Elephants in the Road: Arcata Near-Term Implementation Guide

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for

CRTP
Coalition for Responsible Transportation Priorities

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Executive Summary

In August 2020, the Coalition for Responsible Transportation Priorities released the report entitled “Elephants in the Road.” That report made the case that three key phenomena are shaping the future of transportation in Humboldt County and beyond: climate chaos, autonomous vehicles, and the road safety crisis. These three factors are highly influential today and into the future. It is imperative to address these phenomena in policy sooner rather than later. Transportation officials should be seriously considering these key factors in plans and existing infrastructure. Planning without consideration of the three phenomena gives little power to our local communities and allows distant governments and corporations to determine the future of our transportation systems.

This paper should be used as a guide to near-term actions for implementing the lessons learned from “Elephants in the Road” in the City of Arcata. Sea level rise will continue to affect trails, roads, farms, and infrastructure in Arcata. Planning for how autonomous vehicles should be used in Arcata will need to be considered in the near future. Creating consistent citywide policy and plans gives back power to communities within Arcata. Near-term strategies and actions are summarized in the table below.

“In order to take control of the future of our transportation system—the life-blood of our society and economy—local communities need to plan proactively, starting now, and quickly embody their priorities in pavement and paint.”

-Elephants in the Road[1]

[1] https://transportationpriorities.org/wp-content/uploads/2020/08/Elephants-in-the-Road-Final.pdf

Summary of Recommendations

1. Land Use Code Reforms

STRATEGY: The City Should Adopt Form-Based Codes

Actions:

- Continue efforts for Arcata infill development programs.
- Adopt mixed-use zoning formats throughout the city.
- Reduce or Eliminate Setbacks and Height limits, and increase or eliminate maximum Floor area ratios, to improve density.
- Remove minimum parking requirements for new developments.
- Reform bicycle parking requirements.

2. Parking Management

STRATEGY: Charge for All Parking in Commercial, Mixed-use, and High Demand Areas

Actions:

- Arcata should charge for parking using dynamic meters.
- Convert applicable parking in favor of bicycle storage.

STRATEGY: The City Should Work with Businesses to Encourage a Shift Away from Single-Occupancy Vehicles

Action:

- The city should facilitate existing businesses to form coordinated tenant/employee incentive programs.

3. Complete and Effective Transportation Networks

STRATEGY: The City Should Conduct Network Analyses

Actions:

- Take steps in assessing where bicycle networks may be improved.
- Take steps in assessing where pedestrian networks may be improved.

STRATEGY: Close Gaps and Address Barriers in Bike, Pedestrian, And Transit Networks

Actions:

- Adopt a policy of using quick-build techniques.
- Adopt a policy of implementing complete street elements during routine pavement maintenance.
- Redesign transit routes based on analysis.

4. Citywide Policy for Traffic Calming

STRATEGY: Slow Down Vehicular Traffic to Improve Safety and Environmental Outcomes

Action:

- Arcata should adopt a citywide policy for traffic calming.

5. City Sponsored Carsharing Program

STRATEGY: Develop Carshare Partnerships with HSU and Organizations for Public Use

Actions:

- Expand carsharing throughout town and allow non-student participation.
- Dedicate space for carshare infrastructure.

6. Proactive, Equity-Focused Policymaking

STRATEGY: Prioritize Equity in All Aspects of Planning

Actions:

- Adopt robust equity policies.
- Proactively Plan for transportation equity.
- Prepare for the known future.

Introduction

Fully addressing the challenges posed by climate chaos, autonomous vehicles, and the road safety crisis will require both near-term and long-term actions. This report focuses on near-term actions only. Near-term actions can be accomplished in about 1-3 years to begin the process of proactively developing and redeveloping infrastructure to reflect community priorities. These suggested actions are grouped into the following categories: Land Use Code Reforms, Parking Management, Complete and Effective Transportation Networks, Citywide Policy for Traffic Calming, City Sponsored Carsharing Program, and Proactive, Equity-Focused Policymaking. This list should not be considered comprehensive.

1. Land Use Code Reforms

Land use code reforms are an essential near-term planning effort that will have long-term positive impacts.

STRATEGY: THE CITY SHOULD ADOPT FORM-BASED CODES:

Explanation: Traditional or "Euclidean" zoning codes separate land use types, resulting in larger homogenous districts. An example of this is the frequent pattern of commercial uses clustered together and separated by distance from housing. A form-based code is "a land development regulation that fosters predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code".[2] This allows commercial buildings and housing to be near each other. Housing density and mixed-use are strongly associated with choice of transportation mode, specifically the choice of active transportation.[3]

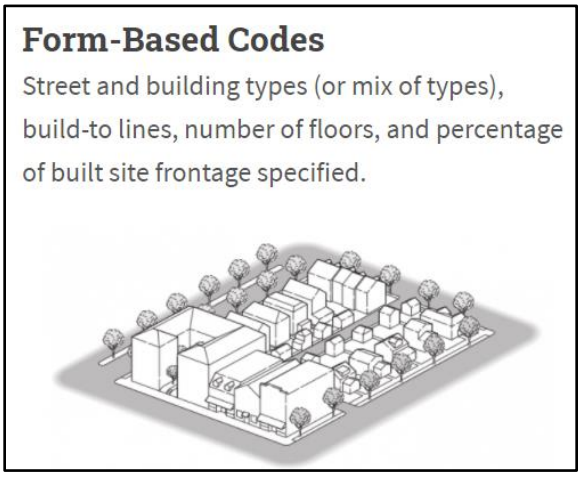


PHOTO CREDIT: FORM-BASED CODES INSTITUTE

Active transport includes walking, biking and use of public transit because it involves walking or biking to and from a transit stop. These modes provide health benefits and few negative consequences for the individual, society, and the environment. See section 2.1 of "Elephants in the Road" for more details.

[2] https://formbasedcodes.org/definition/
[3] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.368.4497&rep=rep1&type=pdf

By combining mixed-use and adequate active transportation infrastructure cities can become walkable, convenient, and highly sought-after places to live. Methods of tracking these goals include Walk Score, Transit Score, and Bike Score methods.[4]

- **ACTION:** Continue efforts for Arcata infill development programs.
    - The City of Arcata Strategic Infill Redevelopment Plan "is a large-scale planning effort that will result in development of new programs to support housing and economic development, the adoption of an Area Plan, amendments to the General Plan, targeted rezoning to accommodate greater housing densities, and the required environmental review of these efforts".[5] This plan accomplishes goals to reform form-based codes by focusing on infill and high-density developments.

- **ACTION:** Adopt mixed-use zoning formats throughout the city.
    - Replace residential and commercial zones with mixed-use zones, or principally permit commercial uses in residential zones and vise-versa. Mixed-use combines residential and commercial zone types, which in turn increases density and city walkability.[6] Walkable cities are defined as pedestrian friendly cities that consider persons, not their automobiles, at the center of the design scale.[7] Improving city walkability requires a combination of factors such as connectivity, linkage with other modes, fine-grained land use patterns, safety, quality of path, and path context.[8]

- **ACTION:** Reduce or Eliminate Setbacks and Height limits, and increase or eliminate maximum Floor area ratios, to improve density.
    - These measures individually do not specify the form the building will take and do not guarantee build quality or density. Instead, they can act as barriers to density. Increased density among developments is essential in improving access to active

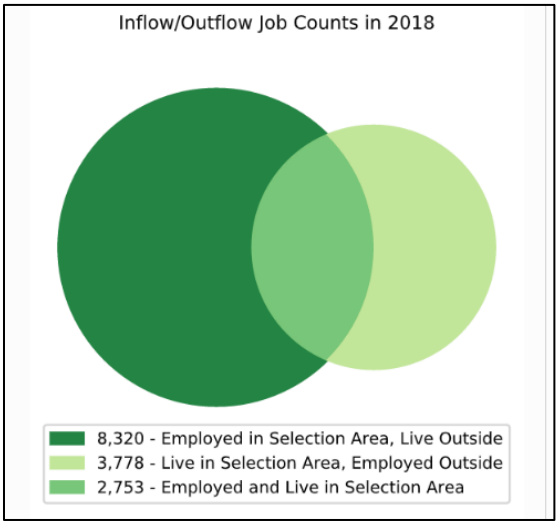
[4] https://www.walkscore.com/methodology.shtml
[5] https://www.cityofarcata.org/896/Strategic-Infill-Redevelopment-Program
[6] https://ascelibrary.org/doi/10.1061/%28ASCE%290733-9488%282005%29131%3A4%28246%29
[7] https://www.walkable.org/
[8] https://doi.org/10.1061/(ASCE)0733-9488(2005)131:4(246)

transportation and achieving mixed-use developments. By allowing flexibility in new development, the city can provide daily amenities such as public transit and commercial uses within walking distance to each other. In current developments, zoning standards such as required setbacks prevent increases in density by limiting full use of lot size.

- To improve density, Arcata Municipal Code Section 9.24.050 should reduce or eliminate residential setbacks and encourage build-to lines instead for commercial and residential low, medium, and high zones. The commercial district can benefit from build-to lines to require storefronts to be 5 feet or less from sidewalks and using this space for unique design character.

- Floor area ratio limits (FARs) should be increased or eliminated for commercial and residential low, medium, and high zones and the central business district to allow for taller and larger buildings.[9] Height limit adjustments alone do not allow for increased density but should allow for at least four-story buildings in central areas. Increasing density near existing or planned transit stations/stops contributes to usage levels that help these systems succeed.[11]

- Arcata's Live/Work Units found in Arcata Municipal Code Section 9.42.100 are a good example of the City's existing efforts to increase density and mixed-uses. These types of buildings accomplish goals such as convenience and walkability. Streamlining zoning codes and regulation processes for mixed-use projects is especially helpful for areas where housing demand exceeds supply.[10] Census data shows majority of workers live outside the City of Arcata implying a housing deficit.[11]



US CENSUS: ON THE MAP. JOB ANALYSIS

[9] https://buildingtheskyline.org/far-regulations/
[10] https://www.localhousingsolutions.org/act/housing-policy-library/zoning-changes-to-allow-for-higher-residential-density-overview/zoning-changes-to-allow-for-higher-residential-density/
[11] https://onthemap.ces.census.gov/

- **ACTION:** Remove minimum parking requirements for new developments.

    - The city should eliminate minimum parking requirements for new developments because the current code locks in a future with continued use of personal vehicles. By reducing maximum parking and eliminating minimum parking requirements, the city will be working toward increased livability, health, and safety. The Arcata Municipal Code Section 9.36.040 refers to a table that determines minimum and maximum parking spaces required by land use. For example, residential multi-family units require a minimum of one space per dwelling unit and a maximum of two spaces per dwelling unit. This code assumes at least one vehicle per dwelling, which in turn provides more parking than is necessary, and encourages personal vehicles. The 2019 census shows an average of 2 vehicles per household in Arcata, and 10 percent with no access.[12] This code also places a cost burden onto tenants for parking spaces they may not be using. The code already has no parking minimums in the central business district, which is working well. The Arcata Municipal Code should be amended to reduce parking space maximums and forgo mandatory parking minimums for new developments in the rest of the city. It is in the interest of the public good to provide fewer vehicle parking spaces.

- **ACTION:** Reform bicycle parking requirements

    - Arcata Municipal Code Section 9.36.060 calls for bicycle parking to be matched by vehicle parking for new developments. A one-to-one ratio tying bicycle parking to vehicle parking does not align with goals to reduce vehicle parking while increasing bicycling. Instead, the city should de-couple bicycle and vehicle parking requirements and change the code for bicycle parking to the same structure as the current method used by vehicles. For example, for residential units, bicycle parking can be tied to number of bedrooms to determine the number of bicycle parking spaces to provide. For commercial areas, bicycle parking may be determined by floor area or number of employees.

[12] https://data.census.gov/cedsci/table?q=arcata%20vehicles&tid=ACSDT5Y2019.B25044&hidePreview=true

2. Parking Management

Controlling available parking space is an important method in reducing driving and carbon emissions.[13]

STRATEGY: CHARGE FOR ALL PARKING IN COMMERCIAL, MIXED-USE, AND HIGH DEMAND AREAS

- **ACTION:** Arcata should charge for parking using dynamic meters.
    - Dynamic meters adjust price throughout the day, and by day of the week. Fluctuating prices should allow for at least one parking spot to be available during peak times, and reduces time spent searching for parking.[14] The city can recoup the capital cost of buying meters quickly through the revenue generated by them. Revenue generated afterwards can be devoted to improving transit and active transportation.

- **ACTION:** Convert applicable parking in favor of bicycle storage.
    - Converting vehicle parking and underused lots into bicycle storage and spaces helps meet the goal of increasing available active transportation. Applicable parking may be determined through network analysis or based on high use areas such as near parks, commercial districts, mixed-use, and multi-family zones. The city should set a goal for converting parking spaces, for example, 10 percent converted over a three-year period. Arcata Municipal Code Section 9.36.090 includes a parking space dimension chart. This can be used to determine bicycle space conversion to be approximately 8 to 10 bicycle spaces from a single vehicle parking space. Cyclehoop is a company that creates bicycle infrastructure including a car shaped bicycle rack that fits 10

CYCLEHOOP BICYCLE RACK

[13] https://people.ucsc.edu/~jwest1/articles/MillardBall_West_Rezaei_Desai_SFBMR_UrbanStudies.pdf
[14] https://www.tandfonline.com/doi/full/10.1080/01944363.2013.787307

bicycles.[15] In commercial districts at least one vehicle space per block should be converted. For other high-density areas, for every 10 vehicle-parking spaces convert at least one into bicycle spaces. Electric pedal-assist bicycle stations should also be considered. Charging stations and secure bicycle parking should be readily available to provide for increased accessibility and convenience for all users, see also 2.4.1 from “Elephants in the Road”.

STRATEGY: THE CITY SHOULD WORK WITH BUSINESSES TO ENCOURAGE A SHIFT AWAY FROM SINGLE-OCCUPANCY VEHICLES

- **ACTION:** The City should facilitate existing businesses to form coordinated tenant/employee incentive programs.

    - A citywide program would provide key resources to encourage existing developments and businesses to create active transportation incentives. Transportation demand management strategies are used to influence travel decisions and can be very effective in reducing vehicle travel and encouraging use of active transportation modes.[16] Active transportation incentives provide health benefits to employees while making participating businesses more attractive. For example, employers should provide a health incentive program that encourages walking or bicycling to work. Businesses may also develop and implement guaranteed ride home programs. Employers with a high density of employees such as hospitals and universities can easily match employees for rideshares or carpools and can incentivize their use.[17] Businesses may also use cash outs (a bonus or payment to forgo the use of a parking space) as incentive. Businesses and landlords may consider providing free bus passes, which would provide reliable income to public transit. Landlords should also consider incentivizing less personal vehicle ownership. An option for “unbundling” parking costs from rent would allow tenants the option for reduced rent cost for not owning a vehicle.

[15] https://www.cyclehoop.com/product/racks/car-bike-port/
[16] https://www.metro.net/projects/tod-toolkit/transportation-demand-management/
[17] https://www.bestworkplaces.org/wp-content/uploads/2010/10/carpool_incentives_brief.pdf

3. Complete and Effective Transportation Networks

Network analyses are necessary for making network changes in the near future. For more details on complete and effective networks see also “Elephants in the Road” section 2.1.2.

STRATEGY: THE CITY SHOULD CONDUCT NETWORK ANALYSES

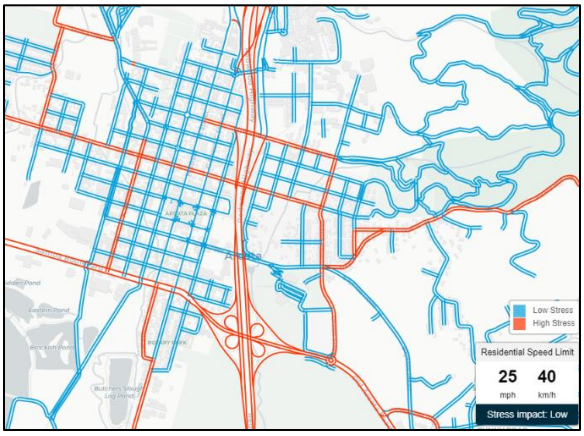
Network analysis in Arcata will help to:

- Identify bicycle and pedestrian accessibility
- Identify gaps, obstacles, and connectivity
- Ensure mobility for people of all abilities and stroller accessibility
- Identify business and commercial areas that do not necessitate vehicle access

- Network analyses have varying levels of precision. Maps and previous data may be used to determine where possible actions can be taken. City policy should adopt changes based on these results to the benefit of active transportation right-of-way, also see section 2.1 of “Elephants in the Road”. Consideration of the safety, comfort, and usability of active transportation networks should be inclusive of all users. Universally Designed Streets take these considerations and create combinations of street infrastructure that suits many users simultaneously.[18]

- **ACTION:** Take steps in assessing where bicycle networks may be improved.

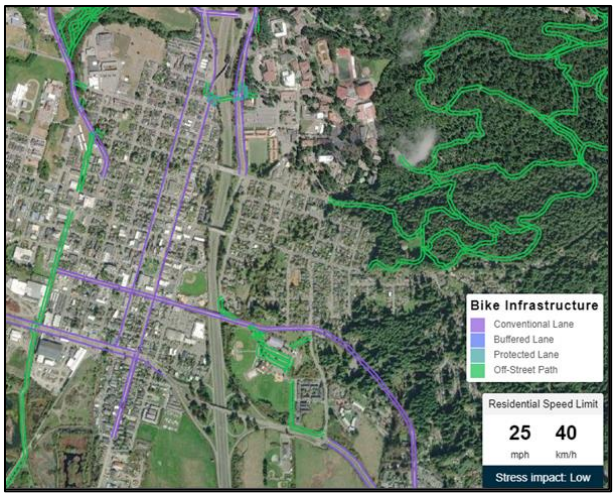
    - Humboldt County has developed the Regional Bicycle Plan to work towards making cycling throughout the county safer and more accessible.[19] Previous work done by organizations can be analyzed to determine where network improvements can be made. One example is a bicycle stress network analysis using traffic speeds done by People for Bikes.[20] Roads in red are considered high stress and ones in blue are low stress. While the Redwood Highway is a clear



BIKES FOR PEOPLE: STRESS ANALYSIS

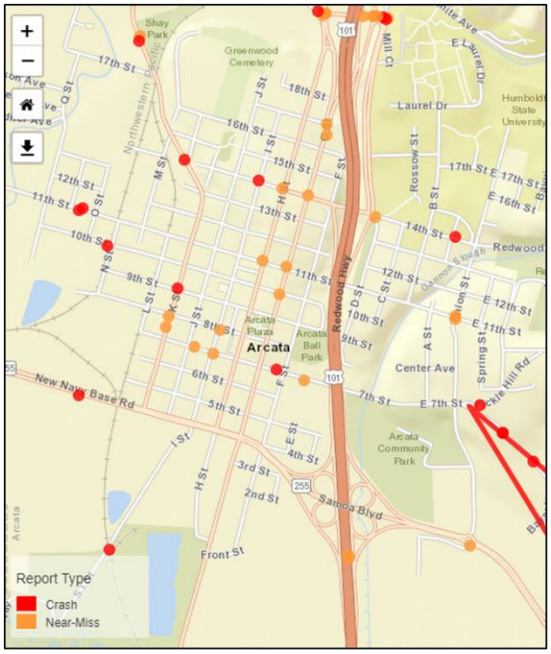
[18] https://www.asla.org/universalstreets.aspx
[19] http://hcaog.net/sites/default/files/final_bike_plan_update_2018_incl_maps_0.pdf
[20] https://bna.peopleforbikes.org/#/places/f32218e5-c480-4d3a-a35e-04a38af70f06/

source of stress, there are many smaller side streets that are also high stress. The map can also show other overlays such as bicycle infrastructure, shown right. This map should be adjusted for current city projects and in progress improvements, then begin plans for addressing other high stress areas. Additional work may be needed to ground truth this analysis and identify ways to address the issues. Some actions to be taken may be converting traffic lanes into bicycle lanes, bicycle facilities, or safe mixed-use lanes.



BIKES FOR PEOPLE: BIKE INFRASTRUCTURE

- **ACTION:** Take steps in assessing where pedestrian networks may be improved.
    - The city may start by looking at publicly available satellite images and detailed zoning maps[21] of Arcata that might provide enough information to determine areas where there are obstacles or gaps in pedestrian infrastructure, and where those obstacles and gaps have the greatest impact. For an in-depth pedestrian network analysis, a great example is Trimet, a public transit agency in Portland, Oregon which completed thorough pedestrian network analysis.[22] It includes research-based guidance about safer, efficient routes to transit for all people including children, elderly, and those with disability. Trimet's analysis document



UC BERKLEY STREET STORY MAP

[21] https://www.cityofarcata.org/692/Zoning-Map
[22] http://trimet.org/pdfs/pednetwork/trimet-pedestrian-network-analysis-report.pdf

provides information to use as a model for a do-it-yourself network analysis. Arcata city data may also be used to create maps and models in a program like ArcGIS. Models in the program can have specifications like “Where can I reach within 30 minutes by walking and taking transit?” to answer transit efficiency questions.[23] Other resources to build a network analysis include UC Berkley’s Street Story and Transportation Injury Mapping System.[24] [25] Street Story allows users to input a location where an incident has occurred or a hazard is perceived, and TIMS provides official crash data. These resources can inform a network analysis by identifying potential dangerous and high-stress areas which act as barriers in the network. Alternatively, the city could hire a consultant for a network analysis.

STRATEGY: CLOSE GAPS AND ADDRESS BARRIERS IN BIKE, PEDESTRIAN, AND TRANSIT NETWORKS

- **ACTION:** Adopt a policy of using quick-build techniques.
    - Quick-build is a method for reconfiguring streets using low-cost materials without costly changes to the existing hardscape.[26] Quick-build techniques allow rapid infrastructure changes which can be adjusted later based on experience. Recently, the statewide Active Transportation Program has begun funding quick-build projects.[27]

CALBIKE: QUICKBUILD BOLLARDS

- **ACTION:** Adopt a policy of implementing complete street elements during routine pavement maintenance.
    - General pavement maintenance can become an opportunity for low-cost changes to roads. When repaving a road, some areas may be restriped for bicycle paths in priority areas from the network analysis. The pavement plan may

[23] https://pro.arcgis.com/en/pro-app/latest/help/analysis/networks/network-analysis-with-public-transit-data.htm
[24] https://streetstory.berkeley.edu/reports.php?juris_type=city&juris_name=ARCATA
[25] https://tims.berkeley.edu/
[26] https://www.calbike.org/tag/quick-build/
[27] https://www.calbike.org/quick-build-street-design/

be adjusted to incorporate results over time. Widening sidewalks may also be an option for certain areas. Other improvements may be high-visibility crosswalks, bulb-outs, chicanes, parking space conversions to bike racks, and traffic calming through paint and low-cost materials.

- **ACTION:** Redesign transit routes based on analysis.

    - An analysis of how people travel through Arcata should be done in coordination with the Humboldt Transit Authority to determine potential changes to transit routes. Routes should be designed to be as direct as possible with frequent availability. Preferred walkable distances are usually a quarter mile from a bus stop.[28] The transit analysis should also consider public micro-transit options to complement traditional fixed-route transit. The Arcata and Mad River and Redwood systems currently used in Arcata should be examined for gaps in travel connectivity or distance. Parameters for routes should be based on efficiency and reduced VMT and lessened greenhouse gasses. Microtransit-like systems should serve multiple people at a time for efficiency and not be driver-determined by the private sector. Network analysis for other transportation can be linked to transit stations, for example a bus station may have an e-bike or Zipcar station nearby. HCAOG supports a pilot project for a subsidized service named "Humboldt e-Ride" that may act as a carshare or ride-hailing service.[29]

4. Citywide Policy for Traffic Calming

STRATEGY: SLOW DOWN VEHICULAR TRAFFIC TO IMPROVE SAFETY AND ENVIRONMENTAL OUTCOMES

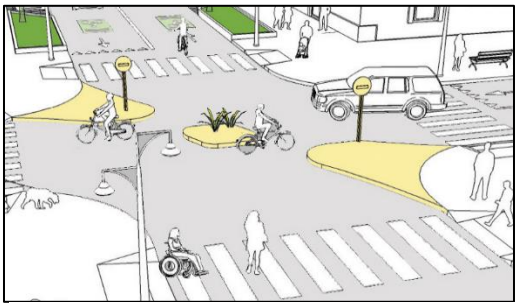
- **ACTION:** Arcata should adopt a citywide policy for traffic calming.

    - City streets should be a welcoming space for all people. The World Resources Institute (WRI) has created a guide for designing safer cities based on slowing traffic speeds.[30] Research has shown that slower speeds save lives by significantly lowering risk of fatalities. Therefore, the United Nations Road Safety

[28] https://humantransit.org/2011/04/basics-walking-distance-to-transit.html
[29] http://hcaog.net/sites/default/files/draft_potential_pilot_projects_0.pdf
[30] https://wriorg.s3.amazonaws.com/s3fs-public/CitiesSaferByDesign_final.pdf

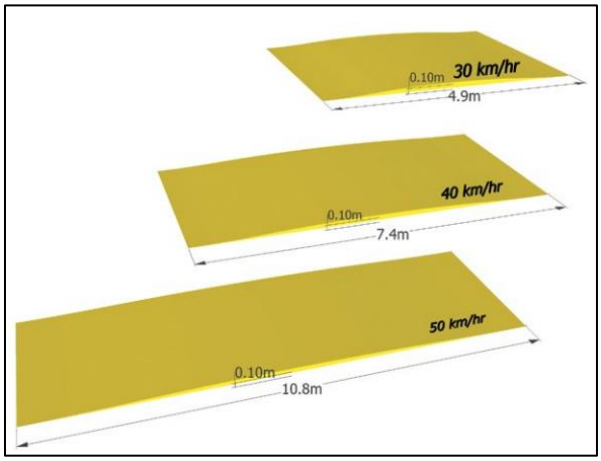
Collaboration has called for mixed-use streets with 20 MPH limits.[31] Currently, issues that arise are addressed case-by-case when a complaint is made and are reviewed every two years.[32] It is more effective and equitable to be proactive in city planning to prevent future problems and injury. Therefore, a policy should be formed for when and how to use each of the traffic slowing methods. Research on best deployment for each method should be applied to a city policy. Below are examples of relevant traffic calming techniques. This should not be considered an exhaustive list.

- Global Designing Cities Initiative provides a detailed guide for designing streets for many users including pedestrians, bicyclists, transit, freight, motorists, businesses, and combinations of these types.[33] One measure is redesigning intersections to control traffic speed and user volumes. NACTO also provides a guide for major, minor, and complex street traffic calming designs.[34] Increased sidewalk corner bulb-outs narrow roads, causing vehicle traffic to slow and consider road shapes. Intersections can be adjusted to divert vehicle traffic in one direction while allowing pedestrian and bicycle traffic to cut through another way. Other intersection changes can be bike boxes, raised intersections or crosswalks, and yield-flow streets.



GLOBAL DESIGNING CITIES INITIATIVE: DIVERTERS

- Speed humps are a highly effective method for traffic calming; therefore, the policy for speed humps should be changed.[35] The current policy requires greater than 2/3 of the residents along a street or street segment and each adjacent property owner, to sign a petition for adding a speed hump. Not only is this petition method inefficient,



WRI: CITIES SAFER BY DESIGN: SPEED HUMPS

[31] https://www.unroadsafetyweek.org/en/home#letter
[32] https://www.cityofarcata.org/DocumentCenter/View/552/Speed-Table-Policy-PDF?bidId=
[33] https://globaldesigningcities.org/publication/global-street-design-guide/designing-streets-people/
[34] https://nacto.org/publication/urban-street-design-guide/intersections/
[35] https://www.cityofarcata.org/DocumentCenter/View/552/Speed-Table-Policy-PDF?bidId=

but it is also complaint-based and so contributes to inequality throughout the city. Instead, referring to a network analysis, speed humps should be applied in context where pedestrian stress is high, such as arterial streets. Speed humps can be designed for different speeds. Similar to speed humps, the offset speed table may be a viable alternative for arterial and emergency use roads. One investigation of offset speed tables showed a greater than 50% reduction in emergency vehicle delay, while maintaining slower speeds for smaller vehicles.[36]

- There are many physical road dimensions that can be added to slow traffic, such as chicanes. WRI chapter three provides traffic calming designs, benefits, applications, and evidence for each method. One key benefit of chicanes is the minimal impact to emergency response vehicles compared to speed humps and other vertical deflection measures.

WRI: CITIES SAFER BY DESIGN: CHICANES

- Median refuge islands reinforce pedestrian and bicyclists' right-of-way and reduce exposure to vehicle traffic. The Humboldt Bay Trail North crossing at Samoa Boulevard includes a pedestrian refuge. This is one step in the right direction. The National Association of City Transportation Officials (NACTO) provides a guide on how to use refuge islands with working examples for two-lane and multi-lane roads.[37] Road dimensions and available space determine the changes that can be made. Other benefits of islands or raised medians include road narrowing, simplified crossings, and slowed vehicle left turns. Maintaining pedestrian visibility is essential to keep in mind in these designs.

- Radar feedback signs have a positive and significant effect on speeding behavior and traffic safety. They are effective at slowing traffic speeds wherever placed because they trigger a psychological reaction.[38] By offering an immediate feedback speed based on the driver's action, this gives the driver an opportunity to change their behavior. One study found a 7.1% reduction in mean speed of vehicles using vehicle activated signs.[39]

[36] https://nacto.org/wp-content/uploads/2015/04/Offset-Speed-Tables_Batson.pdf
[37] https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/median-refuge-island/
[38] https://www.speedpatrol.com/why-radar-speed-signs-are-effective-in-reducing-speeding/
[39] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4989038/

- Speed cameras are unbiased and automated, making them effective and efficient. Many case studies have reported that speed cameras were effective in reducing vehicles speed, the number of crashes, and consequently, the number of traffic injuries or fatalities.[38] However, many factors involved in placement of cameras, such as distance, may affect their effectiveness.[38]

5. City Sponsored Carsharing Program

STRATEGY: DEVELOP CARSHARE PARTNERSHIPS WITH HSU AND ORGANIZATIONS FOR PUBLIC USE

- **ACTION:** Expand carsharing throughout town and allow non-student participation.
    - Carsharing is a great way to complement fixed-route transit systems. Carsharing can be made affordable for users and provide benefits such as reduced cars on the road and lower emissions produced. The Zipcar partnership with HSU is a great start for providing transportation around the University. This program should be expanded to offer more connectivity between Arcata and the school and be available to the public as well. Other programs could be created to allow carsharing for commuting between Arcata, McKinleyville, and Eureka. The Mobility on Demand Strategic Plan provides analysis for improving accessibility and mobility for transportation in Humboldt County.[40] This document highlights many opportunities for personal mobility on demand services, especially for underserved and underrepresented groups.

- **ACTION:** Dedicate space for carshare infrastructure.
    - There are many benefits to having autonomous fleets for travel and shipping. Elephants in the Road section 1.3 details the possible future of autonomous vehicles. Autonomous vehicles can be programmed for maximized routing efficiency and safety, so that VMT and collisions drop. These fleets will also reduce the need for parking due to less personal vehicle ownership and lot space can be better used. The first step in planning for the future of fleet-based transportation is reserving infrastructure space. This includes electric vehicle

[40] https://www.hcaog.net/sites/default/files/hcaog_mod_strategic_development_plan_final-adopted_sept2020.pdf

charging stations and autonomous vehicle pickup/drop off space, especially in high demand parking areas. Transitioning on-street parking into AV fleet loading/unloading zones for passengers and freights provides multi-use areas and clear designations for curbs. Setting aside space for carsharing now can ease the transition to future fleet-based autonomous vehicles.

6. Proactive, Equity-Focused Policymaking

STRATEGY: PRIORITIZE EQUITY IN ALL ASPECTS OF PLANNING

- **ACTION:** Adopt robust equity policies.
    - These policies should specify plans to improve historically disadvantaged communities and prioritize them. Communities that will be most vulnerable to sea level rise, wildfire, and natural disasters should come first. These communities should have a role in the planning process in the community that affects them. The California Coastal Commission has made an environmental justice policy to address historical injustice and climate chaos for underserved groups.[41]

- **ACTION:** Proactively Plan for transportation equity.
    - Elephants in the Road section 2.5 outlines urgent, equitable policy actions to be taken to improve the future of local transportation. People of color, seniors, people in low-income communities and people with disabilities are at greater risk of traffic violence.[42] [43] Climate change will have increasingly disparate impacts on disadvantaged communities; therefore, these communities and sensitive groups should be put first in planning for the future of transportation. Arcata has begun some equity focused planning efforts, such as projects for Valley West and the Strategic Infill Redevelopment Plan.[44] Valley West is a disadvantaged community and predominantly Latino community with a median household income of $35,000 or

[41] https://documents.coastal.ca.gov/assets/env-justice/CCC%20EJ%20Policy%202019_Revised%20Public%20Review%20Draft.pdf
[42] https://smartgrowthamerica.org/dangerous-by-design/
[43] https://www.researchgate.net/profile/Martin_Mwangi3/publication/281089650_Pedestrian_Safety_and_the_Built_Environment_A_Review_of_the_Risk_Factors/links/55f9a39e08aec948c494cc6f/Pedestrian-Safety-and-the-Built-Environment-A-Review-of-the-Risk-Factors.pdf
[44] https://www.cityofarcata.org/896/Strategic-Infill-Redevelopment-Program

below.[45] Observations done along frequently used paths in Valley West indicated poor or missing sidewalks, lack of signage, difficult marked and unmarked crossings, challenging roundabouts, inadequate street lighting, and other related issues.[45] Pedestrian visibility, proper signage, and path connectivity are key factors among these problems. Planning for improved intersection crossings and street lighting should be priority projects. The community has interest in educational programs for bicycling and neighborhood speed watch. Cal Walks and SafeTREC recommend the City of Arcata explore the feasibility of expanding the existing Bikeshare system to the Valley West Neighborhood.

- **ACTION:** Prepare for the known future.

  - Low lying areas of Arcata have been well documented to be threatened by sea level rise (SLR).[46] [47] Proactive planning is essential to begin measures that will protect the integrity of Arcata. A recent study done by HSU students, outlines SLR methods that can preserve the Humboldt Bay Area Regional Trail System from impacts.[48] Arcata's current SLR adaptation policy lacks in detailed plans that will protect specific assets, and no timelines for actions are given.[49] A more detailed action plan for Arcata will be needed to begin building infrastructure or plans for orderly retreat. Difficult decisions to retreat or protect specific assets most at risk will need to be made soon, as king tides and flooding already affect low lying areas.

TIMES STANDARD: POTENTIAL INUNDATION AT 4.6 FEET OF SLR

[45] https://safetrec.berkeley.edu/sites/default/files/2018_arcatavalleywest_cpbst_report.pdf
[46] http://www.coastalecosystemsinstitute.org/humboldt-bay-slr-vulnerability-and-adaptation-planning/
[47] https://humboldtgov.org/DocumentCenter/View/62872/Humboldt-Bay-Area-Plan-Sea-Level-Rise-Vulnerability-Assessment-Report-PDF
[48] https://transportationpriorities.org/wp-content/uploads/2021/05/ESM-475-Planning-Practicum_-Sea-Level-Rise-and-the-Humboldt-Bay-Area-Regional-Trail-System-Final-Report-.docx.pdf
[49] https://www.cityofarcata.org/DocumentCenter/View/6429/Arcata-Sea-Level-Rise-Policies-DRAFT-June-2017?bidId=

Conclusion

Three key phenomena are shaping the future of transportation in Humboldt County and beyond: climate chaos, rapidly increasing autonomous vehicles, and the road safety crisis. In a changing climate, temperatures, wildfire, sea level rise, and flooding will increase. As with the automobile, companies with autonomous vehicles will begin to shape the way we move people and goods, in turn changing transportation infrastructure to suit their needs. Overall traffic deaths have decreased, but pedestrian and bicyclist deaths by vehicles have increased over the last decade.[1] It is imperative to address these phenomena in policy sooner rather than later.

Changes to policy will pave the way for future developments to be more environmentally friendly and efficiently use space. Mixed-use zoning, infill developments, increased density, and permits that allow a variety of housing options on the same land, such as tiny homes, are ways in which Arcata can be benefitted by code changes. Providing housing in the same place as jobs will provide for a walkable city and help to address the housing crisis.

Vehicle and bicycle parking code reform is needed to effectively plan for active transportation rather than personal vehicle use. The city should eliminate minimum parking requirements for new developments altogether and separate bicycle infrastructure requirements from vehicle parking requirements. Influencing transportation mode choice can be done through adaptive metering, creating employee and tenant incentive programs, and providing more bicycle storage space from parking lots. A shift away from single occupancy vehicles through carsharing programs will fill gaps in public transit and help prepare for a future of efficient travel using fleets of autonomous vehicles.

Many forms of network analyses are available to make informed decisions on improving active transportation networks and connectivity. Changes made to the built environment do not need to be expensive. Quick build techniques and complete street elements can be added to routine pavement maintenance. Traffic calming techniques can also be cost effective and contribute to reducing driving speeds to address the safety crisis. Universally built streets should be built in consideration of many needs and for people of all abilities. Considerations of all people regardless of age, ethnicity, ability or gender, should be included in all aspects of transportation planning in seeking an equitable and safe environment for all.