvement recommendations incorporate findings from the analyses presented in the Existing Conditions chapter, supplemented by feedback received during public workshops and stakeholder interviews.

Framework for Improvements

An effective plan for bicycle and pedestrian facilities balances the distinctive travel needs of Corning residents with best practices in active transportation design. Based on the Existing Conditions analysis and comments from public workshops, the following principles were utilized to guide the development of improvement projects:

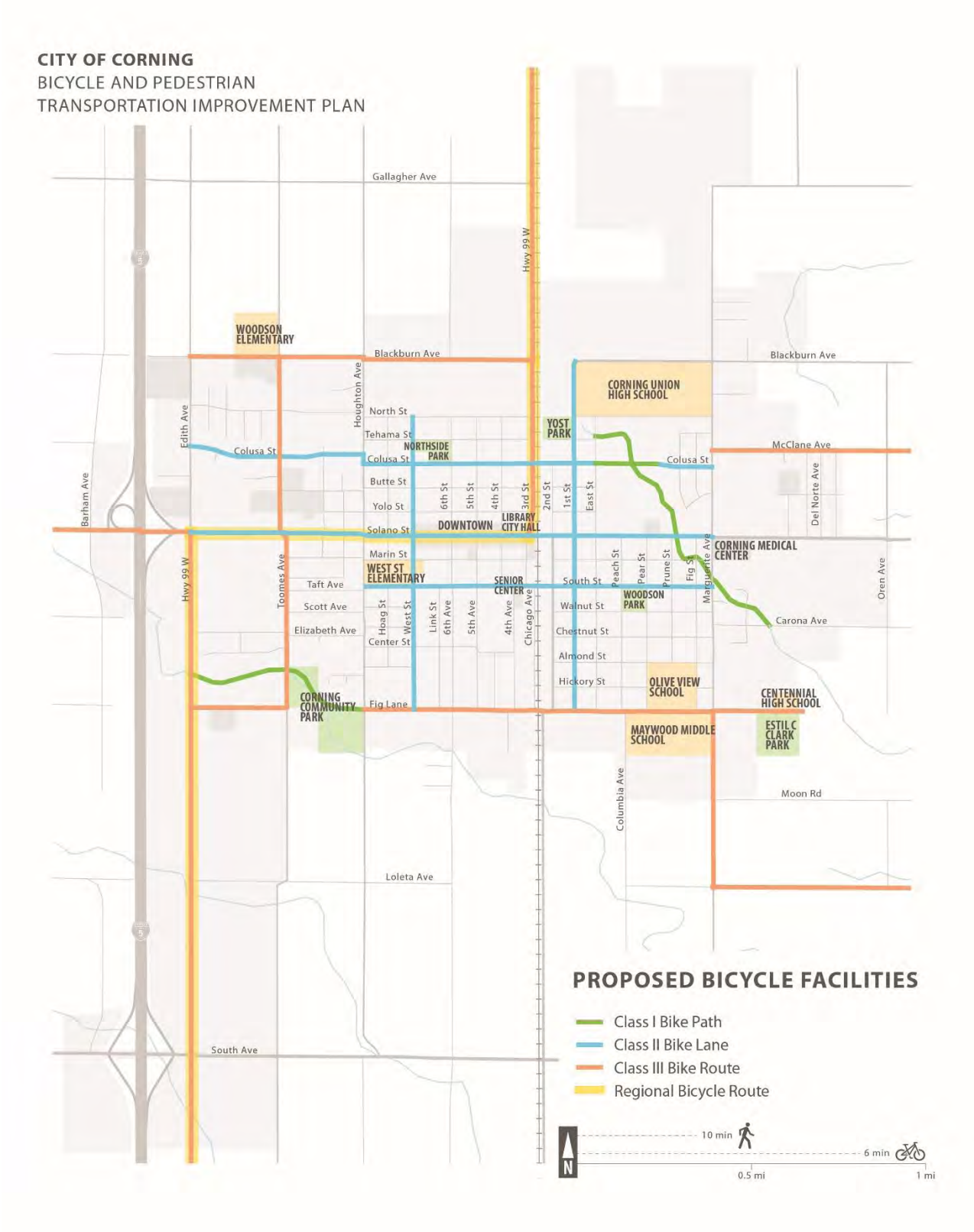
- **Expand the Corning bicycle network.** Introducing safe, comfortable, and attractive bicycle facilities will increase opportunities for bicycling for Corning residents of all ages.
- **Connect Corning quadrants.** Bicycle and pedestrian improvements will connect residents to local destinations located throughout Corning.
- **Improve railroad crossings.** Enhanced railroad crossings will facilitate bicycle and pedestrian travel between the eastern and western neighborhoods of Corning.
- **Address major sidewalk deficiencies.** Constructing new sidewalks will close gaps that currently deter pedestrian travel.
- **Improve roadway crossings at key locations.** Enhanced roadway crossings near schools and along priority bicycle and pedestrian routes will improve safety and encourage additional walking and bicycling.
- **Develop context-sensitive solutions.** Matching improvement recommendations to the physical characteristics of Corning roadways will minimize impacts to the existing roadway system.

Bicycle Facility Recommendations

The proposed bicycle facility network presented in Figure 28 is a continuous system of bikeways and trails connecting Corning residents to local destinations. Regional bicycle facilities provide access between Corning and nearby regional destinations. Bicycle facility improvements beyond Corning city limits require further coordination with neighboring jurisdictions including Caltrans and Tehama County.

The proposed Corning bicycle network aims to accommodate all levels of bicyclists, ranging from experienced riders to newcomers, while improving connectivity throughout the City's four quadrants. Bicycle facility recommendations are carefully matched to the physical characteristics of the Corning transportation network, including roadway width and connectivity. The recommended network is composed of Class I bike paths, Class II bike lanes, and Class III bike routes.

Figure 28 - Proposed bicycle facilities



Class I Bike Paths

The proposed Class I bike paths provide Corning bicyclists with a designated pathway entirely separated from automobile traffic. The proposed Class I bike paths can be appropriately designed to accommodate pedestrians in addition to bicyclists.

The proposed bicycle network includes two new Class I bike paths:

- **Blackburn Moon Drain –** The proposed bike path runs alongside the Blackburn Moon Drain from East Street to Carona Avenue. The off-street path will connect students from Corning Union High School to neighborhoods in the southeast quadrant. Special design considerations will have to be given to crossings with established roadways, including Solano Street, Marguerite Avenue, and McDonald Court.
- **Jewett Creek** – The proposed bike path parallels Jewett Creek between Highway 99 W and Toomes Avenue. The path will connect the regional bike route along Highway 99 W to Corning Community Park and other destinations located in Corning's southern quadrants.

Example of a Class I Bike Path

Class II Bike Lanes

The proposed Corning bicycle network includes several new Class II bike lanes, designed to provide a safe and comfortable bicycling environment on Corning streets. Similar to the new Solano Street bike lane, the recommended Class II facilities include striping to clearly demarcate the bike lane from the adjacent vehicular lane, providing a safer route for cyclists. Since bike lanes require extra street width to avoid impacts on automobile travel and parking lanes, they are only recommended on sufficiently wide Corning roadways. Typically, a roadway width of 50' is sufficient to accommodate bike lanes, travel lanes, and parking lanes.

The following roadways are recommended for Class II bicycle facilities:

- **Solano Street** – An expansion of the new Solano Street Streetscape Improvement Project, this proposed Class II facility further improves bicycle access to the heart of downtown Corning. The eastern extension of the bike lane enhances access across the California Northern Railroad (CNFR) tracks, while the western extension improves access to retail and dining destinations near the Solano Street interchange with Interstate 5. The proposed bike lane improves bicycle access across the at-grade CNFR crossing. Special design consideration will have to be given to Solano Street given the variety of lane configurations along the corridor.
- **Colusa Street** – The proposed Colusa Street bike lane provides a valuable east-west bicycle connection across the northern quadrants of Corning. As the northernmost railroad crossing in Corning, this vital link is particularly important for students traveling east to Corning Union High School. The proposed bike lane improves bicycle access across the at-grade CNFR crossing. The bike lane will run between Houghton Avenue and East Street before transitioning to connecting bicycle facilities on both ends.
- **South Street** – The proposed South Street bike lane stretches from Houghton Avenue to Marguerite Avenue, forming the primary bicycle corridor for Corning's southern quadrants. The bike lane will serve schoolchildren traveling to West Street Elementary, along with bicyclists traveling to the Corning Senior Center, Bell Carter, and Woodson Park. The proposed bike lane improves bicycle access across the at-grade CNFR crossing.
- **West Street** – The proposed West Street bike lane will run between North Street and Fig Lane, providing connections to intersecting bicycle facilities proposed along Colusa Street, Solano Street, South Street and Fig Lane. The proposed bike lane will serve bicyclists traveling to local destinations including Corning Community Park, West Street Elementary, Northside Park, and downtown Corning.
- **1st Street** – The proposed 1st Street bike lane will run between Blackburn Avenue and Fig Lane, providing connections to intersecting bicycle facilities proposed along Colusa Street, Solano Street, South Street, and Fig Lane. Nearby schools served by the proposed bike lane include Corning Union High School, Olive View School, and Maywood Middle School. The proposed 1st Street bike lane will serve as the primary north-south bicycle route for Corning's eastern quadrants.

Example of a Class II Bike Lane with on-street parking

Class III Bike Routes

The proposed Corning bicycle network includes Class III bike routes along existing roadways. These routes provide additional signage and markings to indicate the presence of bicyclists to other users of the street. Bike routes are typically recommended along streets where roadway widths are not sufficient to accommodate bike lanes. Coupled with the traffic calming measures presented in Chapter 5, bike routes can provide a safe environment for bicyclists of all abilities.

Example of a Class III Bike Route

The following roadways are identified for future Class III bike routes:

- **Blackburn Avenue** – The proposed Blackburn Avenue bike route will run from Edith Avenue to Highway 99 W, connecting Corning residents to Woodson Elementary and several multifamily housing developments. This route will become particularly important as development occurs along the northern edge of Corning. Moreover, the Corning General Plan identifies Blackburn Avenue as a minor arterial with a future crossing over the CNFR tracks, providing a new access point from the western Corning quadrants directly to Corning Union High School. The bike route should be incorporated into any future plans for the expansion of Blackburn Avenue should it occur.
- **Colusa Street** – While most of Colusa Street is identified for a future bike lane, physical constraints limit portions of the corridor to a bike route. These include segments of Colusa Street west of Houghton Avenue and east near Marguerite Avenue. These bicycle facilities will ensure that Colusa Street becomes a continuous east-west bicycle corridor from Edith Avenue to Marguerite Avenue. Part of this facility includes the unconstructed portion of Colusa Street between East Street and Stanmar Drive. The proposed bike route should be included as the roadway is built out. In the meantime, the City should consider a Class I bike path to maintain connectivity east to Marguerite Avenue.
- **Fig Lane** – The proposed Fig Lane bike route will run from Houghton Avenue to Marguerite Avenue, including an improved crossing over the CNFR railroad tracks. The bike route will serve as an important connector along the southern edge of Corning, providing access to several destinations including Corning Community Park, Olive View School, Maywood Middle School, Centennial High School, Estil C Clark Park, and future multifamily housing developments. Despite the lack of bicycle facilities, Fig Lane has been identified as a key bicycle route today, particularly for schoolchildren. In addition to the bike route amenities, traffic calming measures will be an important component of the Fig Lane bicycle facility given the cited safety concerns along the corridor.
- **Toomes Avenue** – The proposed Toomes Avenue bike route will run from Blackburn Avenue to Fig Lane, connecting Corning residents to Woodson Elementary, Corning Community Park, the Solano Street corridor, and several multifamily housing complexes. The proposed bike route provides a particularly critical link to Woodson Elementary and Corning Community Park, both of which are otherwise isolated on the outside edge of Corning. Special design consideration will have to be given to providing a safe crossing at the offset intersection at Solano Street.

Regional Routes

- **Highway 99 W** – Highway 99 W is identified by Caltrans as the primary regional bicycle route. The proposed improvements include additional signage and potential markings to better identify the corridor as a bike route. Proposed improvements to Solano Street will further enhance the local portion of the Highway 99 W regional bike route.
- **Woodson Bridge State Recreation Area** – A bike route is proposed to improve connectivity between Corning and the nearby Woodson Bridge State Recreation Area for recreational bicyclists. The bike route will leave Corning south via Marguerite Avenue and utilize Loleta Avenue and Kopta Road to reach the park.
- **Black Butte Lake** – A bike route is proposed to improve connectivity between Corning and Black Butte Lake for recreational bicyclists. The bike route will leave Corning west via Corning Road before turning southwest via Black Butte Road to access the lake.
- **Rolling Hills Casino** – A bike route is proposed to connect patrons and employees traveling from Corning to the nearby Rolling Hills Casino. The majority of the route will utilize the Highway 99 W regional route, with a spur at Liberal Avenue connecting to the casino via Everett Freeman Way.

Figure 29 - Potential Regional Bicycle Routes Surrounding Corning

Bicycle Parking

Currently, bicycle parking is available at numerous public locations throughout Corning. As displayed in Figure 30, the City should examine the potential for additional bike parking at the following locations:

- Corning Community Park (near Houghton Avenue)
- Veteran's Hall
- Woodson Park
- Yost Park
- Sav Mor
- Rolling Hills Clinic

Additionally, the City should work with downtown property owners to encourage the installation of additional bicycle parking on Solano Street near building frontages.

Examples of bicycle racks in the City of Corning

Figure 30 - Bicycle Parking Inventory

Priority Bicycle Network

The proposed Corning bicycle network is comprised of a variety of bicycle facilities, ranging from off-street bike paths to on-street bike lanes. Each improvement identified in the plan fulfills an important role in the overall bicycle network, whether it is providing a critical bicycle link to a school or improving bicycle safety along a heavily traveled corridor. However, the foundation of a successful bicycle network is built by the core bicycle corridors from which the rest of the network is supported. In this plan, these core bicycle corridors form the priority bicycle network for Corning. Before exploring other bicycle facility improvement projects, the City should first pursue the implementation of the recommended projects included in the priority bicycle network.

Bicycle improvement projects associated with the corridors included in the priority bicycle network most closely respond to the principles outlined in the improvement framework. The priority bicycle network includes the following corridors:

- Colusa Street
- South Street
- West Street
- 1st Street
- Fig Lane

By introducing on-street bicycle facilities and enhanced crossing features, the improvements along these corridors will effectively tie together the four quadrants of Corning. Upon their completion, bicyclists may utilize a combination of these corridors to safely access destinations throughout Corning.

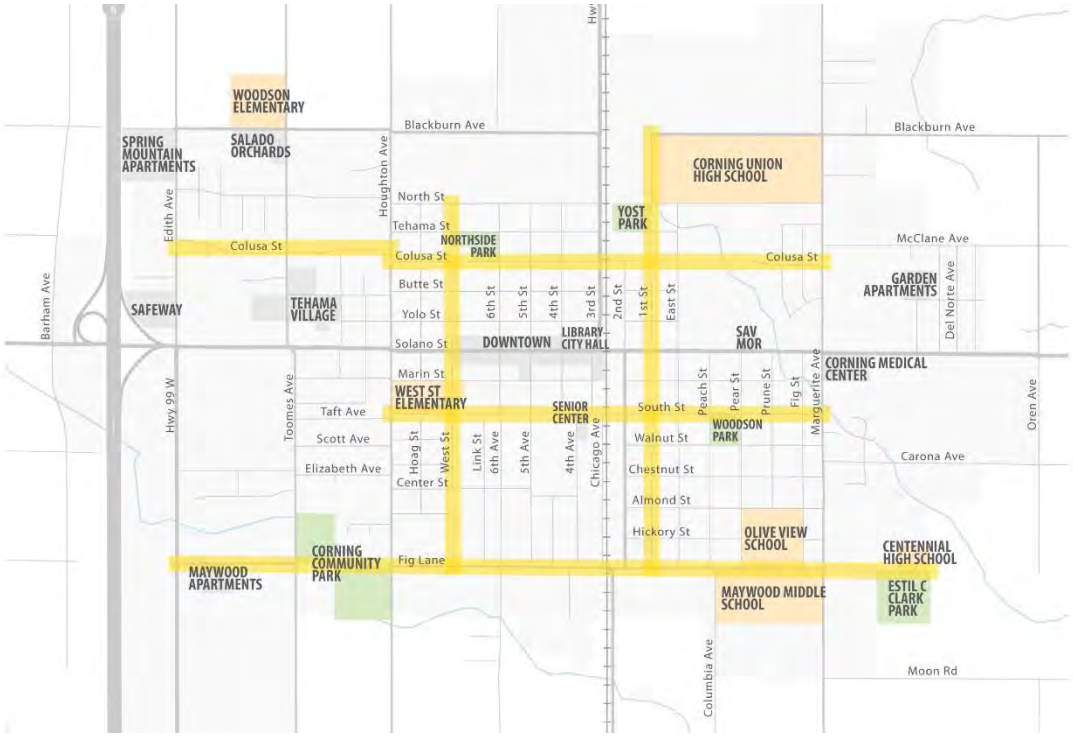
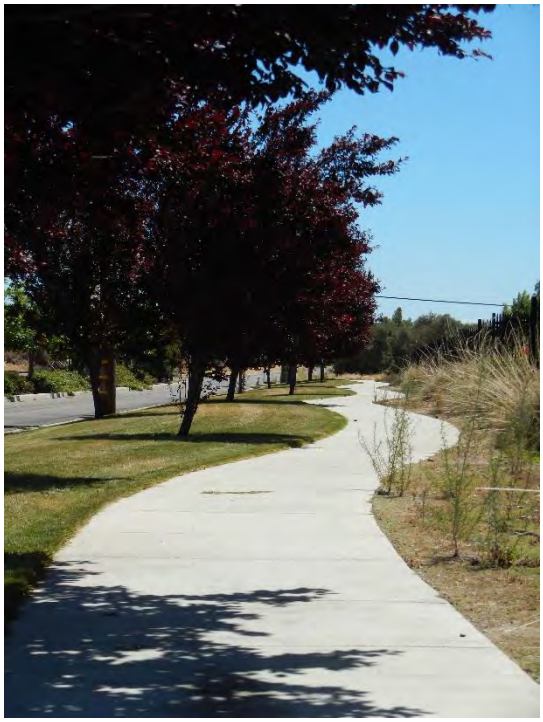


Figure 31 – Priority Bike Network

Proposed Pedestrian Facilities

Recommendations for pedestrian facilities were developed to address gaps in the existing network and further the City's goal to encourage additional pedestrian travel throughout Corning. An improved network of sidewalks and roadway crossings will create contiguous and comfortable walking routes while enhancing pedestrian safety at key intersections. Particular attention was given to improving the pedestrian network along major corridors and near local destinations, especially Corning schools. **Corridor improvements** are intended to serve longer trips connecting residents to local destinations throughout Corning, while **location-specific improvements** will enhance pedestrian access immediately surrounding local destinations.



Meandering sidewalk along Gardiner Road

Pedestrian curb ramp compliant with Americans with Disabilities Act (ADA)

Corridor Improvements

Sidewalk and intersection improvements along the following corridors will provide uninterrupted walking routes for pedestrian of all ages and physical abilities:

- **Solano Street** – As the primary commercial corridor through Corning, Solano Street stands to benefit substantially from an enhanced pedestrian environment. A greater level of pedestrian activity would support downtown businesses and contribute to the overall vibrancy of downtown Corning. While Solano Street is currently outfitted with crosswalks and sidewalks on both sides of the roadway, additional pedestrian facility improvements would encourage new walking trips to downtown destinations while also facilitating north-south travel across the major arterial.

  In 2016, the City will complete the Solano Street Streetscape Improvement Project, which includes the construction of wider sidewalks, intersection curb extensions, crosswalk paving treatments, and ADA-compliant curb ramps along Solano Street between West Street and 3rd Street. An expansion of this project beyond its current extents will further improve pedestrian access to Solano Street destinations and facilitate crossings at key intersections. Key crossing locations include the at-grade crossing at the CNFR railroad tracks and the offset intersection at Toomes Avenue.

- **Colusa Street** – Colusa Street was identified as a pedestrian improvement corridor due to its role as a central spine through the northern quadrants of Corning and crossing opportunity at the CNFR railroad tracks. Barriers to walking along Colusa Street include missing sidewalk segments (including a lack of sidewalks west of Houghton Avenue), limited marked crossing locations, and a wide roadway that encourages high vehicle speeds. Moreover, the existing at-grade crossing at the CNFR railroad tracks lacks sidewalk facilities, creating a significant barrier between residential neighborhoods west of the tracks and Corning Union High School just east of the tracks. East of the railroad tracks, Colusa Street meets 1st Street at an all-way stop controlled intersection, where the City recently installed enhanced crosswalks as part of a Safe Routes to School project to Corning Union High School.

  A complete sidewalk network, additional marked crossings, and pedestrian enhancements at the CNFR railroad crossing will facilitate greater pedestrian use of Colusa Street, particularly for Corning residents traveling to destinations just off of the corridor, including Corning Union High School, Woodson Elementary, and Northside Park. In addition to the at-grade railroad crossing, key crossing locations include Colusa Street intersections with Edith Avenue, Toomes Avenue, Houghton Avenue, and Highway 99 W. Pedestrian facility improvements will transform Colusa Street into a complete street when coupled with the recommended Class II bicycle facilities.

- **Fig Lane** – Public outreach participants identified Fig Lane as a desirable pedestrian improvement corridor due to its connectivity with several schools and perceived safety concerns. In addition to serving Olive View School, Maywood Middle School, and Centennial High School, Fig Lane provides a direct link to the new Corning Community Park from the southern quadrants of Corning. East of the CNFR tracks, sidewalk and crosswalk facilities are generally contiguous. Traveling west, however, the pedestrian network becomes increasingly sporadic, with disjointed sidewalk facilities beginning at the at-grade CNFR crossing and a lack of marked crosswalks at intersections. High automobile speeds and heavy truck volumes associated with the Bell Carter facility contribute to an uncomfortable pedestrian environment along Fig Lane.

To address pedestrian access and safety concerns, the City should implement a complete streets approach to Fig Lane. Sidewalk and crosswalk improvements constructed in conjunction with the recommended Class III bicycle facility will better accommodate all transportation modes along Fig Lane. Additionally, the City should consider potential traffic calming options to alleviate traffic safety concerns. West of the CNFR tracks, the City should complete missing sidewalk segments, improving access to Corning Community Park as use of the park continues to increase. Key crossing locations include the at-grade crossing with the CNFR tracks and intersections with Houghton Avenue, 6th Avenue, and Pear Street.

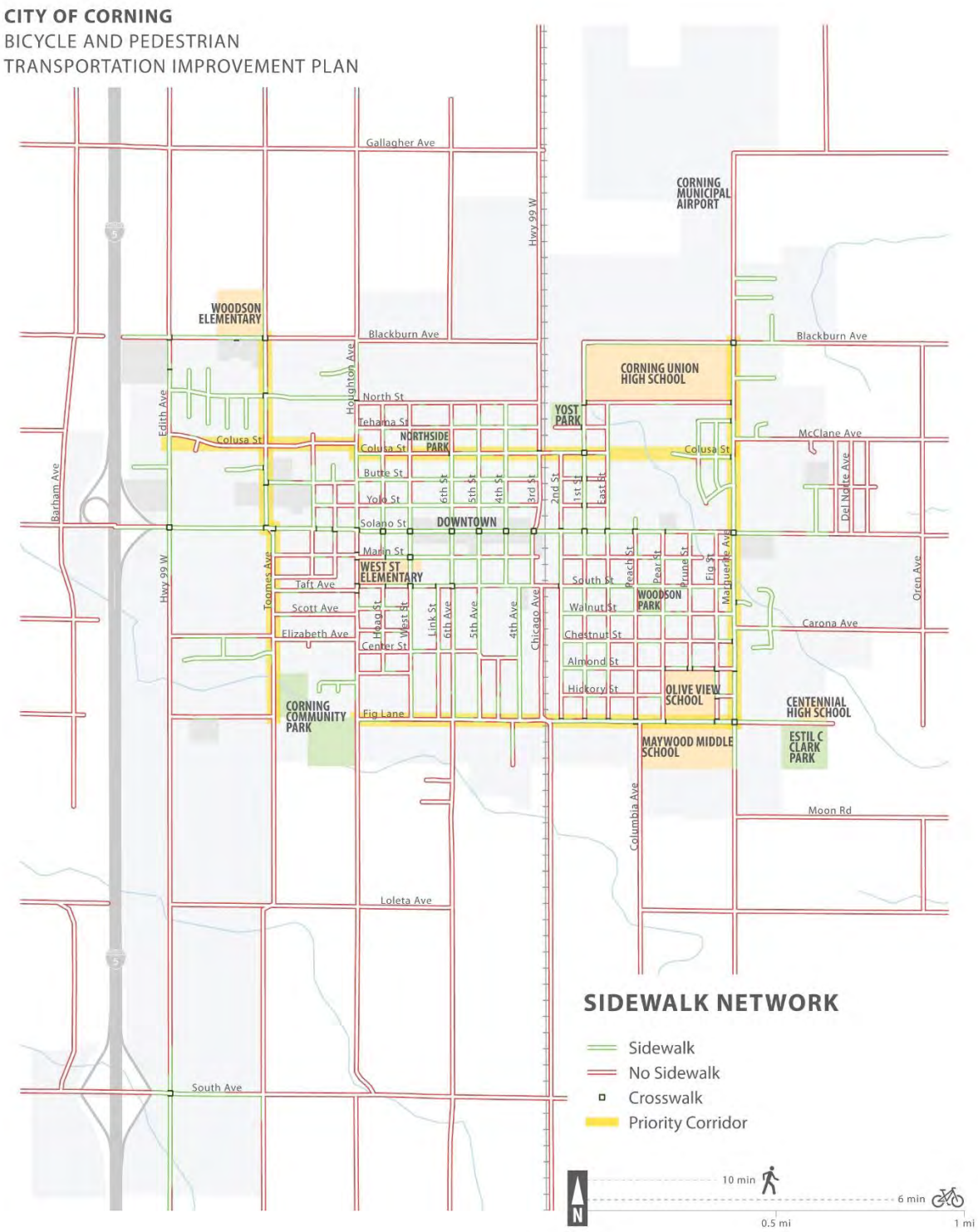
- **Toomes Avenue** – Toomes Avenue was identified as a pedestrian improvement corridor due to its connectivity with Woodson Elementary, Corning Community Park, and several multifamily housing complexes located in the western quadrants of Corning. North of Solano Street, the sidewalk network is generally complete, with a near-continuous walkway on the west side of the roadway north to Woodson Elementary. South of Solano Street, marked crosswalks and sidewalks are lacking altogether, hindering pedestrian access to Corning Community Park.

  Completing the Toomes Avenue sidewalk network and providing crossings at key intersections will provide a critical link to Corning Community Park from neighborhoods to the north. Similarly, a completed pedestrian corridor will improve access to Woodson Elementary, which is otherwise isolated on the edge of the city. Key crossing locations include intersections with Colusa Street, Solano Street, and Fig Lane. An additional crossing location should be explored near the northwest corner of Corning Community Park.

- **Marguerite Avenue** – Recently, the City implemented a Safe Routes to School project on Marguerite Avenue, improving sidewalk and crosswalk facilities from Corning Union High School to Maywood Middle School. While pedestrian conditions are vastly improved, some gaps remain, particularly at roadway crossing locations. In order to realize the full benefit of the recent Safe Routes to School project, the City should complete crossing improvements at Marin Street, Walnut Street, and Almond Street.

- **Blackburn Avenue** – The Corning General Plan designates Blackburn Avenue as a minor arterial and identifies the roadway as having a future crossing with the CNFR tracks. Blackburn Avenue is identified as a future pedestrian improvement corridor assuming these plans come to fruition. Any extension of Blackburn Avenue should include sidewalks, crosswalks, and appropriate pedestrian facilities at the future CNFR crossing. Future development of the corridor should include sidewalks along roadway frontages. Upon construction, an extended Blackburn Avenue would provide a direct connection to Corning Union High School from the western Corning quadrants, providing a valuable pedestrian link for students. Coupled with the recommended Class III facility, Blackburn Avenue would be built out as a complete street.

Figure 32 - Priority Pedestrian Network



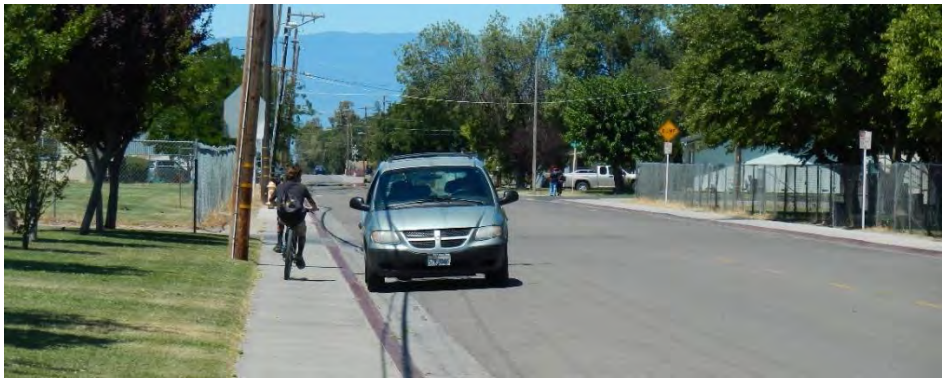
Location-Specific Improvements

West Street Elementary – Sidewalks near West Street Elementary are discontinuous, posing a barrier to walking for students traveling from the surrounding neighborhood, particularly areas located to the south and west of campus. Sidewalk improvements on Houghton Avenue, Marin Street, South Street, and Taft Avenue and pedestrian crossing enhancements at intersections adjacent to campus will provide safe, complete pathways for students walking from these areas. Pedestrian improvements will also improve student access to nearby community amenities, such as Corning Community Park, for after-school activities.

- Sidewalks – Houghton Avenue, Marin Street, South Street, Taft Avenue
- Enhanced Crossings – Houghton Avenue/Marin Street, Houghton Avenue/South Street, Marin Street/Hoag Street, South Street/Hoag Street, South Street/West Street

Southeast Quadrant – Sidewalk and pedestrian crossing improvements would help to address the significant pedestrian network gaps in the southeast quadrant of Corning. While incremental sidewalk improvements should be constructed throughout the quadrant over time, near-term investments in pedestrian infrastructure should be focused on Pear Street and Almond Street to provide safe pedestrian corridors traversing the length and width of the quadrant. These improvements are critical to providing safe access to Olive View School, Maywood Middle School, and Centennial High School from the surrounding neighborhood. Enhanced pedestrian crossings at the Fig Lane/Pear Street, Fig Lane/Fig Street, and Almond Street/Pear Street intersections would further improve the pedestrian environment in the southeast quadrant.

- Sidewalks – General area-wide sidewalk improvements, Pear Street, Almond Street, Fig Street
- Enhanced Crossings – Fig Lane/Pear Street, Fig Lane/Fig Street, Almond Street/Pear Street



CNFR At-Grade Crossings – With only four local crossing opportunities, the CNFR tracks pose a significant barrier to pedestrian travel in Corning. The wide right-of-way and lack of sidewalks discourage people from crossing the tracks. The lack of ADA facilities, in particular, serves as a significant impediment to pedestrians with mobility issues. Improved pedestrian amenities at the at-grade crossings would encourage increased walking by facilitating safe passage across the tracks and linking sidewalk facilities on either side of the railroad right-of-way. The City should work with the railroad to identify appropriate sidewalk facilities and crossing safety features within the railroad right-of-way.

- Bicycle and Pedestrian friendly design – Colusa Street, Solano Street, South Street, Fig Lane

Existing railroad crossing at South Street

Example of a pedestrian friendly railroad crossing on Lower Sacramento Road, Woodbridge CA.

Pedestrian Network Coverage

The pedestrian facility improvements presented in the plan are strategically designed to close major gaps in the existing pedestrian network, providing improved access to local destinations for Corning residents who travel on foot. Gaps range from single points (e.g. the CNFR crossings) where a lack of pedestrian facilities interrupt travel along a corridor, to area-wide gaps (e.g. the southeast quadrant) where a broadly incomplete sidewalk network discourages walking.

The following walkshed maps illustrate the potential gap closures that can be achieved with the implementation of the proposed pedestrian facility improvements. The different colors represent the estimated walk time to various Corning destinations – education, recreation, and retail – from adjacent neighborhoods based on the available pedestrian facilities under existing and future conditions. Green and yellow areas are within a 15 minute walk of local destinations (a relatively short pedestrian trip) while red areas are between 15 and 30 minutes from destinations. Grey areas are outside of the typical range a pedestrian is willing to walk to complete a trip. In this analysis, roadway segments with sidewalks allow pedestrians to travel at a typical walking speed, while roadway segments without pedestrian facilities require significantly more time to traverse.

As depicted in the maps, the proposed improvements greatly increase pedestrian network coverage throughout Corning, particularly in isolated areas where sidewalks are currently unavailable. For example, in the southeast quadrant, most residents would be able to walk to the nearby Olive View School and Maywood Middle School within 15 minutes with the proposed improvements, whereas today, the lack of sidewalks prohibit walking even from residences located just a few blocks away from each school.

Figure 33 - Pedestrian network coverage related to schools

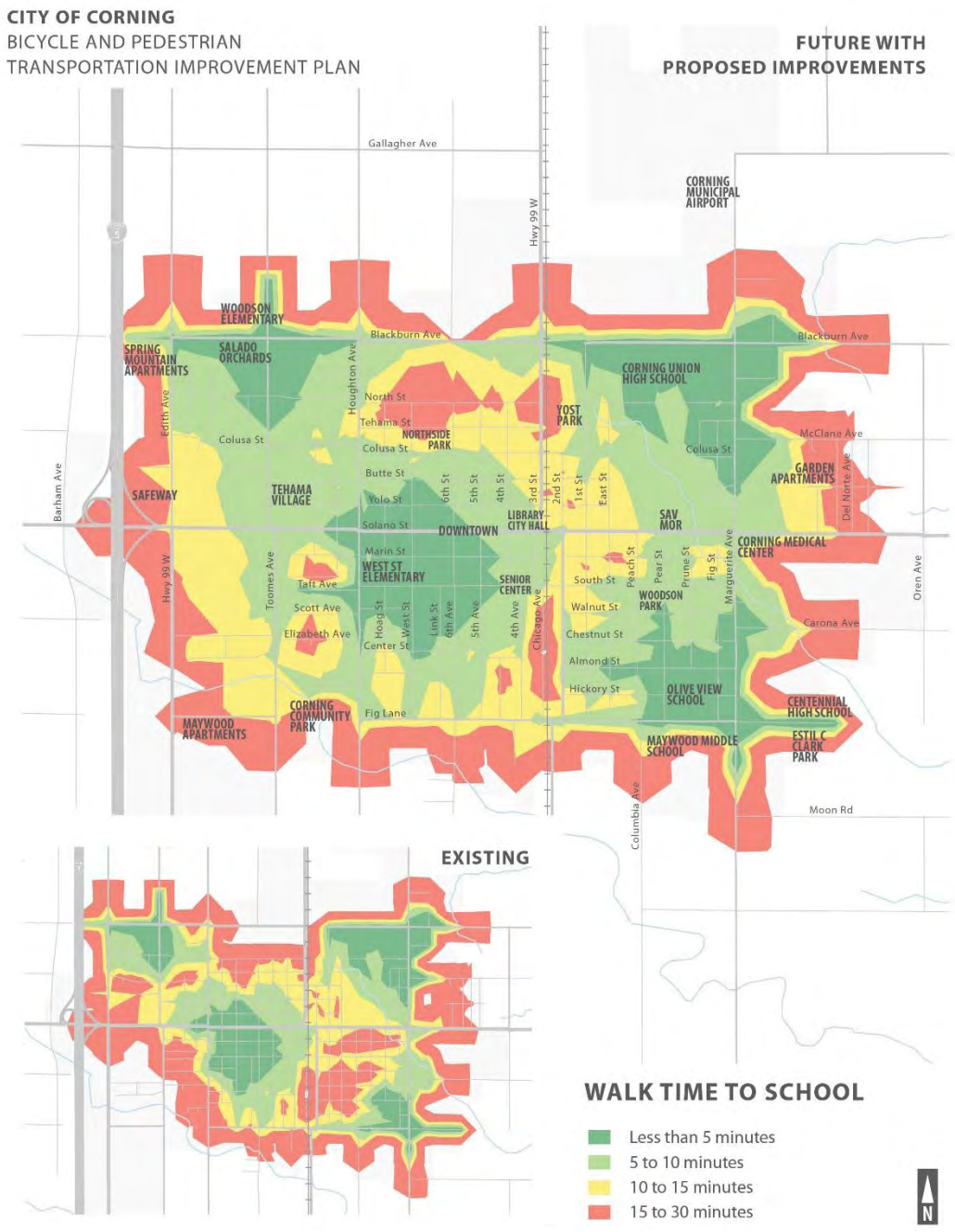


Figure 34 - Pedestrian network coverage related to parks and recreation facilities

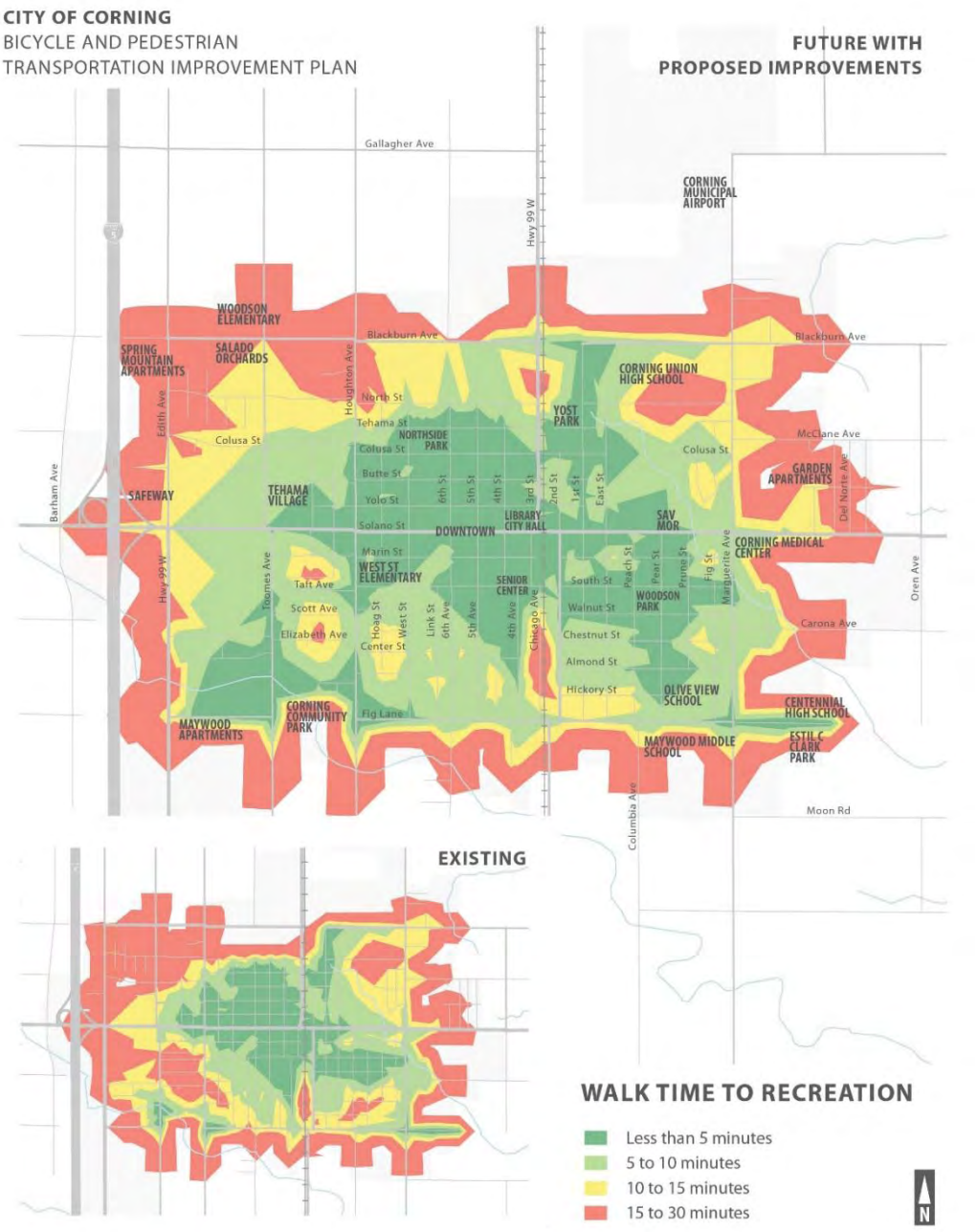
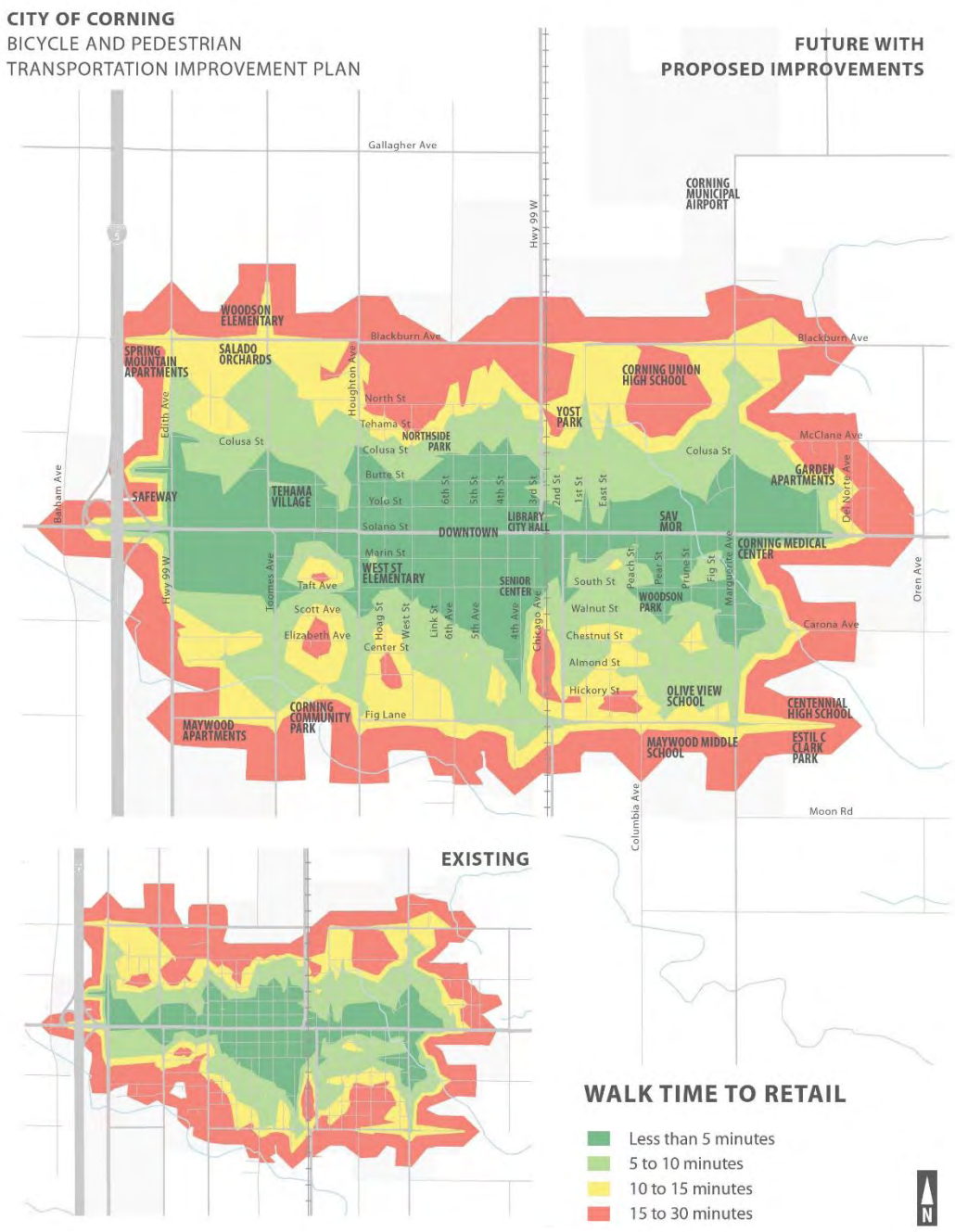


Figure 35 - Pedestrian network coverage related to shopping and retails areas



Planning Level Cost Estimates

The table below contains planning level cost estimates of the pedestrian and bicycle improvements defined in this chapter. The values were determined by utilizing construction costs from comparable projects such as the Solano Street improvements and the safe routes to school projects on 1st Street and Marguerite Avenue. These values are shown in current day dollars and will need to be adjusted over time. It is recommended that detailed cost estimates be performed as projects move into the implementation phase.

Table 9 - Planning level cost estimates in 2015 dollars.

Main Street/Project	Project Limits	Improvements	Total
1st Street	Blackburn Avenue to Fig Lane	Class 2 Bike Lanes	$46,000
Black Butte Lake	Via Corning Road and Black Butte Lake Road	Regional Bike Route	$53,000
Blackburn Avenue	Edith Avenue to Edith Avenue	Corridor Improvements	$728,000
Blackburn Moon Drain	East Street to Corona Avenue	Class 1 Bike Path	$844,000
Colusa Street	Edith Avenue to Marguerite Avenue	Corridor Improvements	$2,057,000
Fig Lane	Houghton Avenue to Marguerite Avenue	Corridor Improvements	$1,576,000
Highway 99W	South Avenue to Gallagher Avenue	Regional Bike Route	$13,000
Jewett Creek	Highway 99W to Toomes Avenue	Class 1 Bike Path	$231,000
Marguerite Avenue	Fig Lane to Blackburn Avenue	Crosswalk Enhancements	$73,000
Rolling Hills Casino	Via Highway 99W and Liberal Avenue	Regional Bike Route	$9,000
Solano Street	Highway 99W to 3rd Street	Streetscape Improvements	$5,348,000
South Street	Houghton Avenue to Marguerite Avenue	Class 2 Bike Lanes	$538,000
Toomes Avenue	Fig Lane to Blackburn Avenue	Corridor Improvements	$1,226,000
West Street	North Street to Fig Lane	Class 2 Bike Lanes	$177,000
Woodson Bridge State Recreational Area	Via Marguerite Avenue and Loleta Avenue	Regional Bike Route	$16,000

CHAPTER 7
Funding and Implementation

The Corning Bicycle and Pedestrian Transportation Improvement Plan provides a roadmap for necessary infrastructure improvements in key corridors and throughout the city. The recommendations described in the document do not have specific funding identified for implementation like those in typical Capital Improvement Programs or Regional Transportation Plans. There are number of ways that the improvements in the Plan can be implemented with assistance from both public and private entities.

Private Investment

Private developers can be responsible for the design and construction of many of the improvements outlined in the Plan as part of their development plans and implemented alongside the site work.

The advantage of this approach limits the amount of public money used to implement these improvements. The Plan is critical in this case as it will help ensure that the neighboring property owners are developing the same roadway cross section and compatible bikeway and pedestrian improvements. Further, the Plan is important to ensure cross development access and continuous mobility.

The challenge with relying solely on developer driven projects is that the improvements will be constructed segmentally over a potentially much longer timeframe to achieve continuous connections for either pedestrian routes along frontages or neighborhood connectivity. If there is a critical mass of developer driven projects it may be necessary for a municipality to seek other funding sources for project completion or gap closures.

Local Public Investment

The vast majority of public works projects are constructed using various funding sources through a public agency such as the City of Corning or Tehema County. Development-based funding, including development impact fees, will remain the primary method of paying for new development-required infrastructure. However, in this new economic climate, it is important to assure that necessary and desired infrastructure gets constructed and maintained, while at the same time not impeding the growth and economic development objectives envisioned in the General Plan.

Development Impact Fees

A development impact fee is an ordinance-based, one-time charge on new development designed to cover a "proportional share" of the total capital costs of necessary public infrastructure and facilities. Creating and collecting impact fees are allowed under California Assembly Bill (AB) 1600, as codified in California Government Code Section 66000, known as the Mitigation Fee Act. This law allows a levy of one-time fees to be charged on new development to cover the cost of constructing the infrastructure needed to serve the demands created by new growth. To the extent that required improvements are need to address both "existing deficiencies," as well as projected impacts from growth, only the portion of costs attributable to new development can be included in

the fee. These fees may be used to construct improvements in the area of the development project, but could be used to address other infrastructure needs in the city.

Infrastructure Financing District

Codified in California Government Code 53395 from California Senate Bill (SB) 308 in 1990, Infrastructure Financing Districts (IFDs) equip California municipalities with an additional funding mechanism for a variety of critical infrastructure projects. IFDs may finance the purchase, construction, expansion, improvement, seismic retrofit, or rehabilitation of any project with an estimated useful lifetime of at least 15 years, as well as any associated planning and design work. Originally, qualifying infrastructure projects included highways, arterial streets, transit facilities, sewage treatment facilities, water collection and treatment facilities, parks, and solid waste facilities, among others. In early 2014, the passing of SB 471 modified this list to include urban infill, transit priority projects, and affordable housing projects, as well as projects that were formerly part of a redevelopment area.

The creation of an IFD allows jurisdictions to issue bonds to finance infrastructure projects, covering long-term bond payments through tax increment financing for up to 30 years. IFDs rely on property tax revenue from new development, relieving existing property owners from the financial burden of necessary infrastructure projects associated with new development. By utilizing future increases in property tax revenue, tax increment financing allows existing revenue streams to remain largely unaffected.

An IFD is formed through the following process:

- **Adopt resolution of intention to establish proposed IFD.** The city's legislative body must outline the proposed IFD boundaries, the type of public facilities to be financed by the IFD, a declaration that incremental property tax revenue will be used to pay for some or all of the proposed facilities, and a notification of a public hearing for the proposal. Landowners and affected taxing entities must be notified of the proposal.
- **Develop infrastructure financing plan.** After adopting the resolution, the city or county must create an infrastructure financing plan that details the proposed district boundaries, the facilities to be provided by the district, a finding of significant benefit, and a plan for collecting and utilizing tax increment revenue. The plan should be consistent with the city's or county's General Plan and clearly display the facility's benefit to the community and surrounding area. Any taxing entity that will contribute its property tax revenue to the IFD must approve the plan.
- **Receive voter approval.** Following a public hearing to review the infrastructure financing plan, the plan must receive voter approval. Two-thirds voter approval is required in order to form the district. Following the formation of the district, any bonds proposed by the district must also receive two-thirds voter approval in order to be issued.

Only one IFD has been established in California. The often-difficult two-thirds voter approval required to establish an IFD has limited the use of IFDs for project financing in the past. However, the broadening of the scope of qualifying IFD infrastructure projects, IFDs are a burgeoning and viable financing mechanism for future infrastructure projects. IFDs have historically been considered in more urbanized areas and may not be as applcable in the City of Corning unless accompanied by a large redevelopment project.

Land-Secured Financing Options

Land-secured financing methods have long been used to fund local infrastructure that benefits a particular area. Traditionally, special assessment bonds as authorized in the 1913 Municipal Improvement Act and other related legislation are issued and funded by annual property tax assessments from benefitting properties. These funding sources can include Special Benefit Assessment Districts, Mello-Roos, or the Statewide Community Infrastructure Program.

Municipal Credit and Financing Programs

In addition to land-secured financing districts, which derive funding exclusively from area-specific special assessments or special taxes, local governments may use a variety of more broadly based financing methods that can fund infrastructure directly or provide a basis of financing developer-based obligations. Municipalities can also use existing or new general or special taxes or service charges to fund infrastructure through general obligation bonds, revenue bonds, certificates of participation, private placement, the state infrastructure bank, or the aforementioned infrastructure financing districts.

Federal Funding

Federal funding provides a significant proportion of transportation funding throughout the United States. In December 2015, *The Fixing America's Surface Transportation Act* or "FAST Act" bill was signed into law. FAST Act covers a variety of transportation related issues including financing, congestion relief, improved safety, improved efficiency (such as coordinated planning and environmental streamlining), environmental stewardship, and transportation related research and studies. One key provision of FAST Act is that funding for bicycle and pedestrian transportation was reduced and consolidated into the "Transportation Alternatives Program" (TAP). The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, enhanced mobility, community improvement activities, environmental mitigation; recreational trail program projects; and safe routes to school projects to name a few. Potential funding sources include the Transportation Investment Generating Economic Recovery (TIGER) grant and Congestion Mitigation and Air Quality Program (CMAQ).

Federal funding is generated almost entirely by a motor fuel tax and distributed through over twenty different programs that control application by facility type, permitted use, and geographic location. Through the local Regional Transportation Planning Agency, Tehama County Transportation Commission, federal transportation programs available for programming by Tehema County and Corning include the Congestion Mitigation and Air Quality Program (CMAQ) and Regional Surface Transportation Program (RSTP).

Congestion Mitigation and Air Quality Program (CMAQ)

CMAQ was established by the 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) and was re-authorized with the passage of TEA-21, SAFETEA-LU, MAP-21, and FAST Act. Funds are directed to transportation projects and programs which contribute to the attainment of maintenance of National Ambient Air Quality Standards in non-attainment or air quality maintenance areas for ozone, carbon monoxide, or particulate matter under provisions in the Clean Air Act. As part of the Sacramento Valley air basin, which is in non-attainment for ozone, Tehema County and Corning are eligible for CMAQ funds.

Eligible CMAQ projects include public transit improvements; high occupancy vehicle lanes; Intelligent Transportation System Infrastructure; traffic management and traveler information systems; employer-based transportation management plans and incentives; traffic flow improvement programs (signal coordination);

fringe parking facilities serving multiple occupancy vehicles; shared ride services; bicycle and pedestrian facilities; flexible work-hour programs; outreach activities establishing Transportation Management Associations; fare/fee subsidy programs; and under certain conditions, Particulate Matter improvement projects.

Regional Surface Transportation Program (RSTP)

RSTP was established by the 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) and continued with the passage of TEA 21 in 1997, SAFETEA-LU in 2005, MAP-21 in 2012, and FAST Act in 2015. RSTP is the most flexible of the transportation funding programs. A variety of transportation projects and modes, including streets and roads, are eligible.

Examples of projects eligible for RSTP include highway projects; bridges (including construction, reconstruction, seismic retrofit, and painting); transit capital improvements; carpool, parking, bicycle, and pedestrian facilities; safety improvements and hazard elimination; research; traffic management systems; surface transportation planning; transportation enhancement activities and control measures; and wetland and other environmental mitigation.

Eighty percent of the apportionment is distributed among the urbanized and non-urbanized areas of the State through Metropolitan Planning Organizations and Regional Transportation Planning Agencies. The remainder goes directly to counties in a formula equal to 110% of the Federal Aid Urban/Federal Aid Secondary funding in place prior to 1991.

Federal Transit Administration (FTA)

FTA Section 5307 provides operating and capital assistance funds for transit services in urbanized areas by formula, including Tehama Rural Area eXpress (TRAX).

FTA Section 5310 provides capital expenses that support transportation to meet the special needs of older adults and persons with disabilities.

FTA Section 5311 provides operating and capital assistance funds for transit services in non-urbanized/rural areas by formula. Caltrans administers this program, with the assistance of regional transportation planning agencies.

FTA Section 5317 provides additional tools to overcome existing barriers facing Americans with disabilities seeking integration into the work force and full participation in society.

State Funding

State funding also comes largely from the fuel tax, though recent changes in law now provide for some contribution from the state sales tax on motor fuel. State funds are combined with funding from various federal programs through the biennial State Transportation Improvement Program programming process and apportioned to the state highway system projects, and other projects throughout the state formulaically based on the geographic distribution of population and lane miles. Cap-and-Trade Program revenues also provide future funding opportunities for infill and affordable housing development projects.

Active Transportation Program (ATP)

Prior to the passage of MAP-21, non-motorized transportation was funded in the state through a suite of programs that included State Safe Routes to School, Bicycle Transportation Account, and the Recreational Trails Program. MAP-21 collapsed those programs into single funding program called the Transportation Alternatives Program or TAP. Federal TAP funding was allocated through MAP-21 to individual states, and on September 26, 2013, Governor Brown signed legislation creating the Active Transportation Program (ATP) in the Department of Transportation (Senate Bill 99, Chapter 359 and Assembly Bill 101, Chapter 354). The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation. The ATP is administered by the Division of Local Assistance, Office of Active Transportation and Special Programs.

Affordable Housing and Sustainable Communities Program (AHSC)

Administered by the Strategic Growth Council, the Affordable Housing and Sustainable Communities Program collects and distributes Cap-and-Trade Program revenues for land use, housing, transportation, and land preservation projects. This program strives to reduce greenhouse gas emissions by providing funding for infill and compact development, including a portion dedicated to affordable housing near major transit lines. Every year, 20% of proceeds from the Greenhouse Gas Reduction Fund are to be allocated to the AHSC program.

The advantage of the publicly funded projects is that they can be built on a set timeline based on available funding and span multiple property or jurisdictions. The challenge with public funding projects is that they are dependent on the project competing well for local, regional, State, or Federal grants or qualifying for some sort of financing district, tax or bond program. As listed above, there are many funding sources currently geared towards the implementation of active transportation projects as outlined in the plan. Most of these funding sources are administered by Tehema County Transporation Commission. The Corning Biycle and Pedestrian Plan is a critical piece in being competitive for these various regional funding sources through their funding programs.

Maintenance Activities

The final and often overlooked implementation strategy is to utilize ongoing maintenance activities to construct necessary upgrades. Pavement management programs that include overlays, slurry seals, or refreshing of striping can be great ways to implement improvements to on street bicycle facilities. These projects add minimal cost to the ongoing maintenance activities and can provide needed active transportation facilities.

The advantage to utilizing existing maintenance activities is that the projects can be implemented ahead of many of the available funding cycles for public financing and can also be constructed at a lower overall cost. Many of the items such as slurry seals and striping would be done regardless of the improvement projects.

This Plan is the first step in identifying these opportunities for co-benefit. It will be up to the City and County staff and the community to seek these opportunities within the annual maintenance programs.