

Editing note: Text with a single underline is new/updated; text with a double underline has just been moved from somewhere else in the chapter.

2. COMPLETE STREETS ELEMENT

THE COMPLETE STREETS ACT

The Complete Streets Act of 2008 requires California cities and counties to adopt transportation plans that accommodate all users of roadways, including pedestrians, transit, bicyclists, the elderly, children, motorists, and the disabled. Transportation planning in California now expressly strives to “plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways...~~;~~—in a manner that is suitable to the rural, suburban, or urban context of the general plan...” (AB 1358).

The Act sets complete streets policies because

Providing complete streets increases travel options which, in-turn, reduces congestion, increases system efficiency, and enables environmentally sustainable alternatives to single driver automotive trips. Implementing complete streets and other multi-modal concepts supports the California Complete Streets Act of 2008 (AB 1358), as well as the California Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 375, which outline the State’s goals of reducing greenhouse gas emissions.¹

The Act calls on RTPAs to integrate Complete Streets policies into their RTPs and identify the financial resources necessary to accommodate such policies. The Complete Streets Act tells RTPAs to consider accelerating programming for projects that retrofit existing roads to provide safe and convenient travel by all users.

Caltrans ~~has~~ adopted a “Complete Streets” directive, which ~~reads, in part~~states that:

...Addressing safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating “complete streets” beginning early in system planning and continuing through project delivery and maintenance and operations. (Caltrans Deputy Directive 64-R~~42~~, ~~2008~~2014)

The local system will become ever more important in supporting the goals of climate change and building sustainable communities, as local streets and roads serve as the right-of-way for transit, bicycle and pedestrian travel.

- 2010 RTP Guidelines

¹ “Complete Streets Implementation Action Plan 2.0,” California Department of Transportation, 2014.

HCAOG explicitly and consistently upholds Complete Streets policies in VROOM, foremost in the Complete Streets Element, but also in the Commuter Trails Element and Public Transportation Element. In addition, HCAOG has consistent policies also in the Humboldt Regional Bicycle Plan (2017), the Humboldt County Regional Pedestrian Plan (2008), and the Regional Trails Master Plan. These plans are incorporated into VROOM by reference.

EXISTING ROADWAY SYSTEM

The following briefly describes characteristics of the region's existing roadway system and the concepts of "level of service."

The broad use of the term "roadway" includes highways, streets, and paved and unpaved roads. The most basic function of roadways is to allow people to travel and transport goods. How the roadways accommodate travel affects what modes people will use to travel along them. The goal of "complete streets" design is to include all the characteristics feasible to provide safe, convenient travel for the most types of ~~users~~ modes.

Counties and cities maintain 81% of the maintained miles within the State of California and carry 45% of the total annual miles of vehicle travel.

- 2010 RTP Guidelines

In Humboldt County, we have approximately 1,400 miles of county roads and city streets, and 378 miles of state highways and roadways on federal lands. Proportionately, HCAOG's members (the County and seven cities) have to maintain 79% of the road miles in Humboldt. The local system is mostly public right-of-way. Roads on private property must be maintained by the property owner, unless a public agency agrees to maintain them. State highways in Humboldt County are under the jurisdiction of the California Department of Transportation (Caltrans) District 1. Federal and/or State agencies have jurisdiction over roads within public resource lands such as parks and forests. The agencies responsible for maintaining those non-local roadways include, but are not limited to, Caltrans District 1, U.S. Forest Service, National and State Park Service, Bureau of Land Management, and Bureau of Indian Affairs. Roads owned by Native American tribal governments are maintained by them; some roads on tribal land are in the local city, County, or Caltrans District 1 jurisdiction and are maintained by the respective entity.

LOCAL ROADWAYS & STREETS: THE BUILDING BLOCKS OF CITIES

Nearly one-third are one mile or shorter.² Local roads are used most for short trips, and these trips are most conducive for alternative transportation modes (biking, walking, transit). where motorists,

² 2009 National Household Travel Survey, California Add-On

transit, bicyclists, and pedestrians most commonly share space. Thus, it is where “complete streets” are the most opportune and have the highest potential/realized multi-modal use.

Different Classes of Streets/Roads

In older towns and neighborhoods in the United States (i.e., pre-automotive 19th century), streets were laid out in grid patterns, with short blocks and frequent intersections. The layout was, in turns, the cause or the effect of denser development, which accommodated people to walk and bicycle to most of their errands and activities. This urban layout is called commonly **European city design** and traditional downtowns. In Humboldt, Old Town Eureka and the Arcata Plaza are examples of traditional downtowns.

Another older design, generally built in smaller and more rural communities, is “Main Street,” which is the commercial spine that serves as “downtown.” Examples of “Main Street” downtowns in Humboldt include Main Street in Ferndale, Main Street in Fortuna, and Redwood Street in Garberville. Main Streets often also are the major transportation corridor through town. In younger rural towns, it is not uncommon for “Main Street” to be a highway, such as in Rio Dell and Orick (State Route 101), and Willow Creek (State Route 299).

As the population grew in the 20th century and private automobile ownership exploded on the scene, cities began to expand out. Since households became more mobile with their personal car, newer neighborhoods were built farther out and less dense. City grids gave way to suburban sprawl. By mid-century, city planners and traffic engineers were designing roadway networks to primarily accommodate longer, faster trips by car. The Federal Highway Administration (FHWA) invented the Functional Classification Systems, which defines a “hierarchy” of road classes, and is used to this day down to the local level. The three main road classes are local, collector, and arterial:

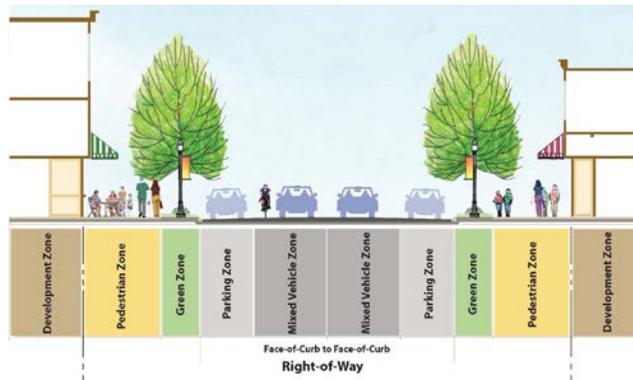
- **Arterials** are major through-roads that are expected to carry large volumes of traffic, with the primary objective of allowing the greatest speed for the longest uninterrupted distance. To increase flow, the number of intersecting streets is reduced. The “Main Street as Highway” roadway described above is usually a **principal (or major) arterial. Main Street Arterial — Garberville, ?Fortuna?, Rural arterials — Old Arcata Road/Bayside, Fieldbrook minor or major arterials?**
- **Collectors** are expected to carry lower volumes of traffic for trips of shorter distances. Speeds are lower than arterials.
- **Local roads** carry low volumes of traffic and have the lowest speed limit. They are expected to be access for the start and destination of a trip; they are not intended for through movement. In the FHWA classification, local streets and roads are at the bottom of the hierarchy.

The road network concept is that a local road links to a collector road, which will link to an arterial road, and an arterial road will directly access a highway. The two major highways in Humboldt County are U.S. Highway 101 (north-south) and State Route 299 (east-west). They carry the highest volumes of passenger cars and commercial trucks. Overall they provide adequate facilities and levels of service. Due to Humboldt’s geography, **geomorphology**, and wet weather patterns, landslides occur seasonally along certain segments.

State highways in Humboldt County are as follows (mileage for portion within county):

SR 36	32 miles	Alton (U.S.101) to Bridgeville/Blocksburg
SR 96	45 miles	Willow Creek to Siskiyou County line (Highway 5)
U.S. 101	137 miles	Del Norte to Mendocino County lines
SR 169	20 miles	Klamath (U.S. 101) to Klamath Glen
SR 200	3 miles	McKinleyville (U.S. 101) to SR 299 (near Blue Lake)
SR 211	5 miles	Ferndale (Ocean Ave.) to Fernbridge (U.S. 101)
SR 254	32 miles	(Avenue of the Giants) Phillipsville (U.S. 101) to Stafford (U.S. 101)
SR 255	9 miles	Eureka (Myrtle Ave.) to Arcata (Samoa Blvd.)
SR 271	< 1 mile	Cooks Valley
SR 283	< 1 mile	Scotia (U.S. 101) to Rio Dell
SR 299	51 miles	Arcata (U.S. 101) to Trinity County line

A Conceptual Road Design for a “Main Street”



What Makes a Complete Street?

How do you make a “complete street”? How does a roadway accommodate all users of all ages and abilities? Thus, when planning and building the roadway system, we need to consider the needs of people who will be traveling or transporting goods via truck, automobile and motorcycle, emergency vehicle, bus, bicycle, and by foot or wheelchair.

The physical and the functional will define what “complete” can mean for a roadway. The physical space available will limit how much can safely fit in the roadway. Different types of roadways will actually be “complete” at different levels. Depending on space (within the right-of-way), topography, and intended uses, a roadway will include some or all of the following characteristics: travel lane(s), median, shoulder, sidewalk, landscaping, on-street parking spaces, bikeways, and gutters, bioswales, or ditches.

Sidewalks and Crosswalks

(Included by reference is the Humboldt County Regional Pedestrian Plan (HCAOG 2008).)

Sidewalks and crosswalks are the standard transportation facilities for pedestrians, which include people in wheelchairs and strollers. Besides sidewalks, a few examples of walkways designed primarily for pedestrian travel (not solely recreation) are: the Boardwalk and PALCO Marsh path in Eureka; the Hammond Trail in McKinleyville; and Shay Park path (along Foster Avenue and

railroad tracks) in Arcata. IN last five to ten years, several sidewalk gaps have been filled thanks to Safe Routes to School programs and funding.

Where the dedicated walkway is substandard or non-existent, it creates conditions that impede pedestrian travel. Barriers for pedestrians include: roads without a dedicated walkway (where pedestrians must walk in the roadway shoulder or in the travel lane); gaps in the sidewalk; uncontrolled intersections (i.e., no signal or stop sign); and substandard slopes on driveways or curb cuts. Sidewalks and crosswalks must meet ADA (Americans with Disabilities Act) standards for wheelchair users, and mobility-impaired pedestrians.

Bikeways & Bike Parking

Bike facilities include public infrastructure and private amenities that support bicycle travel. The most standard bicycle facility is a bikeway on the public right-of-way, usually on the sidewalk.

Humboldt's bikeways are classified according to Caltrans' definitions for Class I, II, and III bikeways (see Table Streets-2). Class I is the most exclusive for bicyclists (or non-motorized modes), and Class III is the least exclusive (bicyclists share the travel lane with motorized vehicles). In 1997, the State increased the minimum width for bike lanes from four feet to five feet; consequently, many bike lanes constructed in Humboldt County before 1997 do not meet current State width standards.

In Humboldt County most bikeways, of any class, are located in urbanized areas (excluding solely recreational trails). For example, there are several bike lanes and bike routes in Eureka, Arcata, and Fortuna, and in some urbanized unincorporated areas of the County. In District 1, bicyclists are allowed on all State highways, including freeways (District System Management Plan, 2012). However, most highways are not built to safely carry bicycle and motorized traffic in the same right-of-way.

The popular Hammond Coastal Trail is a multi-modal trail and the county's longest bike path by far. The Hiksari' Trail is 1.5-mile multi-use trail in the City of Eureka's Elk River Access Area. The Hiksari' Trail is a segment of the planned contiguous Eureka Waterfront Trail. Humboldt's most prominent bicycle touring route is the Pacific Coast Bike Route, which traverses the county north to south and is part of the California Coastal Trail. (Trails are discussed further in the Commuter Trail Element.)

Table Streets-2. Bikeway Classifications

Bikeway Class*	Design Requirements*	Existing in Humboldt
Class I "Bike Path" (or multi-use path or shared path)	A separated, surfaced right-of-way designated exclusively for non-motorized use (can be solely for bicyclists, or can be shared with pedestrians and/or equestrians). The minimum width for each direction is 8 feet (1.5 meters), with a 5 feet (2.4 meter) minimum width for a bi-directional path.	<ul style="list-style-type: none"> • Hammond Coastal Trail in McKinleyville (from Clam Beach to the Mad River). • Eureka: Hiksari' Trail along the Elk River (Truesdale Avenue to Herrick/101 park-n-ride), Waterfront Boardwalk. • Arcata: 18th Street bridge-101 overpass.
Class II	Within the roadway, a lane for preferential bicycle use, at least 4 feet wide or 5 feet when	<ul style="list-style-type: none"> • Exist in Cities of Arcata, Eureka, and

“Bike Lane”	next to a gutter or parking. Established by a white stripe (on roadway) and “Bike Lane” signs. Adjacent vehicle parking and motorist crossflow is allowed. On a two-way road, a bike lane is required on both sides.	Fortuna, and in unincorporated McKinleyville.
Class III “Bike Route”	A roadway that does not have a Class I or II bikeway, where bicyclists share a travel lane with motorists. Sometimes created to connect other bikeways. Can be established by a “Bike Route” sign, but not required.	<ul style="list-style-type: none"> • Designated Bike Routes exist in Cities of Arcata, Eureka, and Fortuna, and unincorporated areas of Old Arcata Road, McKinleyville, and Myrtle town. • Pacific Coast Bike Route begins on Hwy 101 at the California/ Oregon State line. In Humboldt County, it travels through Prairie Creek Redwoods State Park, Eureka City streets, and Highway 101.
Unclassified bikeway	Streets, roadways, and highways without features to qualify as Class I, II, or III.	All streets, roadways, and highways in Humboldt County are open to bicycle use.

*Bikeway classification definitions and design requirements from Caltrans’ *Highway Design Manual*.

REGIONALLY SIGNIFICANT ROADWAYS

HCAOG has not independently defined criteria for determining which roadways are “regionally significant.” HCAOG generally follows the federal definition which describes a regionally significant facility as one that serves regional transportation needs. “At a minimum, this includes all principal arterial highways and all fixed guideway transit facilities that offer a significant alternative to regional highway travel” (23 CFR 450.140). Regional transportation needs include access to and from:

- the area outside the region;
- major activity centers in the region;
- major planned developments (commercial, recreation, and employment); and
- transportation terminals.

Table *Streets-1* lists regionally significant roadways identified by City and County staff.

Table *Streets-1*. Regionally Significant Roadways

Jurisdiction	Paved Road Miles ¹	Regionally Significant Roadways
Arcata	68.5	11th Street, Bayside Road/Old Arcata Road, Foster Avenue/Sunset Avenue, Giuntoli Lane, Janes Road/Spear Avenue, K Street/Alliance Road, L K Wood Boulevard, West End Road, U.S. 101, State Route 255, State Route 299
Blue Lake	8.4	Greenwood Avenue, Hatchery Road, Railroad Avenue, State Route 299
Eureka	114.2	6th, 7th, and 14th Streets, Buhne Street, Campton Road, Fairway Drive, H Street, Harris Street, Harrison Avenue, Henderson Street (I to Broadway), I Street (Harris to Waterfront Drive), Myrtle Avenue, S Street, V Street, Wabash, West Avenue, Waterfront Drive, U.S. 101, State Route 255

Table Streets-1. Regionally Significant Roadways

Jurisdiction	Paved Road Miles ¹	Regionally Significant Roadways
Ferndale	7.4	Arlington Avenue, Bluff Street, Centerville Road, Fifth Avenue, Main Street, Ocean Avenue, Van Ness Avenue
Fortuna	45.2	Main Street, Rohnerville Road, U.S. 101
Rio Dell	14.2	Bellevue Avenue, Blue Slide Road, Monument Road, Wildwood Avenue, U.S. 101
Trinidad	3.3	Edwards Street, Main Street, Patrick’s Point Drive, Scenic Drive, Stagecoach Road, Trinity Street, Westhaven Drive, U.S. 101
Humboldt County	932.0	Alderpoint Road, Bald Hills Road, Bair Road, Blue Lake Boulevard/Glendale Drive, Blue Slide/Grizzly Bluff Road, Briceland-Thorne Road, Campton Road, Central Avenue (McKinleyville), Elk River Road, Fieldbrook Road, Freshwater/Kneeland Road, Humboldt Hill Road, Maple Creek Road, Mattole Road, Old Arcata Road/Myrtle Avenue, Redwood Drive (Garberville), Rohnerville Road, Shelter Cove Road, Sprowel Creek Road, Wilder Ridge Road, New Navy Base Road, Walnut Drive, Herrick Road, Murray Road, U.S. 101, State Routes 36, 96, 169, 255, and 299
Hoopa Valley Reservation	15.3	State Route 96
Karuk Tribe	1.0	

GOAL, OBJECTIVES, & POLICIES

HCAOG shall carry out transportation planning for the regional roadway system with this goal:

GOAL: Throughout Humboldt County, the streets, roads, and highway system meet the transportation and safety needs of all users, including pedestrians, transit users, bicyclists, motorists, the elderly, youth, and the disabled. The region's jurisdictions have the resources to preserve, enhance, and maintain the roadway network to support bicycle, bus, pedestrian, automobile, and truck travel.

OBJECTIVES: The policies listed in the Complete Streets Element will help meet the RTP's main objectives (listed in alphabetical order):

- ❖ Balanced Mode Share/Complete Streets
- ❖ Economic Vitality
- ❖ Efficient & Viable Transportation System (includes Preserving Assets)
- ❖ Environmental Stewardship
- ❖ Equitable & Sustainable Use of Resources
- ❖ Safety

The policies below are grouped according to the RTP's main objectives (chapter 1, Introduction, fully describes the six main objectives). The objectives support and work in tandem with one another. Thus, a policy can help meet more than one objective.

OBJECTIVE: BALANCED MODE SHARE/ COMPLETE STREETS

- ◆ *Maximize multi-modal access to the roadway system and eliminate barriers to non-motorized transportation.*
- ◆ *Expand and maintain a regional network of inter-connected pedestrian and bicycle facilities for active transportation.*

Policy CS-1 HCAOG shall encourage and facilitate local jurisdictions, local Native American Tribes, Caltrans, and non-profits to individually and collaboratively plan, install, and maintain roads in Humboldt County to build a coordinated and balanced transportation system. *(Also supports objectives: Efficient & Viable Transportation System, Economic Vitality)*

Policy CS-2 HCAOG recognizes the planned Humboldt Bay Trail as a regional priority multi-use trail, and supports multi-jurisdictional, public, and private efforts to develop it. *(Also supports objectives: Efficient & Viable Transportation System, Economic Vitality)*

Policy CS-3 HCAOG shall pursue grants and public-private partnerships to augment funding for infrastructure and non-infrastructure projects and planning for pedestrian, bicycle, and transit facility improvements. HCAOG shall identify and help secure the financial resources necessary to

accommodate HCAOG's Complete Streets and active transportation policies adopted in the *Regional Bicycle Plan, Regional Transportation Plan (VROOM), Regional Master Trails Plan, and Regional Pedestrian Plan..* (Also supports objective: *Economic Vitality, Efficient & Viable Transportation System, Environmental Stewardship*)

Policy CS-4 HCAOG shall include Complete Streets improvements in regionally-funded transportation system projects to the extent feasible, as consistent with California Complete Streets Act of 2008 (AB 1358) and Caltrans Deputy Directive 64-R1. (Also supports objectives: *Economic Vitality, Environmental Stewardship, Equitable & Sustainable Use of Resources, Safety*)

OBJECTIVE: ECONOMIC VITALITY

Policy CS-5 HCAOG shall encourage and promote regional “complete streets” projects for the demonstrated economic benefits they bring to local businesses, markets, and property values.

OBJECTIVE: EFFICIENT & VIABLE TRANSPORTATION SYSTEM

- ◆ *Maintain the roadway system in a condition that maximizes resources and uses, and minimizes disruptions and costs.*

Policy CS-6 HCAOG shall pursue local options for developing a funding program to help maintain and preserve the regional roadway system. (Also support objectives: *Complete Streets/Balanced Mode Share, Equitable & Sustainable Use of Resources.*)

Policy CS-87 HCAOG shall utilize the “Humboldt County Corridor Preservation Report” (HCAOG, May 2010) to guide strategies and decisions for protecting planned corridors. (Also supports objectives: *Economic Vitality, Equitable & Sustainable Use of Resources.*)

Policy CS-# HCAOG will accelerate programming for regional projects that retrofit existing roads to provide safe and convenient travel by all users.

Policy CS-# HCAOG supports a “fix it first” priority of protecting and preserving what we have first when allocating resources to roadways and other transportation assets.

Also applicable: Bike Plan Policy 4.3 ~~Policy CS-7~~ HCAOG shall use the Bicycle Level of Service and Quality of Service (BLOS/BQOS) and the Bicycle Compatibility Index as tools for assessing bicycle facility needs and prioritizing projects. (Also supports objectives: *Complete Streets/Balanced Mode Share, Economic Vitality, Environmental Stewardship.*)

OBJECTIVE: ENVIRONMENTAL STEWARDSHIP

- ◆ *Promote “Complete Streets” policies and projects to reduce CO₂ emissions and the adverse environmental impacts of motorized transportation on land, sea, and air.*

Policy CS-9 HCAOG shall favor first projects that, by design and siting, will result in no significant adverse environmental impacts, and secondarily projects that result in no significant adverse impacts due to mitigation. *(Also supports objective: Equitable & Sustainable Use of Resources.)*

Policy CS-10 Carry out policies and program funding for projects that will help achieve the goals of California Assembly Bill 32: Global Warming Solutions Act. This shall include supporting efforts to reduce non-renewable consumption and air pollution, such as projects that increase access to alternative transportation and renewable fuels, reduce congestion, reduce single-occupancy (motorized) vehicle trips, and shorten vehicle trip length. *(Also supports objectives: Complete Streets/Balanced Mode Share, Economic Vitality, Equitable & Sustainable Use of Resources, Safety)*

OBJECTIVE: EQUITABLE & SUSTAINABLE USE OF RESOURCES

Policy CS-11 HCAOG shall promote equity, cost effectiveness, and modal balance in programming and allocating funds to regionally significant roadway and trail projects. *(Also supports objectives: Complete Streets/Balanced Mode Share, Economic Vitality, Efficient & Viable Transportation System.)*

Policy CS-X HCAOG shall pursue efforts to increase shared mobility options in the region such as car share and bike share programs. HCAOG shall work to make shared mobility programs equitably available to people with low-incomes and other transportation disadvantages. *(Also supports objectives: Complete Streets/Balanced Mode Share, Efficient & Viable Transportation System.)*

OBJECTIVE: SAFETY

- ◆ *Improve overall safety for motorists, bicyclists, pedestrians, and transit users on all county, city, and state highways and streets.*

Policy CS-12 To advance Safe Routes to School and Safe Routes to Transit initiatives, HCAOG shall support jurisdictions to establish and maintain safe pedestrian paths and designated bikeways (Class I, II, or III) within one mile of all public schools and public transit connections. *(Also supports objective: Complete Streets/Balanced Mode Share)*

Policy CS-X HCAOG supports roadway design standards that increase bicyclist and pedestrian safety and will work with local jurisdictions to help implement innovative designs and engineering projects that have been shown to improve bicyclist and pedestrian safety.

NEEDS ASSESSMENT

ROADS NEEDS ASSESSMENT

To assess how a roadway is performing, key factors are safety, capacity, physical condition, and direct and indirect environmental impacts. How a roadway performs will tell what its needs are. And the combined needs will tell how the broader roadway system is functioning.

- *Safety* – The roadway system must not subject people (or property) to hazardous conditions that risk their safety.
- *Capacity* – The roadway system’s capacity must be able to safely and functionally accommodate population growth and increased vehicle volumes.
- *Environmental impacts* – Transportation planning must address greenhouse gas emissions and the fuel and energy consumed for building, using, and maintaining roadways and other infrastructure for motorized transportation. Impacts to land, water, and air resources must be assessed.
- *Maintenance & rehabilitation backlog* –Humboldt County’s pavement condition index (100-point weighted average) rated 56 for 2010, and 64 for 2012. Roads rated between 50 and 70 are considered “at risk” (per “California Statewide Local Streets and Roads Needs Assessment,” January 2013).

Throughout California, counties are having trouble keeping up with the costs of consistently maintaining and rehabilitating their roadways. The system suffers from “chronic road maintenance funding shortfalls.” The challenge is greater in rural counties because their low population densities mean there are more miles of roadway with less people to pay for them. Rural areas generate fewer funds per road mile. Like other California counties, Humboldt has had a backlog [of road maintenance needs](#) for decades. The current backlog, estimated as of August, 2013, is over \$217 million (see Table *Streets-4*). **to be updated**

Table *Streets-4*. Roadway Maintenance & Rehabilitation Backlog (August, 2013) **to be updated at a later date**

Location	Maintenance Backlog (\$ million)	Rehabilitation Backlog (\$ million)	Total (\$ million)
Arcata	12.95	9.82	22.77
Blue Lake	3.50	8.00	11.50
Eureka	1.40	14.70	16.1
Ferndale	3.30	0	3.30
Fortuna	1.50	4.00	5.50
Rio Dell	1.30	4.20	5.50
Trinidad	0.12	0.44	0.56
County of Humboldt	--	--	150.00
Karuk Tribe (roads within Humboldt County)	0.88	0.93	1.81
TOTAL			217.04

LEVEL OF SERVICE (LOS)

[CEQA SB 743](#) **summary to be added**

In the U.S., it is standard practice for transportation planning agencies and departments to assess road traffic conditions using the “level of service” (LOS) concept, described below. HCAOG prioritizes bicycle and road projects, in part, by rating the LOS of current and proposed bicycle and road facilities. Bicycle LOS modeling has components that can apply to pedestrian facilities, too. For example, a pedestrian LOS can help judge how pedestrians perceive hazards/safety at an intersection. A pedestrian LOS could be used to prioritize projects, too.

To apply the LOS concept, we collect traffic data for a roadway segment or an intersection (usually during peak traffic hours); the results determine an LOS “grade” from A to F. Generally, LOS A indicates no traffic congestion, and F indicates the worst congestion.

The middle grade, LOS C, indicates that traffic flows during peak hours. For example, most drivers would have to wait only one signal cycle before proceeding through signalized intersections. Many jurisdictions nationwide, including in Humboldt County, have policies making LOS C the lowest acceptable grade, and/or LOS D under certain circumstances.

BICYCLE & PEDESTRIAN NEEDS ASSESSMENT

Bicycle and pedestrian needs were assessed, in part, from information in the *Humboldt Regional Bicycle Plan* (HCAOG, ~~2012~~2017) and the *Humboldt County Pedestrian Needs Assessment Study* (HCAOG, 2003).

To completely integrate pedestrian and bicycle modes into the transportation system, HCAOG must help meet the principal needs of existing pedestrian and bicycle facilities:

- Access & Choice – While commuting by foot or by bicycle is a choice for some, many others use these modes out of necessity. Children, high school and college students, seniors, and people with low incomes often do not have access to other transportation modes. The streets and roadway network must meet minimum ADA standards to be accessible to wheelchair users, vision-impaired and other pedestrians.
- Connectivity & Links – Pedestrians and bicyclists frequently utilize roads in Humboldt County that lack sidewalks and/or bicycle lanes or bike routes. A number of communities are bisected by busy state routes, or county roads with no (or limited) crossing facilities.
- Safety – The *Humboldt County Pedestrian Needs Assessment Study* (HCAOG, 2003) concluded that better pedestrian access and improved safety conditions are required to ensure that our communities are walkable, safe, vibrant places to live. Improved safety also hinges on better rider/driver education, awareness, and road etiquette.
- Maintenance/Upkeep – When roads lack timely maintenance, deteriorated conditions such as potholes and debris can pose safety concerns for bicyclists and other users.

Bicycle Level of Service Modeling

Bicycle LOS modeling helps predict what conditions a facility does or will offer cyclists, such as the average flow rate, speed, and density a cyclist would experience in a given bike lane. The bicycle LOS can be expressed on a scale of A to F. Table Streets-3 shows typical bicycle LOS measures.

For a full discussion of Bicycle LOS, refer to the *Humboldt Regional Bicycle Plan* (2012) (available at www.hcaog.net/projects).

Bicycle LOS modeling can also help predict how cyclists perceive the safety or hazard level of a facility. Generally, cyclists feel safer riding where there is more room and less traffic. Perceived hazards include proximity to motor vehicles, deteriorated pavement, roadway debris, high speeds, and intersections without traffic controls (e.g. stop signs). Bicycle LOS can evaluate these conditions. Other factors of perceived safety/hazards are the cyclist's skill level and riding experience, which LOS does not measure.

Generally, cyclists choose their routes, or whether to ride at all, based on how they perceive hazardous conditions (for some local perspectives, see *Humboldt Bay Area Bicycle Use Study*, RCAA 1999). Therefore, one strategy for increasing bicycle ridership is to prioritize projects that will eliminate or minimize perceived hazards to bicyclists.

~~Community members who participated in Humboldt County's General Plan Update Health Impact Assessment identified the following needs for bicycle and pedestrian~~ TO BE UPDATED AFTER PUBLIC INPUT

ACTION PLAN: PROPOSED PROJECTS

TO BE UPDATED AT A LATER DATE.

Table Streets-5, below, shows the top priority short-term (0-10 years) and long-term (11-20 years) roadway improvements for Humboldt County's regional "complete streets" system. Members of HCAOG's Technical Advisory Committee (TAC) prioritized all projects based on the RTP's main objectives. Projects that will meet the most objectives are the top priorities.

The full list of regional complete streets projects is in Table Streets-6 (See Appendix 1).

For a more detailed, comprehensive description of each jurisdiction's bikeway facility improvements (constrained and unconstrained), refer to the *Humboldt Regional Bicycle Plan* (HCAOG 2012), and the respective bikeway master plans for the City of Arcata, City of Eureka, and County of Humboldt.³ The pedestrian facility improvements for each of the jurisdictions are based on the *Humboldt County Pedestrian Needs Assessment Study* (HCAOG, 2003).

³ Available at the HCAOG office and online at www.hcaog.net. To view a city's bike plan, contact its Public Works Department.

PERFORMANCE MEASURES

Transportation performance measures consist of a set of objectives and measurable criteria used to evaluate the effectiveness of the transportation system. Performance measures help set goals and outcomes, detect and correct deficiencies, and document accomplishments. Below are performance standards for measuring the “complete streets” system—highway and roadways, bicycle and pedestrian facilities.

Table *Streets-7*. Performance Measures for the Regional Complete Streets System

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Safety	<i>Collision rates</i>	Do collision rates exceed statewide averages?	<ul style="list-style-type: none"> • Collisions per vehicle (or passenger) miles traveled. • Severity of collisions and injuries. 	Accident statistics collected by Caltrans
	<i>Bicycle & pedestrian activity and safety</i>	Have rates of crashes, fatalities, and injuries decreased? Has the number of miles of “safe routes to school” increased? Has the number of trips to school by bicycling and walking increased?	<ul style="list-style-type: none"> • Number of safety improvement projects implemented. • Miles of safe routes (bike lane miles vs. motor lane miles). • Bicycle crashes per 1,000 cyclists. • Pedestrian collisions per 1,000 pedestrians. 	District 1 Safety Division, CHP, local agencies.
	<i>SAFE Program (Service Authority for Freeway Emergencies)</i>	Are SAFE call boxes located at appropriate distances along designated corridors?	<ul style="list-style-type: none"> • Percentage of fully operational call boxes. • Percentage of call box locations that meet all design criteria. • Annual call box use. 	Call box monitoring/performance reports.
Balanced Mode Shares (Complete Streets)	<i>Mobility</i>	Have transportation projects increased multi-modal options in the region?	<ul style="list-style-type: none"> • Travel mode split (shares) for work trips. • Travel mode split (shares) for non-work trips. 	U.S. Census, American Community Survey.
	<i>Reliability</i>	Has congestion decreased? Has travel time decreased for passengers, freight/goods trips?	<ul style="list-style-type: none"> • Annual average delay per mile of roadway segment (per passenger, automobile, freight truck trips). • Peak hour congestion. 	
	<i>Connectivity</i>	Are there more multi-modal connections within and between communities?	<ul style="list-style-type: none"> • Miles of improved connectivity for bicycle and pedestrian facilities. 	Walk/trail/bikeway audits, Bicycle Plan Updates, Public Works Dept. information.

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
	<i>Access to transit, paratransit</i>	Has the level of transit or paratransit service increased? Have ridership levels increased? Has number of interregional transit routes or schedules increased?	<ul style="list-style-type: none"> Total transit/paratransit trips. Percentage of population within ¼ mile of a transit stop. Major destinations not accessible by transit/paratransit. Revenue service hours/miles. 	Transit Development Plan updates, Local transit operators' data.
	<i>Access to walking & bicycling</i>	Have walking and bicycle mode shares increased?	<ul style="list-style-type: none"> Bicycle ridership (mode share). Pedestrian travel (mode share). 	Surveys, pedestrian and bicycle ridership counts.
	<i>Performance</i>	Has the level of service (LOS) increased for alternative modes?	<ul style="list-style-type: none"> Average annual boardings per transit vehicle revenue hour or mile. On-time performance of transit system. Pedestrian LOS/QOS. Bicycle LOS/QOS. Percentage of sidewalks, intersections, and bus shelters that comply with ADA requirements. 	Local transit operators' data, LOS/QOS results.
Efficient and Viable Transportation System	<i>System condition</i>	Are roads better maintained?	<ul style="list-style-type: none"> Pavement Condition Index (PCI) rating. 	Public Works Depts, Caltrans District 1, Harbor District, StreetSaver or other pavement management software (PMS).
	<i>System preservation</i>	Do road, aviation, and maritime facilities meet standards for state of good repair? Is the road maintenance or rehabilitation backlog decreasing? Is the bridge or pier replacement or rehabilitation backlog decreasing?	<ul style="list-style-type: none"> Condition of bridges, harbor and aviation facilities. Maintenance/rehabilitation funding shortfalls. 	
		<i>Cost effectiveness of investments</i>	Are investments in RTIP projects helping achieve RTP goals?	
	<i>Benefits to costs ratio</i>	Have investments improved system efficiency and/or productivity? Have system operating and maintenance costs decreased?		Caltrans, Air Resources Board, Public Works Depts.

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Environmental Stewardship & Climate Protection	<i>Fuel and energy use</i>	Has fuel consumption decreased? Are people driving less (trips or miles)? Are fewer people driving alone to work and school?	<ul style="list-style-type: none"> Fuel consumption gallons per capita. motorized VMT per capita. motorized VMT per employee. Average vehicle occupancy rate. 	Caltrans annual traffic counts, environmental and compliance reporting.
	<i>Air quality</i>	Have air pollutant emissions decreased from on-road mobile sources?	<ul style="list-style-type: none"> PM_{2.5}, PM₁₀ emissions. Air quality levels. 	CARB, local and state environmental and compliance reporting.
	<i>Adaptability and resilience to climate change impacts</i>	Have transportation CO ₂ emissions decreased per capita? Have car/light truck VMT decreased? Have alternatives to driving alone increased?	<ul style="list-style-type: none"> Total transportation CO₂ per capita. Passenger transportation CO₂ per capita. Decrease in single vehicle occupancy travel. Car and truck VMT per CO₂ emissions. Average utilization rate of park-&-ride lots (% full). 	CARB's EMissions FACtors model (EMFAC), environmental and compliance reporting.
Equitable & Sustainable Use of Resources	<i>Equity</i>	Has the proportion of transportation investment in environmental justice tracts increased?	<ul style="list-style-type: none"> Percentage of RTP/RTIP expenditures in environmental justice tracts. Average travel time per person trip (EJ/non-EJ). Percentage of homes within half-mile of transit stop (EJ/non-EJ). 	US Census, American Community Survey
	<i>Environmental justice</i>			
	<i>Transportation coordinated with land use</i>	Has new transportation infrastructure developed agricultural or natural resource land? Is transportation planned for new land development (residential, work, commercial, services, recreation)?	<ul style="list-style-type: none"> Acres of sensitive lands on which transportation infrastructure is built. Ratio of jobs to housing. Average distance to nearest transit stop and park-and-ride lot. Percentage of jobs and population within 0.4 miles of transit. 	General Plan updates.
Economic Vitality	<i>Economic sustainability</i>	Have transportation investments contributed to economic growth? Has access to jobs, markets, and/or services increased?	<ul style="list-style-type: none"> Direct and indirect economic benefits from increased multi-modal options? New residential/commercial development within 1/4 mile of public transit. 	
	<i>Goods/freight movement</i>	Has the freight network been enhanced?	<ul style="list-style-type: none"> Freight capacity acreage (for ports of entry) Freight capacity mileage (highway connectors to port terminals, highway truck routes) 	