



South Campus Neighborhood Project

Public Works

CONCEPTS

Prepared By

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Anthropology 113: Human Cultural Diversity | Spring 2017
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Resilient Cities Initiative
Institute for Sustainable Development
California State University, Chico

The South Campus Neighborhood Project

The South Campus Neighborhood Project is an award-winning neighborhood improvement planning effort coordinated by the Resilient Cities Initiative at California State University, Chico and the Public Works-Engineering Division at the City of Chico, CA. The project is focused on the public rights-of-way in Chico, California's South Campus Neighborhood, a six by seven square-block area bound by 2nd Street to the North, 9th Street to the South, Orange Street to the West and Salem Street to the East. Immediately adjacent to both downtown Chico and the University, it is Chico's oldest residential neighborhood and was laid out by the town's founder, John Bidwell, in the 1860's.

Our Mission, Vision and Goals include ensuring public safety through detail oriented and strategic improvements to mitigate unsafe operation and use of our Public property; Providing safe, sustainable, integrated and efficient transportation systems to enhance the City of Chico's economy and livability for all modes of transportation; Efficiently and effectively providing a reliable, sustainable and cost effective sanitary sewer and storm water collection system for our residents and businesses in-line with our overall Mission and Vision. We are stewards of the natural environment and through responsible practices, we construct and maintain our natural environment to the highest of standards. We will continue to make the City of Chico a leader in sustainable and clean practices so that our residents can experience the quality of life that is desired for an infinite length of time.

./ ➡ More information can be found online at <http://scnpchico.com/>



City of Chico Public Works-Engineering

The overall Mission, Vision and Goal of the City of Chico Public Works Department is to provide the best possible Quality of Life through our abilities to protect, plan, construct and maintain the physical assets of the City. This is achieved through teamwork, integrity, professionalism, innovation, respectful customer service, value to the citizens of Chico, accountability and stewardship of the City's infrastructure and public resources. We serve the public in a manner that supports the rich heritage of Chico, as well as progressing into future improvements desired by the community in a sustainable manner. We continue to look for new technology that assists in meeting these goals so that we can operate at the most efficient level and continue to be at the leading edge of modern standards.

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The Resilient Cities Initiative

The Resilient Cities Initiative (RCI) is an interdisciplinary university-community partnership program established by the Institute for Sustainable Development at California State University, Chico in 2016. The RCI connects real-world community sustainability projects – identified and funded by partner agencies – with faculty expertise and student innovation from departments and disciplines across the University’s academic colleges. The RCI recruits partner agencies through a competitive selection process and matches projects with existing courses across the university’s curricula. Partner agencies are able to harness incredible momentum for their projects in large part because the partnership is realized on a bigger scale than more typical one-off university-community projects. Faculty are able to opt-in and augment their existing curriculum with real-world projects that have been identified, funded and supported by the leadership and staff of the partner agency – ultimately delivering their students’ work for consideration and implementation.

The RCI is a member of the Educational Partnerships for Innovation in Communities (EPIC) Network, a nationwide network of over 25 universities that have replicated the highly successful Sustainable City Year Model that was established at the University of Oregon in 2009. The model is based on university-community partnerships with a defined geographic and temporal scope, focused on advancing sustainability and the social good, leveraging the multidisciplinary knowledge and capacity of the university to ‘move the needle’ on pressing community issues. The RCI directly engages hundreds of CSU, Chico students each academic year, providing impactful opportunities for them to put theory to practice in their own community and region, connecting them with decision-makers in practitioners in their fields of study, and helping develop the next generation of workforce professionals and leaders.



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Anthropology 113: Human Cultural Diversity | Spring 2017 | Dr. David Eaton

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Executive Summary

The present report, growing from our earlier ‘Existing Conditions: Character and Potential’ report, is based on student and faculty study of the South Campus neighborhood in Anthropology 113 from spring 2016 through fall 2017. One component of this course is an anthropological approach to urban studies: the long-term history of town and city form; international and national examples of progressive design; the recent history of urban and regional planning in the United States; the impact of good planning on safety, health, ecology, economic vitality, and quality of experience; and current conditions in Chico, especially in the South Campus neighborhood. Students then proposed their own potential ‘public works’ project in the neighborhood to address issues they judged of significance, as one of their assignments in a class which also covers a range of other topics. Students were asked to describe a problem and its location, and to propose a project to address it, articulating rationale and feasibility, identifying benefits and downsides, and suggesting a time frame with potential costs.

Growing from this body of collaborative and guided research, this report presents a set of these potential ‘public works’ projects in the South Campus neighborhood that can be developed and proposed to the City for possible inclusion in the South Campus Neighborhood Improvement Plan. It foregrounds and showcases the work of lower-division undergraduates, most of them first-years, often in their own words and images. For each project we describe the issue to be addressed, the rationale for change, and an outline of potential benefits. Where possible, we also provide rough estimates of feasibility and practicality, costing, and time to completion.

In consonance with city, university, state, and national standards, the report emphasizes principles of new urbanism, smart growth, and walkability in seeking ways to promote greater safety, quality of experience, and sustainability in this unique neighborhood.

Projects and priorities proposed include:

- *conversion of neighborhood streets to ‘complete streets’*
- *traffic-calming measures for selected streets*
- *changed traffic flow*
- *pedestrianized streets*



- *protected bicycle lanes*
- *wayfinding signage and guideways*
- *enhanced intersections and crosswalks*
- *bicycle parking facilities*
- *changes in car parking*
- *enhancement and conversion of car parking lots*
- *parks and parklets*
- *seating and gathering spaces*
- *potential new businesses*
- *enhanced tree cover*
- *public art*
- *basic maintenance (lighting, sidewalk paving, trash collection)*

All projects proposed are preliminary and need further vetting and development. Costing is roughly estimated for many projects, using widely available online guides, but is a highly variable matter for more complex projects, and best assessed by professionals. Nonetheless, although none of us are experienced urban planners, engineers, developers, or contractors, we hope the ideas presented can spur reflection, refinement, and action, and may lead to projects incorporated within the City’s future Neighborhood Improvement Plan.

Note: This report is designed to be read in conjunction with our 2018 RCI ‘Existing Conditions’ report: “Chico’s South Campus Neighborhood: Character and Potential.” That report documents in depth CSU Chico student perceptions of the neighborhood and their preferred priorities for action within it, with original photographs, charts, graphs, and maps, along with detailed crowd-sourced profiles of streets in the neighborhood. Its conclusion discusses relevant recent planning literatures; Federal, state, county, and city regulations; and city and university initiatives in Chico and beyond. It also proposes changes and enhancements in specific South Campus locations. Although this present report draws on and incorporates selected materials from that report to support its project proposals, please see that report and others in the RCI ‘Existing Conditions’ set for a fuller analysis of the neighborhood’s qualities, problems, and opportunities at < <https://scnpchico.com/report/>>.



South Campus Neighborhood



List Of Potential Projects Proposed

Part 1

- CONVERT KEY STREETS TO ‘COMPLETE STREETS’
 - Candidates include Chestnut, Hazel, Cherry, Ivy, and Warner (from 2nd Street to 4th Avenue)
 - Bike lanes on one block needed: Ivy
- PRIORITIZE CHESTNUT AS WALKSHED CENTER
- ENHANCE OTHER STREETS FOR PEDESTRIANS AND CYCLISTS
 - Candidates include Cherry, 3rd, 4th, 6th, and 7th

Part 2

- ‘HOME ZONE’ STREETS
 - Chestnut
- SLOW CAR TRAFFIC USING CHICANES
 - Chestnut or Hazel; Cherry
- SLOW CAR TRAFFIC USING RADAR SPEED DISPLAY SIGNS
 - (8th& 9th; possibly Ivy)
- PREVENT CAR THROUGH TRAFFIC ON CERTAIN BLOCKS USING BOLLARDS
 - (Chestnut)
- CREATE PEDESTRIANIZED STREET
 - (Chestnut; Warner)
- CREATE A PAIR OF ONE-WAY STREETS
 - (Chestnut & Hazel)

Part 3

- CONVERT CHESTNUT TO A BIKE-ENHANCED STREET
- CONVERT A CROSS-TOWN MINOR STREET TO A FULL BIKE-FRIENDLY ROUTE (example 7th Street)
- CONVERT 6th & 7th TO A PAIR OF ONE-WAY STREETS
- CONVERT 6th & 7th TO A PAIR OF ONE-WAY STREETS



- WAYFINDING: SIGNAGE AND GUIDEWAYS
 - (Chestnut; 6th and 7th)
- INSTALL BIKE BOXES AT INTERSECTIONS
 - (example Ivy & 2nd)

Part 4

- ENHANCE INTERSECTIONS AND CROSSWALKS
 - along 6th and 7th east of Ivy
 - selected intersections along 8th & 9th
 - selected intersections along Cherry and Orange
- ILLUMINATE CROSSWALKS WITH EMBEDDED LIGHTS OR FLASHING BEACONS
 - Ivy at 8th and 9th; other locations

Part 5

- BIKE RACKS IN VISIBLE SECURE LOCATIONS
- BIKE LOCKERS
- BIKE PARKING FACILITIES: CREATE BICYCLE STATIONS
- BIKE PARKING FACILITIES: CONVERT EXISTING CARPARK STRUCTURES
 - South Campus lots
- BIKE SHARE PROGRAM

Part 6

- HIDE, BEAUTIFY, TRANSFORM EXISTING CAR PARKING LOTS
 - lots on Salem from 4th to 7th
 - lots on Cherry from 4th to 5th
 - lots on west 2nd at Orange and Cherry

Part 7

- *Reimagine the northwest corner of the neighborhood (2nd & 3rd / north Cherry & Orange).*
- *Address the opportunity of open lots along 2nd Street west from Cherry to the railroad tracks.*
- *Convert some car parking lots to parks, small businesses, bike facilities, and gathering spaces.*
- *Possibly welcome grocery store, café, food trucks, and small businesses near Second and Cherry.*
- WEST 2nd CONVERSION PROJECT: SHIPPING CONTAINER PARK
- WEST 2nd CONVERSION PROJECT: PARK AND PUBLIC GARDEN
- WEST 2nd CONVERSION PROJECT: COMMUNITY GARDEN AND GREEN SPACE
- WEST 2nd CONVERSION PROJECT: GROCERY STORE AND ASSOCIATED SMALL BUSINESSES
- CHERRY AND 4th OPEN GRASSY LOT: COMMUNITY GARDEN AND OTHER PROJECTS

Part 8

- INVEST IN TREES AND GREEN SPACES
 - 32 block sides identified as needing tree cover
- Priority areas include west 2nd between Cherry and the railway tracks, west 2nd between Salem and Normal, west 3rd between Salem and Normal, Orange between 2nd and 3rd, Cherry between 3rd and 4th, Orange south of 5th, 8th & 9th between Ivy and the railway tracks, and 8th between Salem and Main.
- PARKLETS, SEATING, AND ART
 - Parklets at niches on traffic-calmed streets
 - West 3rd Street west of Ivy: benches and flowerbeds block side
 - Public art/ murals
- BASIC MAINTENANCE
 - Sidewalk repaving
 - Mobilizing fraternity and sorority groups
 - Artistic trash bins



Part 1 : Introduction

The present report, growing and drawing from our earlier ‘Existing Conditions: Character and Potential’ report, is based on student and faculty study of the South Campus neighborhood in **Anthropology 113** from spring 2016 through fall 2017. One component of this course is an anthropological approach to **urban studies**: the long-term history of town and city form; international and national examples of progressive design; the recent history of urban and regional planning in the United States; the impact of good planning on safety, health, ecology, economic vitality, and quality of experience; and current conditions in Chico, especially in the South Campus neighborhood. As one of their assignments in a class which also covered a range of other topics, students then proposed their own potential ‘public works’ project in the neighborhood to address issues they judged of significance. Students were asked to describe a problem and its location, and to propose a project to address it, articulating rationale and feasibility, identifying benefits and downsides, and suggesting a time frame with potential costs.

Growing from this body of collaborative and guided research, ***this report presents a set of these potential ‘public works’ projects in the South Campus neighborhood*** that can be developed and proposed to the City for possible inclusion in the South Campus Neighborhood Improvement Plan. ***It foregrounds and showcases the work of lower-division undergraduates***, most of them first-years, often in their own words and images. For each project we describe the issue to be addressed, the rationale for change, and an outline of potential benefits. Where possible, we also provide rough estimates of feasibility and practicality, costing, and time to completion. Although none of us are experienced urban planners, engineers, developers, or contractors, and we are sharply aware of the limitations of our insights and proposals, we hope the ideas presented below can spur reflection, refinement, and action, and may lead to projects incorporated within the City’s future Neighborhood Improvement Plan.

All projects proposed are preliminary and need further vetting and development. Costing is roughly estimated for many projects, using widely available online guides, but is a highly variable matter for more complex projects and best assessed by professionals. Nonetheless, although none of us are experienced urban planners, engineers, developers, or contractors, we hope the ideas presented can spur reflection, refinement, and action, and may lead to projects incorporated within the City’s future Neighborhood Improvement Plan.



New Urbanism and Smart Growth: The Importance Of Walkability

As we noted in our Existing Conditions report ('Character and potential') we have opportunities to enhance Chico's South Campus neighborhood through planning priorities that can bring greater safety, health, and quality of life as use of the neighborhood continues to intensify over time. We are at a fortunate moment for these decisions, perhaps, following the rise of *new urbanism and smart growth* in the 1990s (Duany et al. 2000, 2010b). Especially, we are witness to an ***urban walkability and bicycling renaissance*** underway since the turn of the 21st century that has transformed countless cities in the US and worldwide (Leinberger 2008; Shoup 2011; Speck 2012; Abbasi 2016; Mapes 2009; Pucher and Buehler 2008 and 2011; NACTO 2014). Results include reduced *energy consumption, reduced noise, lower carbon emissions, lower air pollution, increased fitness and health, increased street safety, and reduced death incidence from car crashes* with cyclists and pedestrians (with protection especially of children and elderly). This revisioning of urban life has also brought *increased equality of transport options, lower costs of transport* (especially important for households with lower incomes) *and of engineering* (crucial for financially-constrained government entities), *increased vitality of urban businesses, and durably higher property values* in neighborhoods that have adopted such priorities.

More generally, ***walkability*** has become *a central criterion of planning* and indicator of desirability in urban neighborhoods (Speck 2012), as *health benefits* of active transportation have become more widely recognized (Hirschhorn 2005; Abbasi 2016) and as *younger people* have become less likely to own and drive a private car. Projections suggest that *pent-up and increasing demand for walkable and bikeable neighborhoods* will likely drive US urban property markets and development for decades (Leinberger 2008).

Although the *mature urban forest* of the neighborhood was the most valued attribute of the South Campus neighborhood in our student surveys for the Existing Conditions report, second most often noted as best-liked was indeed ***the neighborhood's walkability***. The 'short blocks and condensed feel' make it 'easy to navigate', students wrote, *with the streets 'all connected'* in a compact knowable place clearly bounded by campus, downtown, highway, and railway tracks. *Walking* was the most frequent way that respondents reported moving through the neighborhood, and the fact that for students the neighborhood 'flows from the campus' and is integrated with downtown is crucial to its unique appeal.



Chico's South Campus Neighborhood: Variability By Subneighborhood

Street life in this eight-by-seven-block neighborhood *varies sharply by subneighborhood*, as we also described in the Existing Conditions report. *In the northeast near Second and Salem*, higher dwelling density along with proximity to both university and downtown make for heavy street use at most hours. *In the southwest along Orange*, with light industry along the rail tracks and CA 32, streets are largely deserted at night. In between are a range of other subneighborhoods discussed further below.

In the northwest, of special potential for near-term enhancement are aspects of *west Second* and *northern stretches of Orange and Cherry*, underdeveloped in street amenities and connection with Nord Avenue to the west, and close to many important services and institutions, including the rail station. Much of the *Sixth and Seventh* streetscape lack well-marked intersections and good lighting, and are uneven in quality and maintenance of sidewalks and buildings. More generally, our *north-south named streets* (Salem, Normal, Chestnut, Hazel, Ivy, Cherry, and Orange) are especially wide, and can easily support modifications to make them more pedestrian- and bike-friendly.

It can help in some ways to see the neighborhood as two distinct areas, east and west. As Ivy/Warner is the main north-south traffic road through the campus, it divides the neighborhood into *an eastern 'Chestnut district'* adjoining downtown, *and a western 'Orange district'* bounded by the railway tracks, with 3rd, 4th, and 6th ending at the tracks. The eastern 'Chestnut district' is mostly residential but lively with a school and a church at its center. It connects closely with the commercial downtown, and has an enhanced street (Salem) at its eastern border, though it needs attention to crosswalks and street design in its 'deep streets' (6th and 7th). The western 'Orange district' hosts some light industry and has less through traffic, and has a set of special issues to which we will give further attention below.



Orange and Chestnut districts, divided by Ivy Street (north-south)

Street Design: Protect Pedestrians And Cyclists

One key element of redevelopment and enhancement of the neighborhood can be a *redesign of key streets to more fully protect and support pedestrians and cyclists* (such as Chestnut, Hazel, Cherry, 4th, and/or 7th, for example). These would offer heightened safety and quality of experience while connecting the neighborhood effectively by foot and bike with the rest of town.

At present there seems little incentive for motorists to choose one street over another in driving through the neighborhood. Among the effects of this are numerous ‘*stop/yield*’ dilemmas in engineering individual intersections. However, some of these issues would be *mitigated or disappear*, and potentially without impairing overall flow, were ***pedestrians and cyclists prioritized on some streets or parts of streets***, with car traffic calmed, slowed, diverted, or banned on these. Although unsloved through car traffic on every

part of every street limits car traffic pressure on any individual street, it does so at a cost to safety and quality of experience.

In the long run, *prioritizing pedestrians and cyclists on certain streets*, or parts of them, could *enhance property values* and bring openings over time for *small parks, plazas, and businesses*, potentially also replacing carpark lots as more people feel safe and fully supported in commuting and shopping on foot and by bicycle.

All of the above modifications are consonant with new and current standards of urban design from city to national levels today. “Streets are public spaces; great streets are great for business; and streets can be changed,” states the *Urban Street Design Guide* of the National Association of City Transport Officials (NACTO 2013), endorsed by CalTrans in 2014 following their 2012 Highway Design Manual’s new commitments to ‘complete streets,’ in which users of all modes of transport are provided for and protected. In what follows we consider these principles and priorities of urban design as found in such national, state, county, city, and university standards and initiatives, and propose how these can be applied in particular projects within the South Campus neighborhood.

New Standards, Current Plans

As we wrote in our ‘Existing Conditions’ report, **CalTrans’s 2012 Highway Design Manual** update paved the way for ‘complete street’ design, and their 2014 endorsement of this and NACTO’s [*Urban Bikeway Design Guide*](#) consolidated their support for multimodal transportation. Further, **SB 375 of 2008** requires state agencies and local metropolitan planning organizations to develop ‘*sustainable community*’ and ‘*smart growth*’ strategies that focus especially on *reducing single-passenger car trips* (CAP 1.10). Further, the state’s 2014 **CEQA shift** from monitoring LOS (Level of Service; essentially volume of motor traffic) to VMT (Vehicle Miles Traveled) streamlines such planning, as now “*projects that... decrease VMT — ... bike lanes or pedestrian paths, or a grocery store... — may be automatically considered to have a ‘less than significant’ impact*” (LA Streetsblog 2014).

Similarly, the City’s **2030 General Plan** (produced in 2011) prioritizes improved energy efficiency and air quality through *compact, walkable, infill, and mixed-use development* in transit corridors and other central locations. Further, the city’s **Sustainability Task Force** (STF), formed in 2007 following the City’s signing



of the 2006 US Conference of Mayors Climate Protection Agreement (USCMCPA), has confirmed the General Plan's emphases on *multi-modal circulation improvements* and *smart growth principles* of quality design.

The City's 2020 **Climate Action Plan** (CAP), produced in 2012, builds on these priorities through specific plans to *reduce fossil fuel use and greenhouse gas emissions* that will also reduce motor vehicle traffic and improve quality of life for residents and commuters. The CAP also calls for coordination with the Butte County Association of Governments (BCAG) for *high quality transit service and infrastructure*, and *provision of bicycle facilities and infrastructure, including bicycle parking* according to the City's **Bicycle Master Plan**. Measures to be applied on a project-by-project basis include the development of new *multi-modal facilities and connections* in compliance with the City's **Capital Improvement Plan** (CIP), and *Transportation Demand Management Plans* for new employers with 100+ employees (CAP 1.10-12).

The CAP's **prioritized measures to reduce vehicle miles traveled** and fuel consumed include *pedestrian connections* for new development (CAP 1.10.2), expanded and enhanced *bicycling and pedestrian infrastructure* (1.11), 'complete streets' as indicated in the 2030 General Plan (1.12), *traffic calming*, including landscape medians and street corner bulbouts (1.13), *new bike paths* (1.14), and *safe routes to schools* (1.16). **Updated city parking standards** aim to *reduce surface parking areas, require bicycle parking* at higher ratios, and support convenient *pedestrian pathways* through parking areas (1.17).

A host of possible enhancements of South Campus neighborhood street design offer themselves, given these mandates and priorities. Let us begin with 'complete streets' as one component of redevelopment and enhancement of neighborhood walkability, safety, and vitality.



Convert Key Streets To ‘Complete Streets’

Candidates include Chestnut, Hazel, Cherry, Ivy, and Warner (from 2nd Street to 4th Avenue)

As we noted in our Existing Conditions report, the **least-liked aspects** of the neighborhood among students surveyed were the **dangers from car traffic**. Noted in this regard were *lack of bike-friendly infrastructure, poorly-marked crosswalks, and problematic yield-signed intersections*. **‘Complete streets’** which provide safe and protected facilities for all users can be a goal for future development in the neighborhood, and as noted are indeed CalTrans-endorsed NACTO standards in California. Here is one vision of such a street in a mixed-use neighborhood:



<http://www.tooledesign.com/resources/news/concept-construction>

Here is a student vision of what such streets can mean for bicyclists and pedestrians:

The Perfect Street

Creating a safer street for bicyclists and pedestrians traveling in the south campus neighborhood by constructing streets that narrow the road, minimize the amount and speed of traffic, and encourage people to spend free time outdoors in the neighborhood throughout their everyday lives.

- Zone 1** represents a section of private property
- Zone 2** represents a resting area equipped with benches and foliage
- Zone 3** represents sidewalk for pedestrians
- Zone 4** Represents a bike lane in between the resting area and parallel parked cars



Gonsalves & Harrod

Student proposals for specific streets include Hazel, Chestnut, Ivy, and Warner.

Making more complete streets seems *highly feasible* in a medium-term timeline. Indeed, some streets in the neighborhood have recently been upgraded to be more complete: Second, Salem, and most recently Ivy.

Estimates of costs throughout this document are necessarily rough, and for complete streets, costs vary hugely depending on work done. If it repainting only, these may be on the order of a few thousand dollars. Crosswalks, bulbouts, bollards, curbs, or sidewalks add to expense. Median costs are as follows: painted bike lanes \$3 per foot; buffered bike lanes \$5 per foot; pedestrian crossing \$310 each; high visibility crosswalk \$3,000 each; bulbout \$10,000 each; bollards \$650 each; curb \$30,000 (at \$20 per linear foot for one 1500' street); sidewalk \$40,000 (at \$27 per linear foot for one 1500' street). (Weigand et al.; Bushell et al.).

Thus we might estimate *from \$2 per foot to \$10 or \$20 or more per foot, or from \$600 per block to \$6000 or more* if significant work is required at intersections. Here we have an indication of the challenge of rough cost estimates that will continue throughout this report. We often rely in this report on of one

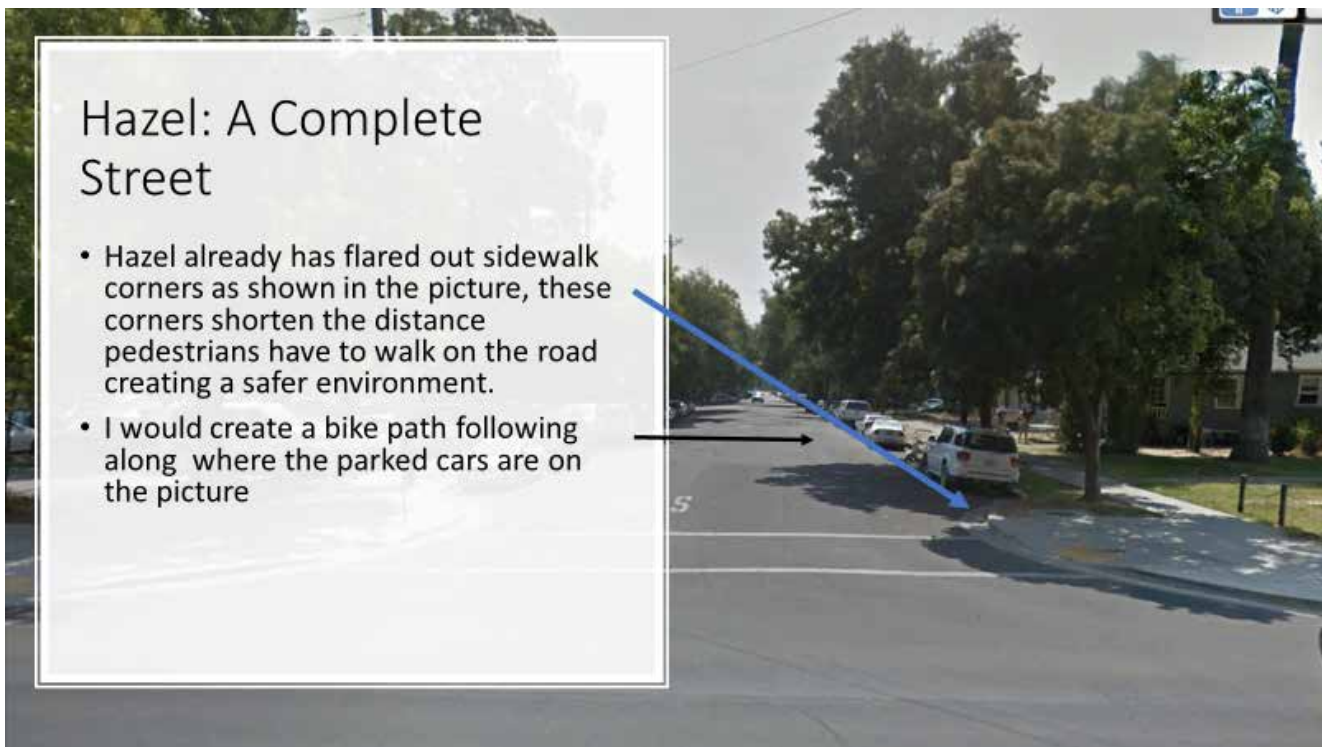


several online guides (Bushell et al.; Weigand et al.; Smart Growth America) or other online estimators (fixr.com; howmuch.com) or vendor for our estimates, knowing full well that professionals will know how to assess these more skillfully going forward as needed.

It is important to recognize, however, that ***a complete street can be accomplished gradually with incremental and modest expense***, often by having enhancements added when other routine tasks of restriping or signal timing are undertaken. Small, low-cost improvements can accumulate over time ***once the commitment is there*** (Smart Growth America). As the consensus in contemporary planning indicates, the *safety, savings, and sustainability* of such streets more than pay for themselves indirectly over time.

Here is a student proposal for Hazel Street:

HAZEL COMPLETE STREET



M. Smith

Hazel: A Complete Street

- Then on the outside of the bike lane, as shown in the picture, I would install a border with trees to increase tree cover, shade, and most importantly the safety of bikers and pedestrians
- I would also add parking for bikes inside of the border to encourage more bikers to use the complete streets
- To add even more protection bikers and pedestrians, I would add parking along the border as shown in the picture
- Finally I would install narrow lanes in the middle of the road to slow drivers down and improve safety



M. Smith

CHESTNUT COMPLETE STREET

Here is a synthetic summary of student comments about Chestnut as a street, with more details for each block and intersection available in our Existing Conditions report, as also for other streets:

“Chestnut. Great vista at north end into campus. Block-size AT&T building and lot sits between 3rd and 4th on west side, but 4th-5th have a welcoming community feel around St John the Baptist. As one moves south beyond Notre Dame school at 5th, appeal and safety decline while trash and then noise increase. Debris and abandoned buildings mar these areas, with better lighting, signage, and crosswalks needed. Car traffic places cyclists and pedestrians at risk. A few signs say ‘Bike Route’ but the street would benefit from actual infrastructure to protect cyclists. Strong candidate for a pedestrian/cyclist street.”

Here are selections from student proposals for making Chestnut a ‘complete street’:



Making Chestnut A 'Complete Street'



Creating a two way bike lane on this side of Chestnut would increase the flexibility of bike travel in the middle of our city. It would also create a safer environment in which parents and children can interact in the school, without the dangers of speeding cars nearby. Although for Chestnut to become "complete" we should take into account the policies of another countries as well. According to J. Pucher and Buehler's *Making Cycling Irresistible*, "The key to the success of cycling policies is in the Netherlands, Denmark, and Germany."



Oatman

ADDING A BIKE LANE DOWN CHESTNUT'S CHURCH SIDE

ST. JOHN THE BAPTIST CATHOLIC CHURCH LOCATED ON 4TH & CHESTNUT, IS A PLACE OF COMMUNITY WORSHIP IN THE HEART OF CHICO. THEY HOLD MASSES AND CONFESSIONS EVERY DAY OF THE WEEK. PARKING IS OFFERED IN FRONT OF THE CHURCH, WHEN THERE IS AN EASILY ACCESSIBLE LOT WITHIN THE PREMISES OF THE ELEMENTARY SCHOOL. ALSO, I WOULD SUGGEST TO THE OWNER OF THE [AT&T BUILDING](#) TO LEASE HIS PARKING LOT FOR PEOPLE THAT MAY WORK AT THE SCHOOL OR THE CHURCH. THIS WOULD OPEN UP MORE SPACES FOR OTHERS.



If this were able to take place then we could eliminate the slanted parking spaces in front of the church and down the street towards 2nd. Restricting parking on this side of the road opens up area for a buffer in the road. Also, more narrow roads require the driver to pay close attention.



Oatman

Another student writes "Create a complete street of **Chestnut Street** from 2nd St. to 9th St. in Chico:

- Add bike lanes to opposite sides of the street from 2nd to 9th st.
- Replace vertical parkings adjacent to the church and school with horizontal parking to make room for bicycle lanes.
- Add 4 way stops and crosswalks to all intersections..."

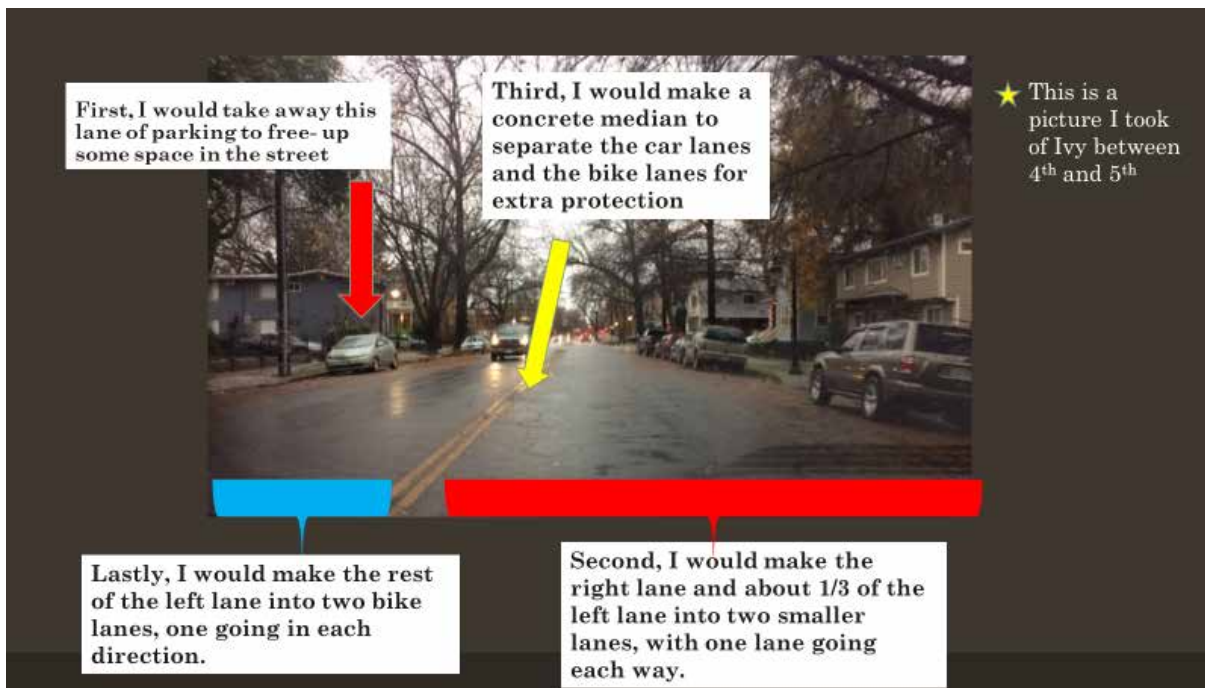
Looking north from 2nd Street one can see the potential of this wide boulevard to be enhanced in these ways:



Sanchez

IVY COMPLETE STREET

Ivy Street is a crucial north-south thoroughfare that hosts a number of businesses clustered around Fifth Street, and that continues northward from Second Street through the campus as Warner. As such it carries substantial car volume but also dense pedestrian and bicycle traffic. To address this, one student proposal, prepared before the recent bike lane enhancements, proposed to remove parking on one side of the street to make room for a two-way cycle track protected by a concrete median from car traffic:



Price

Although Ivy has since been enhanced with bike lanes on each side, a welcome safety measure, these *bike lanes disappear in the block between 3rd and 2nd* as one approaches the campus from the south. As noted and addressed in a temporary ‘tactical urbanism’ city-university collaboration fall 2017 with the help of Professor Knigge of the Geography Department, and as discussed further later this report, *this block needs full bike lanes*. It is proposed that all these lanes might benefit further if car parking were floated off the curb to protect cyclists.



Ivy Street between 2nd and 3rd; no bike lanes

WARNER COMPLETE STREET

Although technically outside of the South Campus Neighborhood boundaries, the northward continuation of Ivy through campus as **Warner Street north of 2nd** is also a strong candidate for enhancement with more fully-protected bicycle lanes to at least 4th Avenue on the north side. This street carries very dense pedestrian and bicycle traffic, with drivers made more aware of this between 2nd and Legion where several enhanced intersections are already in place.

Reimagine Traffic Flow (Prioritize Chestnut as Walkshed Center)

As we noted in our Existing Conditions report, a thoroughgoing **reimagination of traffic flow** could *prioritize certain redesigned key pedestrian and cycling streets* (such as Chestnut, Hazel, Cherry, 4th, and/or 7th, for example). As with the examples of ‘complete streets’ proposed above, these would offer heightened safety and quality of experience while connecting the neighborhood more effectively by foot and bike with the rest of town.

At present there seems little incentive for motorists to choose one street over another in driving through the neighborhood. Among the effects of this are numerous **'stop/yield' dilemmas** in engineering individual intersections. However, *some of these issues might be mitigated or disappear*, and potentially without impairing overall flow, *were **pedestrians and cyclists prioritized on some streets or parts of streets**, with car traffic calmed, slowed, diverted, or banned on these.* (Although through car traffic on every street limits car traffic pressure on any individual street, it may do so at a cost to safety and quality of experience.)

As we noted in our Existing Conditions report, **Chestnut Street** in particular might make *a magnificent boulevard of this kind*, with its proximity to downtown, its connection across CA 32 to the Barber neighborhood in the south, its civic and gathering space around St. John the Baptist church and Notre Dame school, and its welcoming approach to the campus with the fine vista to the Trinity Hall bell tower to the north. Midway between downtown and Ivy, Chestnut is effectively the **walkshed center** for the eastern South Campus neighborhood (the 'Chestnut district' described above). If *properly signed with prominent wayfinding* along its length, and *enhanced with gardens and parklets* over time, it could become a glory of the town.

Enhance Other Streets for Pedestrians and Cyclists

Cherry could also be a candidate for such a pedestrian and cyclist prioritized street, and **Hazel** as well, especially if either could take bicycle traffic off Ivy.

3rd, 4th, 6th, and 7th Streets are interesting potential candidates for **pedestrian and especially cyclist enhancements**, perhaps on their eastern sides in particular. A temporary 'pop-up' demonstration of potential bikeways on 3rd and 4th between Bidwell Park and downtown is scheduled for April 2018. *See more below* under 'Bike lanes and bikeways' for possibilities for making 7th (and possibly 6th) fully-protected bikeways that could carry through cyclists safely east-west across the neighborhood and beyond.

In the longer run, *prioritizing pedestrians and cyclists on certain streets* in these ways could *enhance property values* and bring openings over time for *small parks, plazas, and businesses*. They can potentially

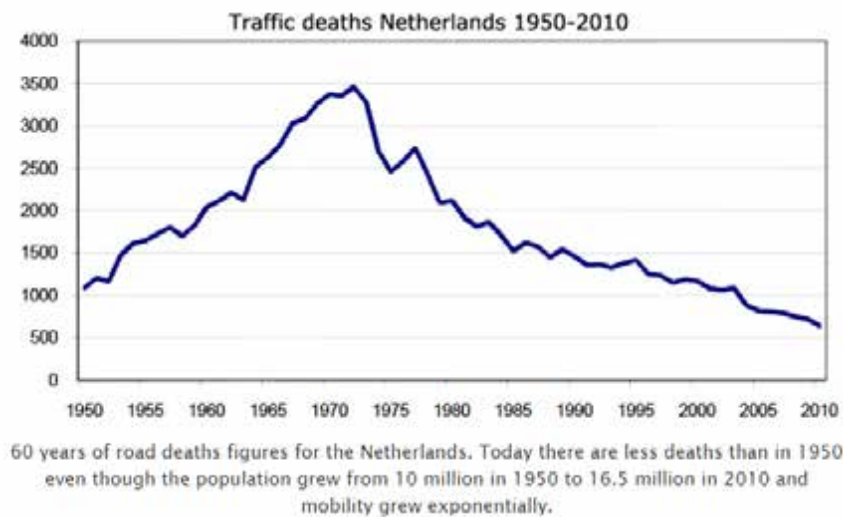


also reduce demand for carpark lots elsewhere as more people feel safe and fully supported in commuting and shopping on foot and by bicycle.

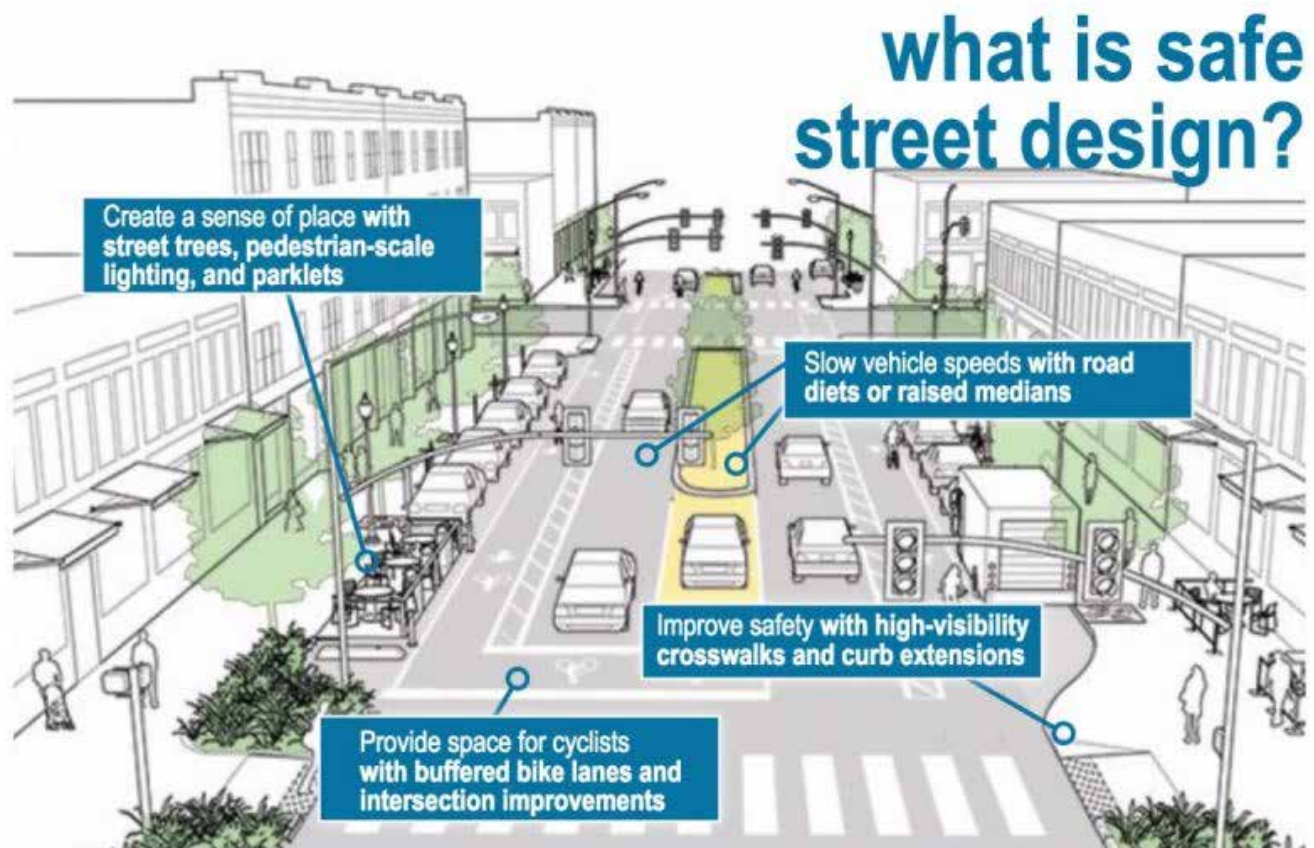
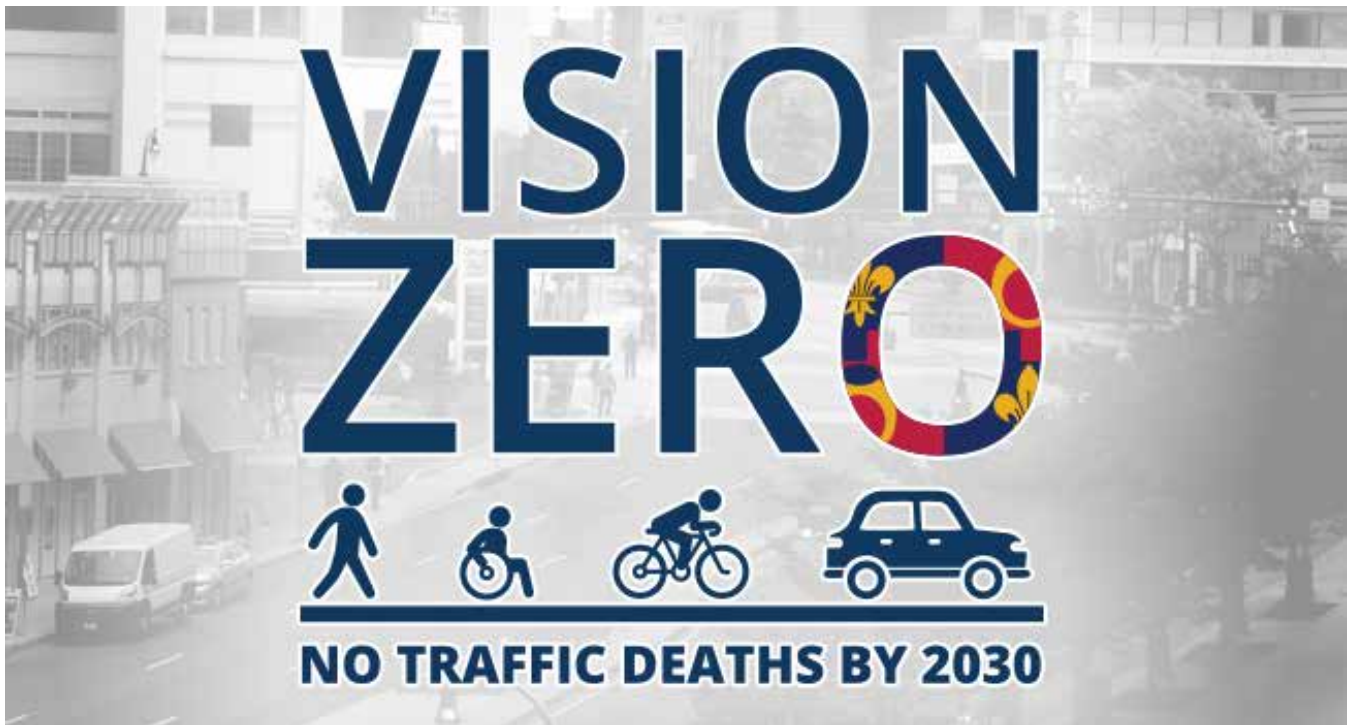
Part 2: Reimagine Traffic Flow

Vision Zero / Twenty Is Plenty

The remarkable Dutch advances in pedestrian and cyclist safety since the 1970s came in significant part from active campaigns and advocacy in protest of preventable traffic death (Dutch Reach Project; London Cycling Campaign). The result has been a >80% decrease in road deaths despite increased population and mobility:



Drawing especially on these Dutch movements and on recent Swedish policies, a contemporary international movement calling itself 'Vision Zero' aims to reduce serious injuries and fatalities on public streets to zero in the cities and towns that it works in.



Vision Zero / Atlanta, Georgia

Of special importance is slowing car traffic, as motor vehicle speed of travel is critical for the safety of pedestrians and bicyclists (Vision Zero).



A related movement called ‘Twenty’s Plenty’, or in some places ‘Total 20’, advocates neighborhood-wide default residential street speeds of 20 miles per hour. Lower speeds enable eye contact, and at 20 miles per hour, a pedestrian has a 95% chance of surviving a collision, compared to only 10% at 40 mph (Duany et al. 2010, 8.2). Recently adopted by the Portland City Council, ‘Twenty’s Plenty’ has more than 350 local campaigns in the British Isles and North America.



Holding traffic speeds down in the South Campus neighborhood is one important way safety can be protected and improved over time. Costs are virtually nothing beyond signage to put in place such policies, but below we explore some ways to achieve these goals more fully through street design.

‘Home Zone’ Streets (Woonerfs)

The Netherlands has pioneered **woonerfs** (‘home streets’, ‘home zones’, or ‘living yards’) for urban residential neighborhoods, where cars may be welcome but are restricted to walking pace (Hockenos 2013; Fesler 2014). Chestnut, Hazel, Cherry, and Warner (from Legion to 2nd) seem especially promising candidates for such a street. Here is a proposal for such a street:

“Turning Chestnut St. into a ‘woonerf’ would resemble a center similar to [those in the Netherlands]. With pedestrian and cycling priority..., cars would still be able to make their way through the city center, but must yield to all other secondary vehicles, and drive at pedestrian speed.” (Oatman)



An old Dutch street turned into a woonerf (Wikimedia Commons)

Again, as we noted in our Existing Conditions report, the least-liked aspects of the neighborhood among students surveyed were the *dangers from car traffic*. As noted above, danger of injury and death increases sharply with rate of speed of collision. Limiting motor vehicles to pedestrian walking speed eliminates most of this danger.

The project is feasible if agreement and approval can be reached in the medium to longer term. Costs seem relatively minimal; the project mainly requires clear signage along street and at intersections.

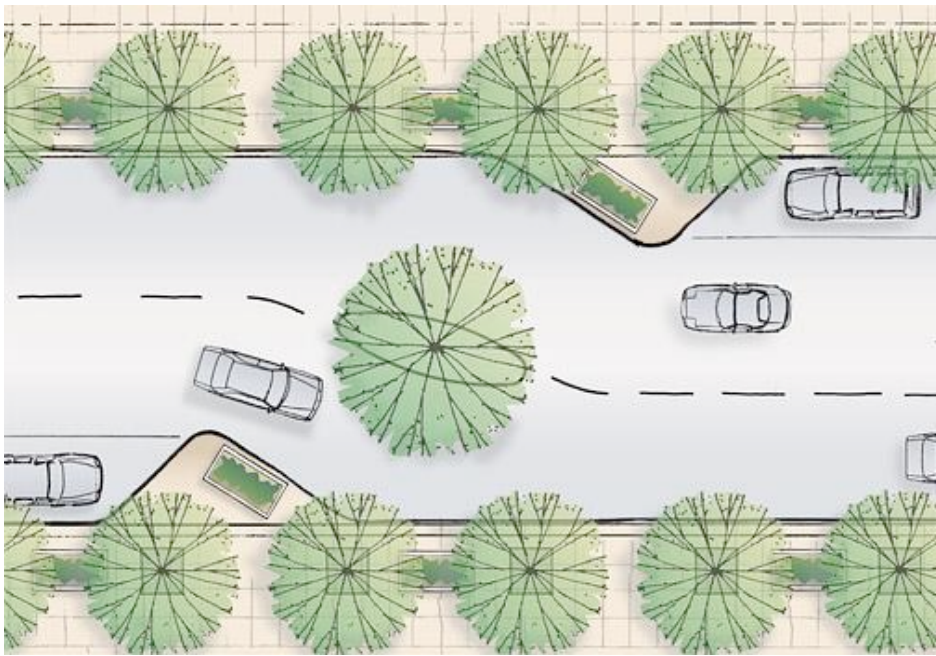
Slow Car Traffic Using Chicanes (Chestnut or Hazel; Cherry)

Presently much of the north-south streets in the neighborhood are wide open boulevards that offer few visual cues to slow down or pay close attention to traffic or intersections:



Oatman / Chestnut Street

Chicanes are concrete islands that offset and slow car traffic. “Landscaped chicanes have the added benefit of adding more green landscaping to a street... Chicanes can be combined with a median island to ensure motorists do not disregard roadway markings.” (Bushell et al.)



If approved, such a project seems quite feasible in the medium term on parts of some named north-south streets (Chestnut, Hazel, Cherry) south of 5th St. At an average cost of \$5000 each chicane (Weigand et al), a budget of perhaps \$10,000 for each block of a street seems possible.

Bushell et al.

Slow Car Traffic Using Radar Speed Display Signs (8th & 9th; Possibly Ivy)

SLOW DOWN!!



We plan to add five radar speed signs to W. 3rd Street, at every intersection. This sign will tell drivers the speed limit in the area and display how fast they are going to bring awareness to the fact that they need to slow down and watch out for pedestrians and cyclists.

COST each sign is \$3,200x 5= \$16,000

Gonsalves & Harrod

Although the neighborhood has few higher-speed streets, this could be worth doing on 8th & 9th, or possibly Ivy or another north-south street. These speed display signs have been shown to be a highly cost-effective way to reduce speeding (Anderson). Each sign costs about \$3200, and the time frame could be near- to medium-term.

Prevent Car Through Traffic on Certain Blocks Using Bollards (Chestnut)

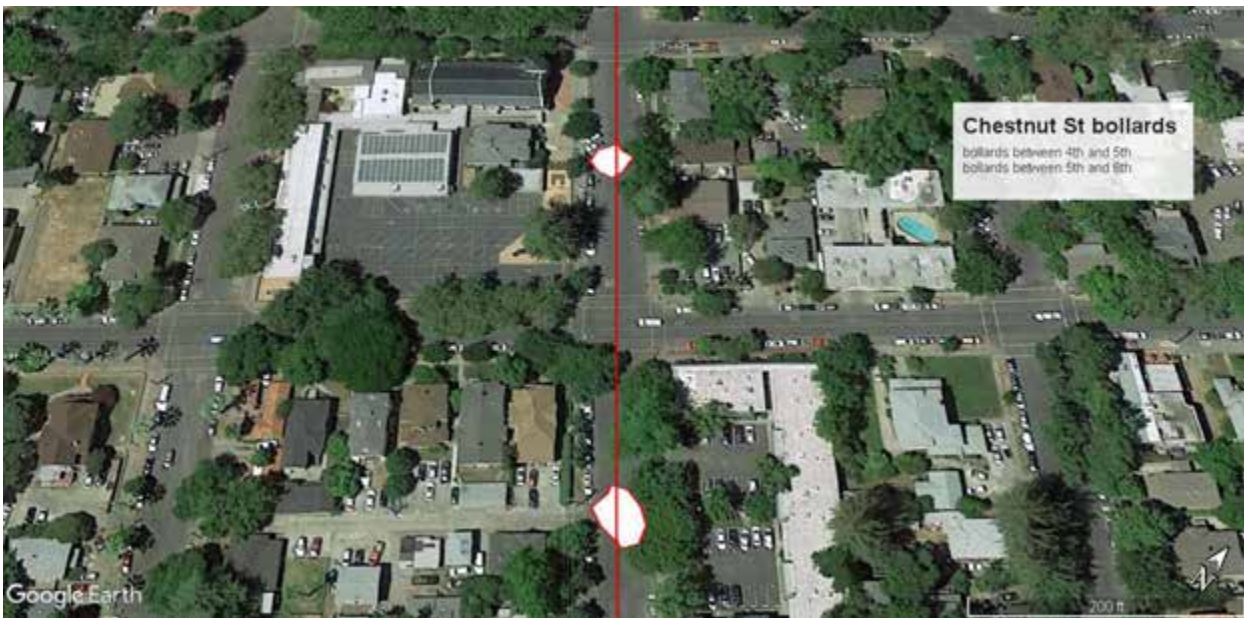
There could be potential advantages to a few well-chosen points where **removable bollards placed at mid-blocks** would allow peds and bikes to pass but not cars (except in emergencies), combined with **better protected intersections on key car thoroughfares** such as Ivy and 5th.

There could be potential advantages to a few well-chosen points where **removable bollards placed at mid-blocks** would allow pedestrians and bikes to pass but not motor vehicles (except in emergencies), combined with *better protected intersections on key car thoroughfares* such as Ivy and 5th. Car traffic on these blocks would be limited to those parking there. As with the *woonerf* option above, these streets would then become favorites for pedestrians and bicyclists, and could be further enhanced with bioswales and parklets in now-unused portions of the roadway.

Removable bollards can be tried for a week or a month, and removed or moved if judged unhelpful.

EXAMPLE: BOLLARDS ON CHESTNUT BETWEEN BETWEEN 4th AND 5th, AND 5th AND 6th.





These bollards would reduce car traffic on Chestnut, allowing it to be prioritized for cyclists and pedestrians. It would create a safe haven for pedestrians around the heart of the Chestnut district east of Ivy, with St John’s Church and Notre Dame School. Together with an enhancement of the 5th and Chestnut intersection, it could make Chestnut a highly desirable avenue for foot and bike traffic to and from campus. A potential downside could be the diversion of car traffic to neighboring streets, but this may not be entirely a bad thing.

Feasibility seems straightforward if agreed upon. A *demonstration test* of a week or a month could show how flow and safety in the neighborhood is affected.


Costs would be relatively modest, and this could be tried in the medium term. Signage, and removable locking bollards run roughly \$200-\$700 each or more, depending on size (Bushell et al. cite \$650 median price). Five to seven bollards 1.8m apart on each of the two point-closures should do it, at a rough cost of \$5-\$10,000 or less.

Create Pedestrianized Street (Chestnut; Warner)

Chestnut is effectively the walkshed center for the eastern South Campus neighborhood. Midway between Salem and Ivy, it stretches from 16th Street in the south and provides the most beautiful northern sightline into the campus.

Pedestrian-Only Chestnut Street

This project proposes removing a section of the asphalt road covering Chestnut Street and replacing it with a pedestrian-only cobblestone path. The new path would cover just under one half-mile in length, running from 2nd Street to 9th Street as shown in the picture to the right. In order to prevent automobiles from entering, bollards would be placed where connecting streets meet the pedestrian-only path. Additional greenery would be planted along the sides to enhance the scenery as well. The addition of street lights will allow the path to also function as a nighttime designated safe corridor for those concerned with safety at night.



R. Brown

Bollards could be placed at mid-blocks, rather than at block ends as in image above, to allow local parking.

Feasibility will likely be challenging to gain stakeholder agreement along the seven-block length of Chestnut, and time frame would likely be longer-term. A potential downside again could be the diversion of car traffic to neighboring streets. Possibly better to make Chestnut a *woonerf* or a street with partial bollard blocking of car traffic only around St John’s Church and Notre Dame School.

Costs would be moderate, requiring signage and removable locking bollards running roughly \$200-\$700 each or more, depending on size (Bushell et al. cite \$650 median price).

Another student proposal is for a pedestrian-only promenade on **Warner Street between 2nd and Legion, with mini-roundabouts at the ending intersections**. Noting the objections raised years ago to First Street’s conversion to pedestrian walkway, they write:

“When the First Street Promenade project happened it was thought by people that it would cause chaos because it was a popular street. Since its been gone it has been better for the students and cars have been able to get around just fine. It made Chico State more appealing and safer for the students to navigate around the school.

We are encouraging this project [on Warner] because of the current plans for demolition of Chico State North Campus... for more residential living. With our idea in place, it will allow North Campus to stay connected to Main Campus.”

The student authors give 10-20 years to accomplish this project. Indeed it seems challenging under present conditions, or even inadvisable, given the reliance of many motorists on this north-south passage through campus. Nonetheless it’s an ambitious vision that thinks longer-term and could galvanize bicycle use in the city, as has happened in Groningen, The Netherlands, since that university city adopted planning that required motorists to go around the city core rather than drive straight through it (see Streetfilms documentary video on Groningen).



Create a Pair of One-Way Streets (Chestnut & Hazel)

Students have also proposed **making Chestnut and Hazel a pair of one-way streets** to make cycling and pedestrian traffic safer and more welcome. Again, they see these wide and open existing streets as perfect candidates for prioritization for those on foot and on bicycles:



Basaldua and Lopez

In order to make the south campus community of Chico more bike and pedestrian friendly, we found it suiting to make both Chestnut & Hazel street single-laned, one way streets, with Chestnut Street bringing traffic towards campus and Hazel directing away from campus towards highway 32. With these streets being single lanes one way streets, it leaves more than a sufficient amount of room for wider sidewalks and two laned bike lanes on one side of the street, which a diagram will depict and clarify in the next slide.

Along with these changes, the speed limits of these two streets will be decreased to 15 mph, making it even safer for cyclists and pedestrians. These changes are made in effort to give pedestrians and cyclists a safe, and efficient way to travel around the busy south campus neighborhood.

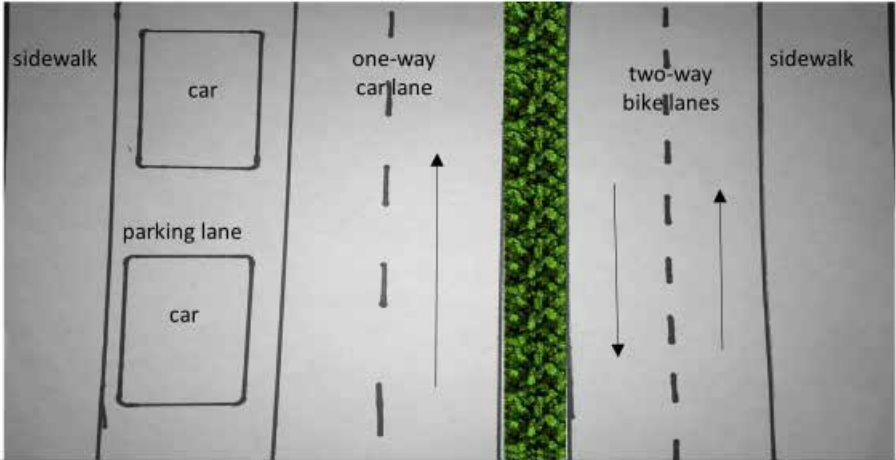
As of now, members of the community are forced to travel down streets with incomplete bike paths and insufficient street crossings along the busy street of Ivy. We hope that making these changes will divert more car traffic to Ivy, leaving Chestnut and Hazel more for those traveling by foot and bike.

Basaldua and Lopez



Map of South Campus Neighborhood

Basaldua and Lopez



The New Street Layout Continued...

Basaldua and Lopez

The students estimate costs as \$4,000 plus labor:

Costs



Here are a list of estimated itemized expenses needed in order to complete this project. There will be a need for paint for new crosswalks and new street markings for lanes. This is estimated to be a \$2,000 budget. With stop signs costing around \$50, making it \$400 for all the necessary signage (Metz). With the average bush costing \$30, the barrier between the bike and car lanes will consist of roughly 3 large bushes per block, with 7 blocks down both streets, leading to \$1,260 spend on shrubbery for a barrier ("Shrubs"). The last expense is the cost of labor to complete the project which is \$10/hour minimum wage for construction workers, times the amount of workers and time needed to complete this project. This project could cut costs in this area with volunteers, such as student clubs and greek life, who are willing to volunteer with such things such as planting shrubs for the barriers. While added up this project is projected to be around \$4,000 for materials, plus cost of labor, making it is still a financially sound project. In comparison, it costs taxpayers anywhere from \$250,000 to \$500,000 to purchase and install a traffic signal, with the additional electric bill of \$8,000 a year ("Traffic Signals").

However, this is certainly an underestimate of costs. More realistically, something on the order of twenty to fifty thousand dollars or more may be likely. As will be discussed more fully below in the bikeways section with reference to 6th and 7th making such streets one-way bicycle boulevards might cost on the order of \$10 per foot, or about \$15,000 for *a rough estimated total of \$30,000 or more.*

Part 3: Bike Lanes and Bikeways

Priorities and Successes

As we noted in our Existing Conditions report, **Chico is ideal for bicycling**, given that it is flat, and warm and dry most of the year, and the city has its own important histories and thriving subcultures of cycling. Over the past decades, government agencies have supported bicycle commuting and daily use in a number of important ways, but **further change in the relative mix of transport modalities** is crucial to achieving greater success. A *reduction in use of private cars* for local travel is perhaps the most abundant and low-hanging fruit that could be harvested by good planning going forward, as recognized in the university's Transportation Demand Plan of 2009. In part also to this end, the city and region has invested in *B-Line bus service*, with the new *Transit Center* at the junction of the university and downtown, and provides students with free passes.

For bicycling infrastructure, **leaders among US cities** include *Portland, Oregon*, the best of our larger cities, with about 7% bicycle mode share overall (Blue 2013). **Smaller US university towns** like *Davis, California*, and *Boulder, Colorado*, have achieved comparable or higher mode share, in part through bike lanes and separate paths in the overall context of strict growth controls (Mapes 2009). *Chico's mode share* has not been determined, but it has been recently estimated that 8% of residents ride a bicycle each day (City of Chico 2015a).

However, it's perhaps worth noting that **many towns in northwestern Europe** have achieved *cycling mode share of above 35%* for all trips, despite windy, wet, and chilly weather much of the year. *Access there is broad and deep*, with Dutch elderly, for example, logging a bike mode share about 60 times higher than the US average. At the same time **safety has been sharply improved**, with the Netherlands, for example, achieving an *81% decline in cyclist deaths* in the period from 1981 to 2006, and Denmark enjoying a rate of *non-fatal cyclist injury roughly 1/30th of that in the US overall* (Pucher & Buehler 2008). Necessary for such numbers are *protected bikeways and secure bike parking*, among other things, but also *smart growth plans* that de-incentivize automobile use as they provide comprehensive alternatives. See the 16-minute online video '*Groningen: the world's cycling city*' (Streetfilms 2013), for one university city example in Holland. See Pucher & Buehler's '*Making cycling irresistible*' (2008), for a comprehensive review of exactly how the Netherlands, Denmark, and Germany have achieved these results.



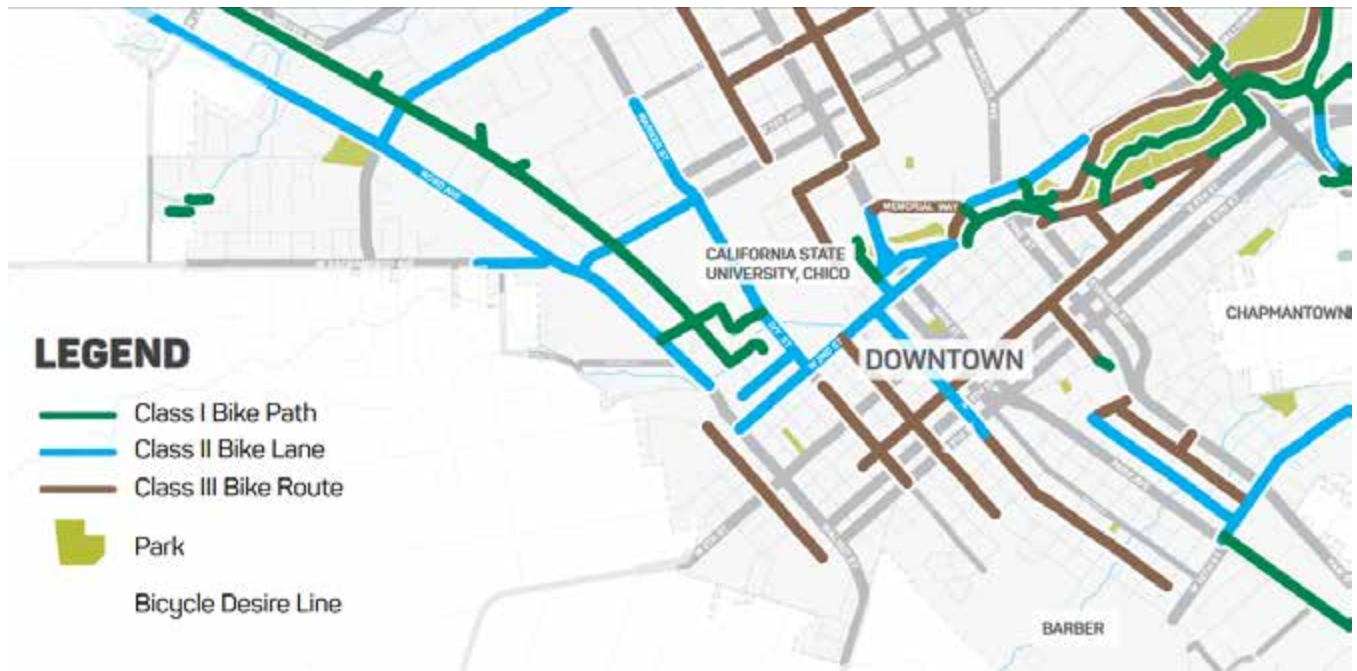
Improving Safety

As noted in the Existing Conditions report, **dangers from car traffic for pedestrians and bicyclists** are clear. US rates of injury and death for cyclists and pedestrians remain many times higher than in countries that have adopted the measures described in ‘Making cycling irresistible’ (Pucher & Buehler 2008). *When students surveyed were asked “What do you like least about the South Campus neighborhood?”*, **dangers to pedestrians and cyclists from car traffic** (14) was the most frequent theme in their answers. Noted here were *lack of bike-friendly infrastructure* (5), *poorly-marked crosswalks* (5), and *problematic stop/yield intersections* (4). *Heavy car traffic* (3) was also noted. Similar findings emerged in a 2015 survey conducted among cyclists in Chico, who ranked **proximity to high-volume traffic** as the biggest issue and deterrent they faced, along with *bike theft, lack of bike lanes, and difficult intersections* (Chico Bicycle Master Plan).

Here in Chico a college student pedestrian was killed by a car in 2015 at 7th and Chestnut, following two college student bicyclist deaths in 2013 also from cars. Indeed, the neighborhood has hosted the *densest local cluster of reported bicycle collisions* in the past ten years outside of the downtown core (City of Chico 2015). Most feared in our neighborhood by our respondents were 8th and 9th, with Ivy and Hazel also singled out.

Data discussed elsewhere in this report show strong **student support for increased bicycle use and safety** in the neighborhood, as well as **enhancement of pedestrian safety and convenience**, that together could yield a corresponding **reduction in dependence on cars** and in land and street use for car parking. In the South Campus neighborhood, the recent **2nd Street redesign** has created substantial green-painted bike lanes that lead east to Bidwell Park, and west to neighborhoods along Nord and beyond, although the westward route along this high-volume street is largely bare of tree cover and other amenities. **Salem Street** has also benefited from some intersection safety enhancements and from white-stripe marked bike lanes on both sides. There is much room for further enhancement, though, as *beyond a few signs* on 7th, Chestnut, and Ivy, designated as Class III Bike Routes, *no other bicycle road infrastructure exists* at present, and parts of Ivy are particularly problematic as a bike route under present conditions.

Existing Bike Routes



Chico Bicycle Master Plan 2015

The city’s current bike network has three Class II bike lanes through South Campus, on 2nd and on Salem, as noted on the above map from 2015, and now also on Ivy. The 2nd Street lanes have green paint and the Ivy lanes have flashed boundaries separating them from car traffic, which in each case enhances them.

Existing bike routes on Chestnut and 7th are currently only signs with no pavement marking or material provision for enhanced and safer cycling. Here is Chestnut at 3rd, looking north to Trinity Hall:



Eaton

Much-needed bike lanes recently developed on 2nd, Salem, and Ivy are only pavement markings, with no barrier, though 2nd (like 1st east toward the park) has green paint, which helps a great deal:



Eaton

Still, there is a ways to go to reach the standards of Portland’s downtown, in which cyclists share key one-way streets equally with automobiles:

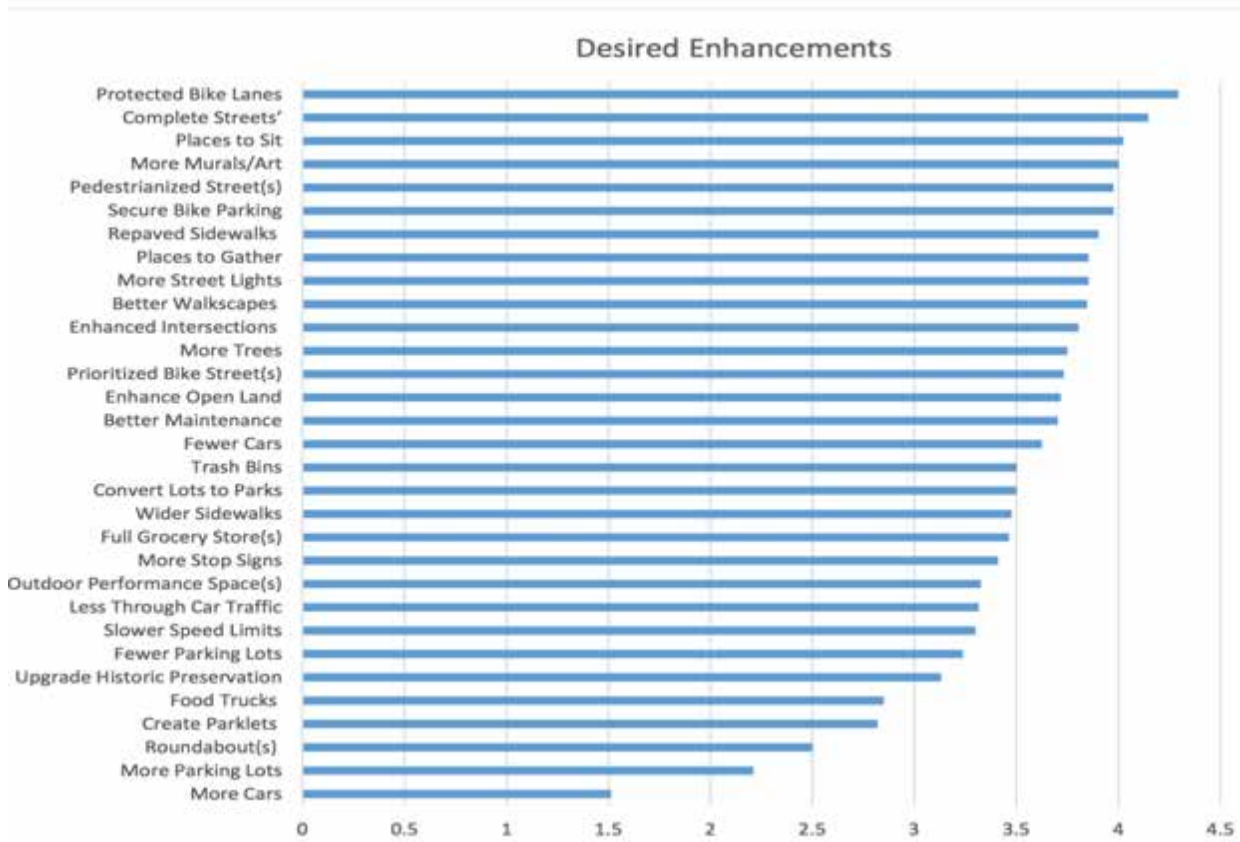


Eaton: Portland downtown bike lane on one-way street



Protected Bike Lanes

But the highest priority for desired street enhancement among students surveyed in our Existing Conditions report was **protected bike lanes**, in which some form of buffer or barrier exists between cyclists and car traffic.

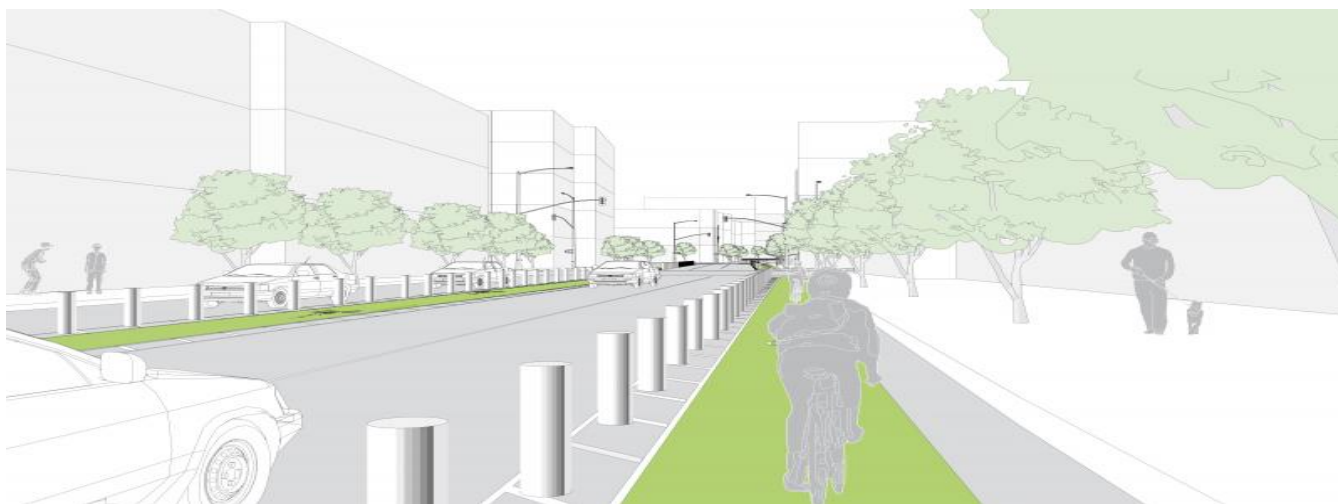


Eaton & Ryll 2016

This can be accomplished through *painted buffers* (least expensive), *bollards*, *planters*, or *concrete raised curbs* (most expensive). For example:



Left: Minneapolis; Right: OpenStreetMapWiki



East Bay Bicycle Milvia Street Initiative



Minneapolis Bicycle Coalition

Protecting bike lanes can also be done by *moving car parking away from the curb so that parked cars are between cyclists and car traffic.*



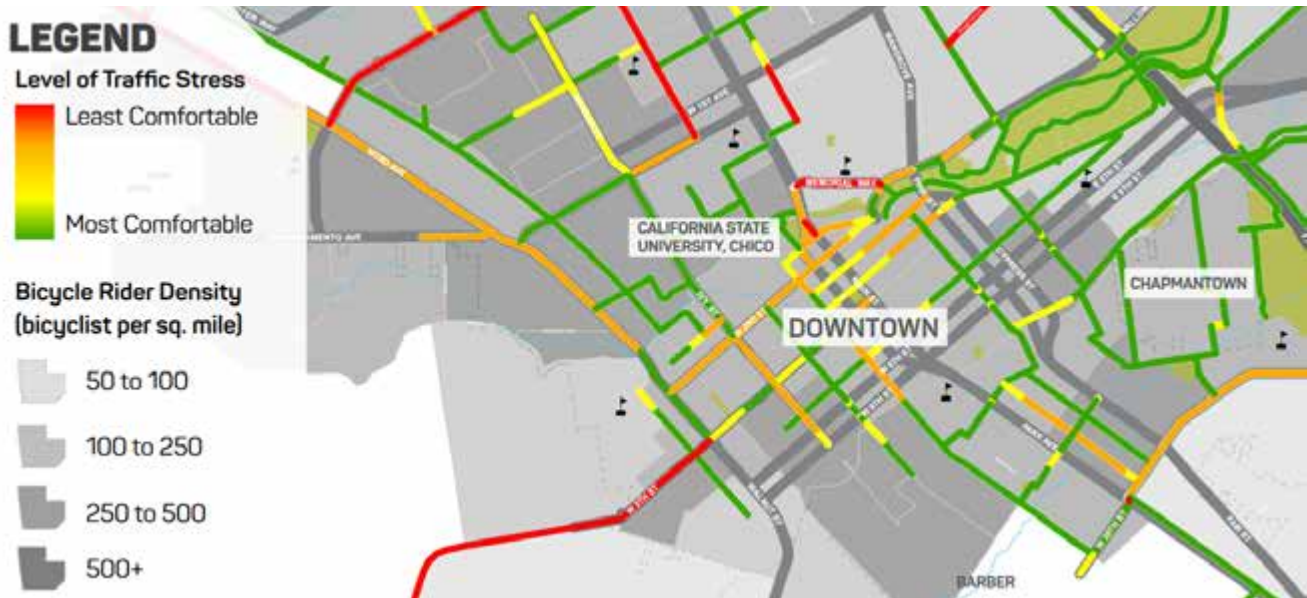
buffered bike lane in Brooklyn on Prospect Park West (wwbpa)



Minneapolis Star Tribune



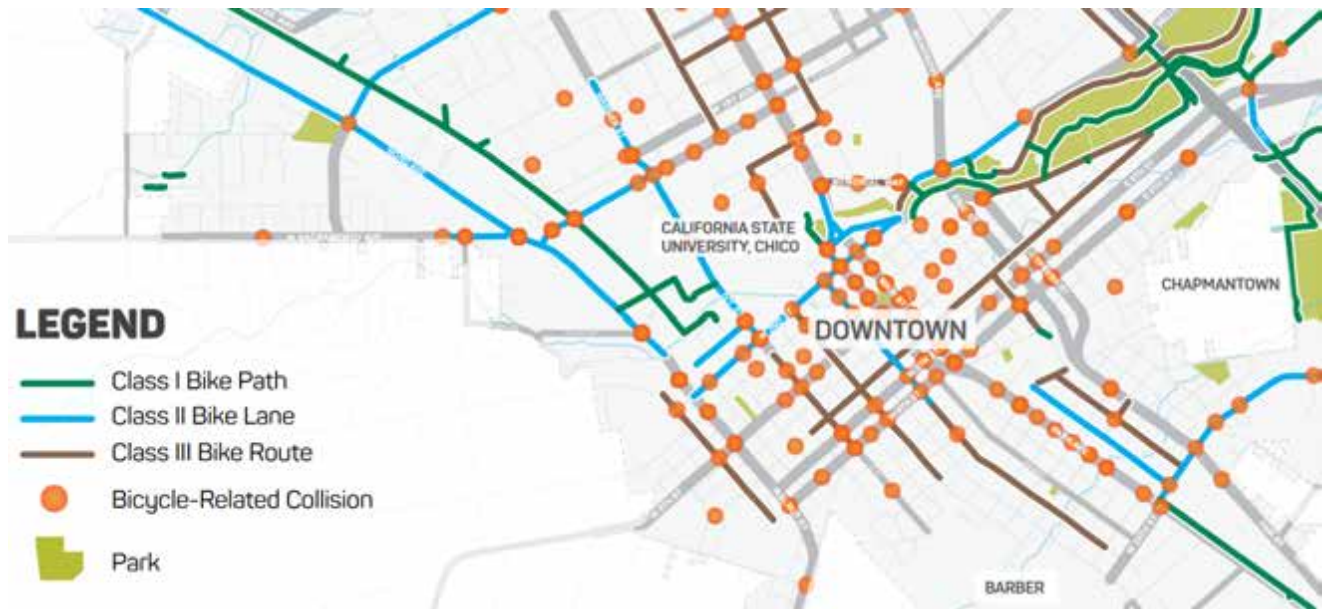
Chico's Bicycle Master Plan includes studies of traffic stress and collision frequency that can help guide priorities for enhanced infrastructure:



Chico Bicycle Master Plan 2015

The map above shows the high traffic densities of the downtown and adjacent areas, where the city hosts its highest concentrations of daily cyclists (Chico Bicycle Master Plan) and where many of the streets are higher stress and danger to cyclists.

The following map shows where bike-related collisions have clustered recently over time:



Chico Bicycle Master Plan 2015; bicycle-related collisions 2006-13

The recent enhancement of Ivy with bike lanes is a welcome improvement, given these realities, but much more can be done. Beyond ameliorating the dangers of the highest car traffic streets for bike travel, there is room for **creating streets where walking and cycling is prioritized in the areas adjacent to downtown**. This can also take pressure off of these other higher-traffic routes where danger is evident. Let us note again that cyclists surveyed in Chico in 2015 ranked **proximity to high-volume traffic** as the biggest issue and deterrent they faced, and students ranked (Chico Bicycle Master Plan), and in our Existing Conditions survey students cited **dangers to pedestrians and cyclists from car traffic** (14) as the most-disliked aspect of the neighborhood overall.

The less-highly trafficked **north-south named streets** of the South Campus neighborhood are prime candidates for such improvement, especially as they are remarkably wide. On these there is plenty of space to follow the more generous *Dutch guidelines for width of a bicycle lane*, which is at a minimum of 1.5m/4.9ft (as opposed to the American minimum of 0.91m), with 2-4 meters for a protected one-way cycle track (as opposed to the American standard of 1.5-2.71m) (Steinberg 2016). In this regard, guidelines from

Cambridge, UK, are also helpful, noting that cycle lanes and tracks should be at least 2.1m wide and away from traffic to make cycling convenient, sociable, and safe for all.

Convert Chestnut to a Bicycle Boulevard

All of this increases the case for ***Chestnut as a bike-enhanced street with protected bike lanes and bike-enhanced intersections at 2nd, 5th, and 8th and 9th***. This seems highly feasible as a medium-term project, as 2nd, Salem, and Ivy, each with more car traffic, have recently been enhanced with bike lanes and in some cases enhanced intersections, as noted above.

Chestnut, like Hazel, Cherry, Orange, 6th, and 7th, is *well suited to becoming a bicycle boulevard* of this kind, as these are *usually placed on quiet low-traffic streets adjacent to major roads*. Such siting can avoid major policy issues, as most questions that arise are about diverting traffic and/or removing parking (Weigand et al.).

Weigand et al. provide a rough guide to relative costs for such changes from case studies in Portland, Oregon. There standard bike lanes are about \$1-5 per foot, and buffered bike lanes about \$2-9 per foot (although this is without the cost of any right-of-way acquisitions). Full costs for a bicycle boulevard of this kind that could transform Chestnut or other streets range from \$9.50 per foot to around \$27 per foot. Nonetheless, they suggest that overall bicycle boulevards compare favorably cost-wise to bike lanes, as these estimates include , crossings and flow management.

For a neighborhood street such as Chestnut of roughly 1500 feet, this would place costs for *standard bike lanes at \$1500 or more; buffered bike lanes at \$3000 or more; and full bicycle boulevard development at \$13,500 or more*.

Costs could vary also depending on intersection enhancements. If it is done by repainting only, these costs may be on the order of a few thousand dollars. Crosswalks, bulbouts, bollards, curbs, or sidewalks add to expense. Other median cost estimates are as follows: bike boxes at intersections perhaps \$1000 each; pedestrian crossings \$310 each; high visibility crosswalks \$3,000 each; intersection speed table \$2100 each; bulbouts \$10,000 each; bollards \$650 each; curb \$30,000 (at \$20 per linear foot for one 1500' street) (Bushell et al.).



Here is a student vision of such a park-like protected setting for bicycle (and skateboard!) travel:

Project Summary

- I will be putting a Class IV- Protected Bike Lane along Chestnut, Ivy 7th.
- A Class IV-Protected Bike Lane is a bike lane that has a buffer, such as a curb, from the traffic of cars. I will be using a Bioswale as the buffer between the bike lane and the traffic of cars.



The image is a composite. The top right portion shows a map of a city grid with a blue rectangular area labeled 'Project Area' along a street. The bottom right portion is a photograph of a person on a skateboard riding on a wide, paved bike lane. The bike lane is separated from the road by a raised curb and a bioswale (a shallow, vegetated ditch). A person on a bicycle is also visible in the distance on the same lane.

Frace

Convert a Cross-Town Minor Street to a Full Bike-Friendly Route (Example 7th Street)

Also as noted above, 3rd, 4th, 6th, and 7th Streets are interesting potential candidates for **pedestrian and especially cyclist enhancements**, perhaps on their eastern sides in particular. As these east-west numbered streets are narrower than the north-south named streets, enhancing them as bicycle routes may require more protection for cyclists than is currently possible between two rows of parked cars. One solution would be to **remove parking on one side of such a street**, perhaps 7th, to allow protected bike lanes on it.

7th is a unique candidate for such enhancements all the way west-east across the neighborhood, as it is the only of these four streets that carries through traffic west past Orange across the railroad tracks. It is a low-traffic volume east-west street presently designated as a Class III bike route, though without material



provision or pavement markings for cyclists. It connects with Walnut Street (CA 32) and to a bike route on Oak Street to the west, and extends east all the way to Bidwell Park:



Chico Bicycle Master Plan 2015

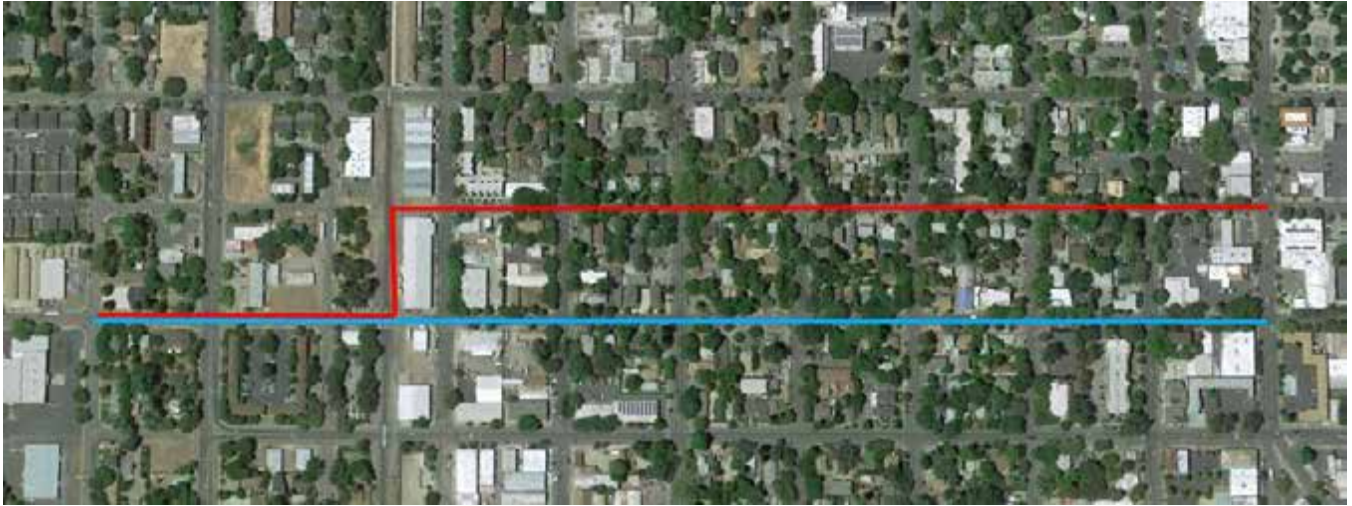
With proper parking management and perhaps an enhanced intersection at 7th and Ivy, bike lanes could be painted in on 7th Street, and a safer quiet route would be available east-west all the way from Oak Street to Bidwell park through this part of town, linking to bike infrastructure at both ends. Time frame would be medium-term, and cost perhaps \$25,000.

Convert 6th & 7th to a Pair of One-Way Streets

As noted above, making pairs of streets (Chestnut & Hazel; 3rd and 4th; 6th & 7th) one-way in each direction could make walking and cycling much safer on these streets, especially on the east-west numbered streets, which are narrower than the named north-south avenues and need enhancement for safety. This could also create plenty of room for effective bike lanes to the world-class Dutch standard sizes.

One idea would be to **make 6th and 7th a pair of opposite-direction one-way streets** (or do the same with 3rd and 4th), which might make for wonderful and safe cross-town travels for cyclists on these streets. This

could be done in medium-term, if approved. Costs in both cases could be modest, perhaps several thousand dollars primarily for paint and proper signage, or more substantial into the several tens of thousands of dollars if protected bike lanes with bollards or curbs were installed.



6th and 7th Street bikeways: 6th one-way east from Orange, and 7th one-way west to Orange

Adding bollards on 7th street mid-block between Orange and Walnut could prevent car through traffic on this block which can be better carried on 8th and 9th:



6th and 7th St. bikeways: 6th one-way east from Orange, and 7th one-way west to Orange, with bollards

Wayfinding: Signage and Guideways (Chestnut; 6th And 7th)

As also noted in the Chico Bicycle Master Plan, wayfinding signage can help cyclists and pedestrians know favored routes to their chosen destination. It has been noted that cyclists generally like *simple direct routes that make wayfinding easier and that maintain momentum*, as stop-start cycling is hard work (Cyclenation 2014).

Signage that signal distances, times, and directions with special reference to cyclists are widely used in bike-friendly towns and cities. Here are examples:



Left: Portland, OR; Right: Adelaide, Australia

Such signs for enhanced bike routes in Chico seem *quite feasible in near to medium term* and *modest in cost*, perhaps a thousand dollars in total. For this investment, they could yield significant benefits in awareness and in *direction of cyclists and pedestrians away from high-traffic-volume streets* to pleasant alternatives in which their safety is prioritized. Current routes on 2nd, Salem, and Ivy are possible, but the above proposed bikeways on Chestnut and on 6th and 7th seem even better candidates for such wayfinding.

Weigand et al. cite the cost of wayfinding signs at \$70-\$200 each, plus any costs for planning and design. For ten such signs strategically placed along a bicycle boulevard in both directions, costs could be \$700 to \$2000 or more.

Install Bike Boxes at Intersections (Example Ivy & 2nd)

Enhanced intersections for bicyclists, especially 'bike boxes' at lights on Ivy at 2nd, 8th, 9th.



Ortiz



Eaton: Portland bike box



A good example of a bike box has recently been installed by the City at 2nd and Main:



Going forward, *comparable bike boxes and other cyclist-specific protective improvements to the intersection at Ivy and 2nd* would seem a high priority. Since Ivy carries car through traffic to north Chico, completion and further protection of bike lanes recently built along it would also be welcome.


Student proposals illustrate the problem and potential solutions:



Cretan

Summary of my proposal

My proposal is adding four Bike Boxes on each corner of 2nd Street and Ivy. I chose this location due to the high frequency of bicyclists crossing this intersection. As well because when bicyclists make a right turn towards campus while on the corner of second, cars on the opposite side of traffic making a left sometimes get too close to the bicyclists putting them in danger. With these Bike Boxes it provides bicyclists with a safe and easy way to be ahead of traffic. A "no turn on red" sign while also be put up so motor vehicles won't enter the Bike box, freeing it up for cyclist. According to NACTO this treatment adoption is currently used in cities like San Francisco, San Luis Obispo, and many more.



Ortiz: Proposed intersection bike box at 2nd & Ivy

Further, as noted above, cyclists throng Warner daily north of 2nd. This is in part because they cannot pass through campus north-south via other ways. *If the university were to **revisit policy on bicycle paths through campus***, and provide a cross-campus avenue or avenues of some kind, this could **increase options and safety** for cycling in the neighborhood close by. Regardless, an Ivy and 2nd intersection that protects cyclists and guides them more safely across and beyond 2nd would be welcome.

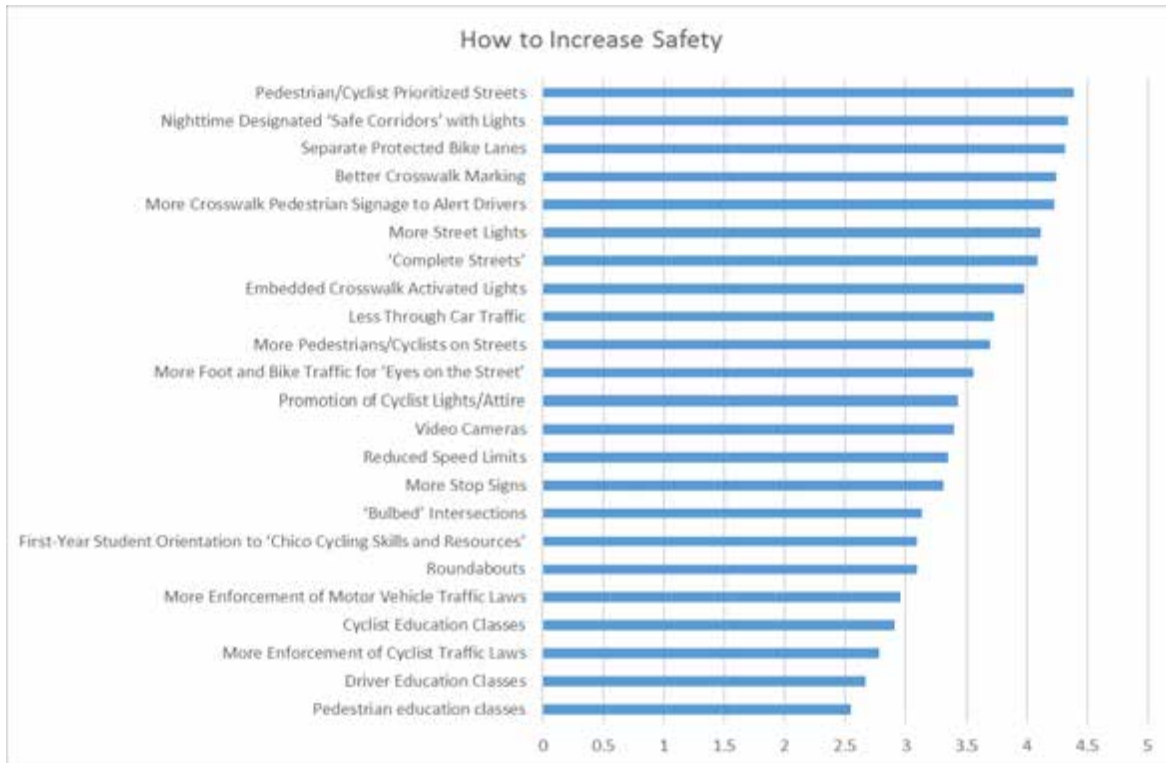
Other high-volume intersections in or near the neighborhood that would benefit from bike-friendly enhancement and cyclist protection include Ivy at 5th, 8th, and 9th; Salem at 8th; Warner at West Sacramento; and a number of intersections on Walnut/Nord to the west.

Feasibility is excellent, as these have already been installed elsewhere in Chico. *Average costs for a bike box range from \$1000 (Bushell et al.) to \$3000 or more (Weigand et al.)*, and are lowest if there's no change to the curbline. The City of Portland, Oregon, estimates \$5000 per bike box with green thermoplastic, other pavement markings, related signage ("Stop Here on Red" and "No Turn on Red"), and installation (Weigand et al.).



Part 4: Enhance Intersections and Crosswalks (Especially 5th-9th)

In our Existing Conditions report, we documented that students felt that safety could best be improved by pedestrian/cyclist prioritized streets, protected bike lanes, and complete streets, and by better night lighting, but also *by better marking, signage, and embedded lights for crosswalks at intersections.*

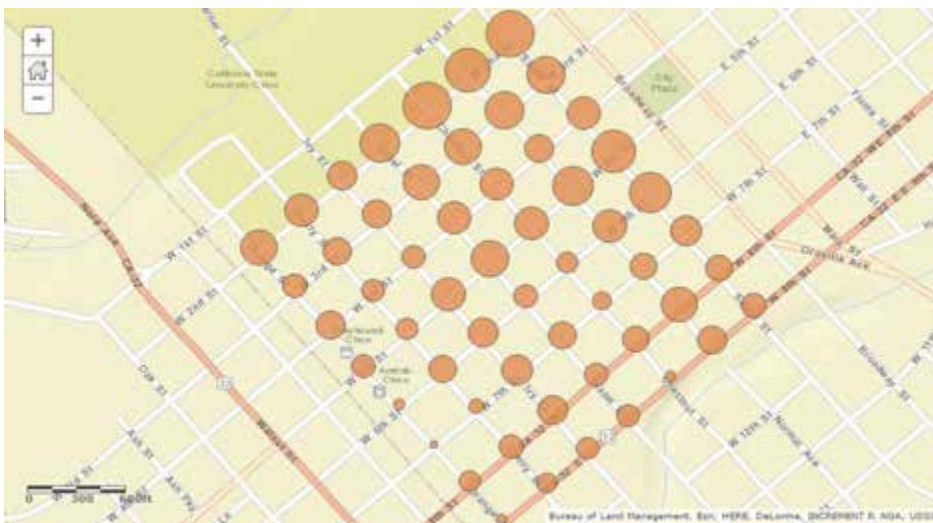


Street audits show the lack of intersection enhancement especially in the ‘deep streets’ (6th and 7th):



Street audit map 1. Traffic-safe?

The *high ratings for both Second and Salem* reflect recent planning and investment that have redesigned and restructured flow of people and vehicles on these streets. Low scores for much of 6th and 7th correspond to minimal signage, marking, lighting, and engineering at these intersections. Also, most 8th and 9th intersections are unwelcoming to pedestrians and cyclists along these one-way state highways.



Street audit map 2.
Intersections / crossings well-marked?

Slight, minimal, or no crosswalk markings are noted especially at some of the intersections characterized by lower car traffic volume along 6th, 7th, Cherry, and Orange.



Street audit map 3. Intersections / structurally enhanced?

Intersections along 3rd, 4th, Cherry, and especially 6th, 7th, and southern Orange are the weakest in this category.



Street audit map 12. Intersections / overall quality (*larger circle = higher quality*)

This map, summing previously mapped intersection attributes, clearly shows the *disparity between streets with enhanced intersections and those without*. 2nd, Salem, and eastern 5th streets are rated highly. 8th and especially 9th rank lower, except at Ivy and Salem. 3rd and 4th are much lower-rated. Worst by far are most intersections of 6th, 7th, Cherry, and Orange.

PROPOSED: enhance intersections along 6th and 7th east of Ivy with (re)painted crosswalks, signage, and possible embedded crosswalk lights and/or bulbouts. These are low-volume streets for car traffic.

Costs would be low to moderately high, depending on kind and degree of intervention. Median costs for each intersection: pedestrian crosswalk \$310 each; signs \$200 each; high visibility crosswalk \$3000 each; bulbout/curb extension \$10,000 each (Bushell et al.). *Total for both streets (11 intersections) \$3,500 to \$50,000+.*

TIME FRAME. Near- to medium-term.



Unmarked intersections of 6th and 7th between Ivy and Salem

PROPOSED: enhance selected intersections along 8th & 9th with (re)painted crosswalks, signage, and possible embedded lights. These streets are CA DOT Route 32 with high-volume one-way traffic on each. Students note 8th and 9th as most dangerous, with Ivy and Hazel also singled out. The main crossings at Ivy have recently been enhanced but more could be done with flashing embedded lights and potentially bike boxes there.

The time frame could be near to medium term. Costs would be low to moderately high, depending on kind and degree of intervention. *Total for both streets (10 intersections) \$3,250 to \$50,000+.*

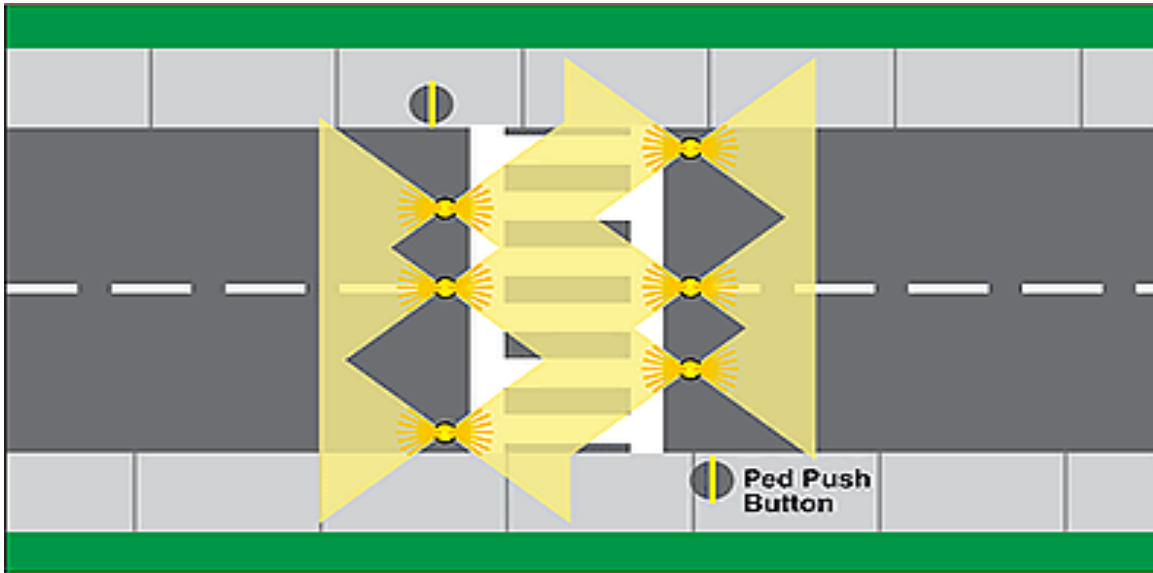
Other intersections that would benefit from eventual enhancement include **Cherry and Orange**, which have no crosswalk markings at most of their intersections.



Orange and 5th intersection

Illuminate Crosswalks With Embedded Lights or Flashing Beacons

One student proposal for 8th and 9th intersections with Ivy suggests Amber Crosswalk Illuminated Systems for about \$6000 each crossing plus labor for installation.



Crete and Smith

Here is an illustration of the system if installed on 3rd St, along with an illustration of 'red-zoning' prohibiting parking close to the intersection:



Crete and Smith

Other alternatives here include *flashing beacons* such as these in Portland:



These cost an estimated \$12,000 each to install at a crossing, or \$24,000 per location for the minimum of two (Weigand et al.). Certainly *Ivy at 8th and 9th* is a candidate for such improvements.

Red-Zone Block Edges: Reduce Parking for Visibility

The idea of red-zoning many intersections was proposed by another student, who writes:

“If the last parking spot on the edges of each block were changed into painted bike lanes similar to that on the corner of 1st and Broadway it would increase visibility for drivers at intersections and provide a safe place for cyclists to stop apart from the rest of traffic. The side-walks could also be drawn out in some areas for the safety of pedestrians, indicated by paint as well. This would be done on all crossings in the South Campus Neighborhood *(locations pictured by black dots in the map below).* ... These 138 parking spots would be colored in and painted as zones for cyclists to stop before crossing an intersection.”



Fitch

Costs here would be low per intersection, for paint and labor mainly, but approval potentially challenging as this would remove parking from the neighborhood. Total cost perhaps around \$1000. Some *careful selection of priority intersections* would be more feasible and would of course lower the cost.

Part 5: Secure Bike Parking and Storage

Along with protected bike lanes, **secure bike parking** is the other essential and often-neglected component of a mature cycling infrastructure. It is a key investment for businesses to thrive in a walkable neighborhood. Without such parking, shopping by bicycle is hindered and commuting stifled. Bike parking spaces cost much less than car parking spaces, saving money for the town and university, and of course can also reduce related roadway costs as well as congestion, pollution, and carbon emissions.

The university and city have expanded bike parking capacity recently, but *bicycle theft levels remain high* in Chico (Chico 2015b). This deters commuters and shoppers, and bike parking facilities with more security than open racks could make an enormous contribution. Potential **solutions abound** and have been demonstrated here and worldwide – *visible bike racks in secure locations* (as in front of the police station on W. 2nd Street); *prioritized bike parking by business and office windows*; *bike lockers* (as at Meriam Library); *bike cages* (as on 5th Avenue by Enloe Hospital), *supervised bike lots* (as at the Sacramento State campus), *video-surveilled racks*; *differently-priced tiers of bike parking*; and– all of which are cheaper and use far less physical room than parking spaces for cars. Where such secure bike parking can be *integrated into carpark structures*, further economies of scale can be achieved.

All of these initiatives would be fully in line with **state and city standards**, from CalTrans’s endorsement of NACTO priorities for multimodal transport, and SB 375’s emphasis on reducing single-passenger car trips, to support for bicycle infrastructure in the City’s 2020 Climate Action Plan, 2030 General Plan, Bicycle Master Plan, and Capital Improvement Plan.

As noted in our Existing Conditions report, these city and state goals are congruent with **CSU Chico’s plans and priorities** as well. In 2007, then-CSU Chico President Paul Zingg was one of twelve original signatories of the *American College and University Presidents’ Climate Commitment* (ACUPCC) statement. The university’s own Climate Action Plan of 2011 voluntarily includes accounting for ‘Scope 3’ carbon emissions from commuting, travel, and solid waste in developing its strategies for energy use reduction. The university’s Transportation Demand Management Plan, developed in 2009 and continually updated,



aims to reduce single-occupant motor vehicle trips to and from campus, through infrastructure improvements and supporting programs.

Bike Racks in Visible Secure Locations

Bike parking near the campus is generally not fully secure, although the bike racks recently installed on 2nd Street between Chestnut and Salem may be better than others as they are directly outside the police station:



Bike racks in front of police station on W. 2nd Street

Bike racks that sit outside windows of corner commercial establishments offer more security than many other locations. A dozen bikes can park in a couple of car parking spaces liberated on the corner, and can bring business to local stores in this way. Where such intersections are red-zoned, as proposed above, bicycle parking can replace car-parking. Here is an example from Portland, Oregon:



Eaton



Steel ‘wave’-style bike racks like that pictured on the left can each hold seven bikes and are available in quantity for about \$220 each (through Reliance Foundry, for example, or other vendors). Bollard racks like the one on the right can double as bollards and can be purchased for \$130 or less each (through The Park or other vendors).

The City has installed ‘bike corrals’ at several locations downtown in place of traditional auto parking places, increasing overall parking capacity, and has a policy of installing such corrals wherever a business requests them (Bicycle Master Plan). Expansion of these around centers of civic and commercial

activity in the neighborhood such as St. John's / Notre Dame on Chestnut and the businesses around Ivy & 5th would be feasible and modest in cost.

Bike Lockers

Bike lockers are individualized self-enclosed weather-proof bike-size containers. A few rentable bike-size lockers of this kind are presently available from the university at Meriam Library for \$30 per term, or \$20 for the summer. Car parking near the campus is much more expensive, at \$125/term or \$200 reserved.



bike lockers

More bike lockers to be purchased and rented by the city or university would add multi-modal capacity, and could potentially reduce demand for car parking spaces. A bicycle locker's median cost is a couple of thousand dollars (PBIC). They could be installed at ground level within parking structures or alongside buildings on campus or close by.

Bike Parking Facilities: Create Bicycle Stations

Combining full security with cost-effectiveness can be addressed through **bicycle stations**, *parking structures with space dedicated to supervised or surveilled bike parking*. Such structures can be built new on unused land, and can run the gamut of cost and sophistication (to \$250,000 or more).

Despite the expense, costs for such bike parking facilities are still far lower than for automobile parking, even in surface lots.

PARKING CAPITAL COSTS (PER SPACE)

BICYCLES	
Racks	\$100
Lockers	\$500
Automated Garages	\$1,000
AUTOMOBILES	
Surface Parking	\$3,500-\$5,000
Structured Parking	\$12,000-\$18,000
<p>Table Source: Michael Replogle and Harriet Parcels, <i>Linking Bicycle/Pedestrian Facilities with Transit</i>, prepared for U.S. Federal Highway Administration, Sept. 1992, p. 3. Costs cited exclude land costs.</p>	

cited at <https://www.transalt.org/sites/default/files/resources/blueprint/chapter9/chapter9e.html>

Here are a few examples:



Chicago's McDonald's Cycle Center



Underground bike parking station, Groningen, Netherlands



Left: e-card-accessible bike cage at [Wyndham Vale station](#), Melbourne, Australia



Right: lockable bike cage in Templin, Germany (both images Wikimedia Commons)

A City survey in 2015 indicated that one of the most desired places in Chico for a bike storage facility was close to the CSU campus along West 2nd Street:



Chico Bicycle Master Plan 2015; survey results for 'bike facilities needed'

Perhaps there is land presently devoted to open surface parking lots in this area of the neighborhood that could serve for such a bicycle facility close to campus or downtown. *See below* in the section 'Focus on the northwest' for discussion of possible bike parking siting along with other developments in the open lots on West 2nd west of Cherry.

Bike Parking Facilities: Convert Existing Carpark Structures

An alternative to building new bike parking stations is to convert or enhance existing car parking structures. Existing car parking structures in the neighborhood could offer potential secure spaces for bicycles if renovated, managed, and staffed properly.

One student proposal is to add an underground level to the 2nd and Chestnut parking garage, in order to have a facility like one at UC Davis:

Proposed Changes

- ▶ Add an underground level to the south campus parking garage
- ▶ Construct a double decker bike racking system for maximum storage while minimizing cost and space
- ▶ Make an alternative entrance to bike parking level to reduce possible car related incidents
- ▶ Charge a bike parking permit for a whole semester at a flat rate of \$30, \$25 if the bike is registered
- ▶ Students able to purchase daily bike parking permit for \$.50
- ▶ Create a new security guard position to monitor bikes from 7:00am -10:00pm weekdays and 8:00am- 8:00pm weekends
- ▶ Offer students summer storage for their bikes for \$20



Bike Parking garage at UC Davis

Yeh

Potential Benefits

- ▶ A designated bike parking garage level could:
 - ▶ Encourage bike riding by giving bikers peace of mind knowing their bike is safe
 - ▶ Reduce bike theft, which is the most prevalent crime in Chico
 - ▶ Create construction jobs
 - ▶ Earn the school more annual revenue
 - ▶ Change the perception of bike riding, making it something convenient people want to do instead of have to do
- ▶ Potential Downsides
 - ▶ The project may be hard to put into motion because of the challenging logistics of adding an underground level to the parking structure
 - ▶ Schools like UC Davis which already have bike parking garages, have run into the issue of bikes being abandoned by owners, but have created a bike auctioning system to fix this issue

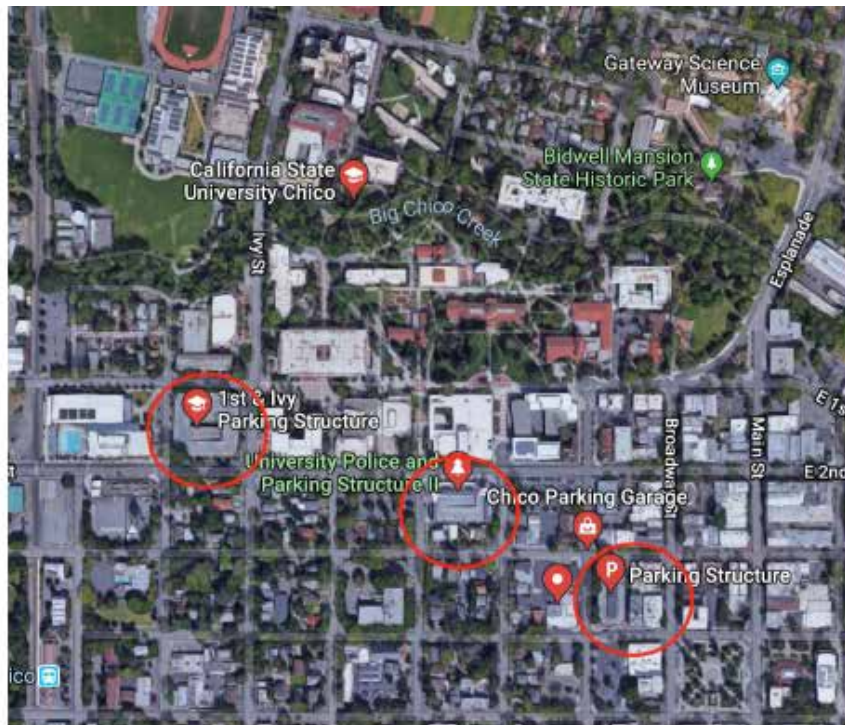


Yeh

Although the costs of adding such an underground level are almost certainly prohibitive (the student estimates them at \$4 million), the idea of one level of an existing carpark garage being used for bicycles is a promising one.

Another student proposal envisions transforming the ground level of several existing carpark structures in the neighborhood:





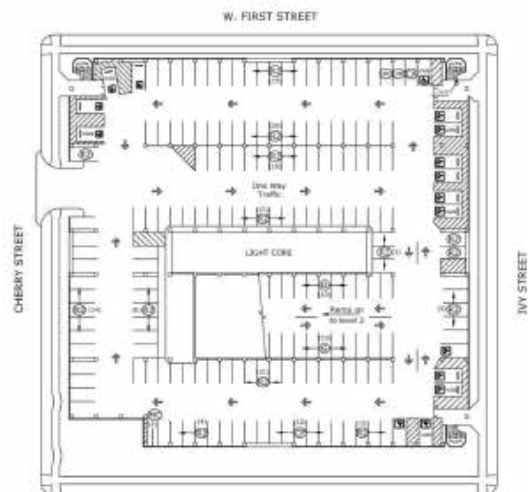
Map Overview of the 3 parking structures that will be used for the first level conversion of bike storage

Askil & Cerri

Conversion of First Level Parking Structures

1st and Ivy, 3rd and Salem, UV Police and Parking Structure

Currently the parking structures all have three levels of automobile parking. On the first level of the parking lots there are 191 parking stalls² that will be converted to bike storage. By adding double decker bike racks we can have 8 bikes total per stall. The majority of parking on the first floor is Reserved Parking (R-2 Permit). These stalls can easily be moved to the second floor. As for handicapped parking, the 16 slots can remain on the first floor.



Askil & Cerri

Conversion of First Level Parking Structures cont.

Double decker bike rack

- 4 racks on the bottom and 4 racks on top
- 8 bike racks total per stall
- 1,145.00 per each bike rack

We would need 23 of these double decker bike racks in order to fit the 191 stall spaces of the first level parking structures³.



With double-decker racks for these proposed renovations costing about \$26,000 in total for 191 stall spaces (a cost of about \$140 per stall space), this medium-term project seems ***eminently feasible at modest cost*** at one or more of these facilities. Fees charged could pay for parking lot attendants and/or 24/7 videosurveillance.

As noted in our Existing Conditions report, *such university-city transportation demand planning collaborations elsewhere in the US* have achieved outstanding results. For example, recent planning at **Stanford University** has allowed campus size to increased 20% without increasing traffic. *The university has saved close to \$100 million* overall through a combination of strategies to reduce private car commuting rates. Among other things, *it raised car parking prices 15% and invested \$4 million in bicycle facilities*, thereby ***motivating an estimated 900 people from cars onto bicycles*** – *instead of spending \$18 million for more car parking* for them (Schmitt 2013). Other recent university leaders in the US in such cost-saving collaborative projects have been *MIT, CU Boulder, Portland State University, UC San Diego* and of course *UC Davis*.

As land close to downtown and the university becomes more valuable over time, the desirability of having integrated bike and car parking can increase. Bike parking takes up perhaps one-tenth the space that car parking does, which means that, for example, “changing an office car park with 400 spaces to a combined 200-space car and 200-space bicycle park reduces land area requirements by 45%.” (Cyclenation)



Bike Share Program

The same students who propose converting three South Campus carpark structures to first-level bike parking also propose a bike share program for Chico over the next 20 - 50 years.



Bike Share Program

A significant con includes pricing of the programs. Bike share programs would cost no more than \$50,000.00 per installation of bike share station¹². Below the chart shows an approximate estimation of how much installation of the bike share would be based on size of docks and how many bikes as well as annual operating costs.

General Model	Proposed Campus Model
<ul style="list-style-type: none"> Annual Members: \$30-\$95 <ul style="list-style-type: none"> First 30-60 minutes free every day \$2-\$4 for each additional 30 minute segment Casual Riders <ul style="list-style-type: none"> 1 Day Pass: \$5-\$10 1 Week Pass: \$10-\$25 1 Month Pass: \$15-\$40 	<ul style="list-style-type: none"> Gold Member: \$40 <ul style="list-style-type: none"> First 60 minutes free \$1 for each additional 30 minute segment Silver Member: \$25 <ul style="list-style-type: none"> First 30 minutes free \$1 for each additional 30 minute segment Casual Riders <ul style="list-style-type: none"> \$1 per 30 minutes
18-24 Hours Service	24 Hour Service

Station Size (Docks)	Bikes	Equipment and Installation Costs (Includes Bikes)	Approximate Annual Operating Costs
11	6	\$35,000 - \$40,000	\$12,000 - \$15,000
15	8	\$45,000 - \$48,000	\$18,000 - \$21,000
19	10	\$53,000 - \$58,000	\$24,000 - \$28,000

Above, the chart shows how people could pay for their bike either annually, day passes, or by a certain membership.

Askil and Cerri

Although there are many ways to encourage cycling in Chico that are cheaper and presently more feasible than a bike share program, such programs have blossomed rapidly in many larger urban areas over the past decade and undoubtedly will become more routinized and thinkable over time.



Part 6: Reimagine Car Parking

It's beyond the scope of this report and the work done by students to speak to the details of car parking planning policy in the neighborhood. Such policy must balance many interests and priorities across a wide range of constituencies. However, the general goals of reducing car use and fostering multi-modal alternatives are soundly established in all relevant planning commitments by the city and university, as noted above. To effectively achieve these goals, one challenge in Chico will be to gradually reduce demand for, use of, and availability of low-cost parking near the campus and downtown.

Of course, low-cost parking is not only a spur to private automobile use but also a highly valuable public good which users seldom wish to give up. Northwestern European cities that have moved to bike-friendly planning and world-class walkability over the past five decades have achieved this not only through positive pedestrian and cycling infrastructure but also through land use planning, taxation, roadway design, and control of parking that disincentivizes drivers through higher costs for car use (Pucher and Buehler). A gradual introduction of some of these measures will be necessary for full realization of stated planning goals and commitments.

Enhance and Convert Surface Car Parking Lots

A good proportion of land within the South Campus and downtown areas is occupied by open surface car lots, a legacy of earlier planning priorities that continues to make it comfortable and relatively inexpensive to use private cars for basic travel and daily needs. Indeed, *more first-year students owned a private car than owned a bicycle*, despite the fact that a car costs on average 20-50 times more and requires continuous substantial outlay for fuel and maintenance! Moving forward with the smart growth commitments of the city and university which envision reduced single-occupant car use, and possibly also taking into account the advent of some use of autonomous vehicles in the medium to longer term, *these car parking lots are prime sites for repurposing over time.*



Hide, Beautify, Transform

At a number of places in the neighborhoods, open street-level parking lots run along the street itself. They are 'broken teeth' disrupting the continuity of pedestrian experience. Here are some such lots in the neighborhood:



'Broken teeth' lots in South Campus neighborhood

Duany et al. write “In communities blighted by exposed parking lots, shallow, inexpensive, and temporary *'lot liner' buildings* should be considered as a retrofit... When no other solution is available, *an attractive wall or hedge* can be built along the sidewalk frontage – but this should be considered a last resort” (Duany et al. 2010, 11.5).

The authors also speak to parking areas as public habitable spaces that benefit *from trees planted close together* so that their crowns will touch at maturity, and from *pedestrian paths and permeable surfaces* (Duany et al. 2010, 11.6).

The lots along Salem from 4th to 7th are prime candidates for such beautification or conversion, adjoining as they do the downtown and its plaza:



'Broken teeth' lots along Salem



Salem looking northeast from 4th St.

Salem farther north closer to campus is an interesting and enhanced street, and beautifying, hiding, or converting these lots would extend the quality of downtown life significantly.

The lots along **Cherry from 4th to 5th** are also prime candidates for beautification or conversion, as they break up what is otherwise a pleasant tree-shaded street close to campus.



'Broken teeth' lots on Cherry between 4th and 5th



'Broken tooth' lot at southeast corner of Cherry & 4th

Just as Duany et al. note, low-cost lot liner buildings on the streetside periphery of these lots could serve commercial purposes and create a more exciting pedestrian street life. Here are two images from Portland of how a center city parking lot has been ringed by food stands that create lively and walkable public street experience:



Portland, OR downtown; food stands around a parking lot



Portland, OR downtown; streetside sidewalk life created by food stands around a parking lot

Infill, beautification, or conversion of the bare carpark lots on west 2nd, at Orange and Cherry, *would mend 'broken teeth'* that disrupt continuity of experience and travel through this microneighborhood, and *renewed tree cover* west along 2nd from here would help relieve the harshness of what is at present a no-man's-land that blights connection with neighborhoods to the west.



Unbeautified 'broken teeth' lots along west 2nd at Orange.



Looking southwest from Orange between 2nd and 3rd

Part 7: Focus on the Northwest: Parks, Gardens, and Markets

(West 2nd and 3rd, at Orange and Cherry)

In *Walkable City*, Jeff Speck emphasizes choosing key promising streets and subneighborhoods for priority enhancement and redevelopment, calling this ‘urban triage’. We have already noted Chestnut, Hazel, Ivy, and Warner as key streets; the parking lots on Salem between 5th and 8th and on Cherry between 4th and 5th, and we will discuss below improvements to the ‘deep’ numbered streets of 6th and 7th and to the reaches of Orange south of 5th St.

But as noted above and in the introduction, *the northwest corner* of the neighborhood stands out among all these as having special potential for neighborhood enhancement, *around where west Second meets Orange and Cherry*. The area is a bridge to Nord Avenue to the west, but presently much of it is a *relative wasteland* of bare parking lots. Underdeveloped in street amenities and tree cover, it is unwelcoming to pedestrians despite being near important services and institutions, including the university and the rail station.



Throughout this northwest corner of the neighborhood, and in all such projects, **planting and tending trees** will be crucial to restore a pleasant and liveable walkable streetscape, as most of the area bakes in the open sun and offers no shade. At about \$250 per 8-10' tree planted (howmuch.net), this would incur significant expense. This could be scores of trees and thus tens of thousands of dollars. However, the area will never be welcoming and suitable for outdoor public life without it.

Many student proposals focus in different ways on how this part of the neighborhood could be enhanced. One option is **enhancement of bare parking lots**, or at least their adjacent public rights-of-way, with trees and parklets and park-like facilities. Another is the **conversion of these parking lots** into plazas, parks, and gathering spaces with pedestrian and bike paths. Further, **a grocery store, cafés, food trucks, and other small businesses** might bring *foot traffic and 'eyes on the street'* that could help further revitalize this promising north Orange/Cherry locale that is the link between campus/downtown and the commercial and residential neighborhoods of Nord Avenue, on the one hand, and the interesting mixed neighborhoods of mid-Cherry and mid-Orange, on the other.

The bleak lot west of Orange at 2nd/ 3rd is a particularly inviting space for renovation of this kind:



Kliss

Where

West 3rd and
Orange Street



Devetter

Current Status of the 3rd and Orange Lot



- The lot is a broken tooth of the South Campus Neighborhood with its lack of landscaping and visual appeal and therefore demands renovation
- The location of the parking lot should be noted as it borders the South edge of campus and industrialization. The Wildcat Recreation Center is adjacent to the lot where many students already go and center their activities around.

Huskisson & Sohl





Gravel intermixed with weeds from the Orange Side of the Street



The lot bakes in the sun and chain linked fences contribute to its unpleasant architecture

Huskisson & Sohl

Conversion Project: Shipping Container Park

One innovative student proposal suggests a **shipping container park** for low-cost conversion of this parking lot or part of it:



Huskisson & Sohl

The proposal draws inspiration from such a park called 'The Eddy' in Reno, Nevada, which took about a year and a half to be realized.

Inspiration - The Eddy



The Eddy is a shipping container park new to downtown Reno, Nevada. It brings value to the area its the location on the Truckee river is an up and coming part of town. The area is constructed from several containers with communal areas inside. These communal areas are fitted with bocce ball courts, giant Jenga and connect four. Seating areas include picnic tables, bar stools and fire pits.

Huskisson & Sohl

Eight or ten stackable containers could be used, at a base cost of about \$3500 each. With modifications to the containers along with inexpensive tables, chairs, and landscaping, total cost might begin at \$50,000. Small and student businesses could be incubated, and food trucks incorporated as desired.





Goals for the space

- Students and neighborhood integration
- Showcasing small local businesses
- Student seating areas for studying
- Artists collaborating with the park and adding visual appeal
- Recreational usage



Huskisson & Sohl

Conversion Project: Park and Public Garden

Another proposal suggests **a park with a public garden**, Bocce ball and corn hole games, a shaded seating area, bike racks, and pleasant fencing, citing successful such parks by other universities.:

Fruit and Vegetable Box Garden



Having a garden will not only provide fruits and vegetables, but also a sense of community in Chico, bringing everyone together to make sure the garden thrives. This can also be a learning place for children of all ages to understand what growing a garden entails.



Devetter

Fencing

A wall of shrubs will be planted against the barbed wire fence closest to the railroad tracks in order to make the area more appealing, as well as add some trees into the environment. A white picket fence will be placed around the other three sides to block off the park, with an entrance on Orange street. Both the shrubs and fence will increase the curb appeal and overall image of the park.



Devetter

Other places this has been successful

Garden at University of Portland



Park/outdoor seating at Clemson University

Devetter

Assessment and Rough Cost

Taking out concrete and carrying it away -- \$30,00

Buying and planting grass-- \$1,500

Mulch -- \$600

Benches and picnic tables-- \$600

Thuja Green Giant Evergreens -- \$1,000

Two bike racks -- \$300

White picket fence -- \$400

Bocci court and supplies --- \$200

Corn hole supplies --\$100

All of the garden boxes and vegetables fruits -- \$600

Total = \$35,500

Devetter

The student estimated total cost of this plan at \$35,000.

Conversion Project: Community Garden and Green Space

Another student proposed a community garden and green space with tables, benches, bike racks, and a videosurveilled rose garden like the Petersen Rose Garden on campus, estimating cost at \$25,000.

These proposals, however, could prove considerably more expensive, possibly including portable restrooms at about \$700 each, and likely to require a maintenance budget and policing. Without some businesses on site, it is unclear what would keep the park well-used and safe.

Conversion Project: Grocery Store and Associated Small Businesses

Other student proposals suggested an **‘anchor’ grocery store with secured bike parking** and associated smaller businesses would be welcome in this part of the neighborhood.



Takoma Park TPSS Co-op, Washington DC

Students surveyed in the Existing Conditions report said that the most significant need for a car in town is to get groceries, and there is no such store within pleasant walking distance in this neighborhood.

Such a project would be a major addition to the neighborhood and could vitalize this present area which lacks amenities and charm. *This would be a long-term project which would require extensive exploration and debate.* Cost could run to millions and require major infusion of funds by the university or investors leasing property.

Cherry and 4th Open Grassy Lot: Community Garden & Other Projects

Just south of the problematic bare lots of West 2nd is an inviting partly-wooded **grassy field** running along 4th Street between Orange and Cherry. It sits east of well-designed new business lease buildings along Orange, and north of pleasant apartments with mature trees shading their sidewalks.



Chico South Campus Neighborhood Project

My proposal involves turning the open land at 4th street between Orange and Cherry into a community garden.

This project would include transforming the open land into a highly useful and interactive community garden. The community garden would include not only an abundance of flowers and edible foods, but also areas for gathering. There would be multiple seating areas for people to relax and enjoy the garden. Art forms will also be incorporated into the garden by using various sculptures throughout the walkways and embedding them into the garden itself. A community garden would be beneficial not only to the community as a whole but also to each individual that participates in the making of it.



Lynch

Above is one proposal for a community garden on these grounds, modeled on the successful Strathcona Community Garden in Vancouver, Canada, estimating costs at one to four thousand dollars to start, with \$200 per year maintenance, with hopes for collective sources of funding and work:



Ways to Reduce Costs

Some ways to reduce costs include forming partnerships with organizations that have resources such as businesses, universities, community colleges, hospitals or faith-based groups, making the project public to increase the amount of donors and volunteers, selling garden produce or products such as salsa, preserves, or artwork, selling memorial bricks, benches, fences, posts, offering classes in gardening, art, cooking, hosting harvest celebrations, guest speakers, tours, meals, tasting events, using solar power on top of the shed, or creating a system to collect rain water.

Students have also proposed for this lot a dog park, a playground, a grocery store, a farmers' market, and food trucks, as well as a gathering space. However, it is presumably privately owned, and it seems also fine to leave it as an unpurposed open space that can provide a natural moment on one's walk to or from the campus. Once the west 2nd wastelands to the north are enhanced, connections on Cherry and Orange to 5th Street and further south may flourish, and in the long run this space may be ideal for a denser use purpose such as those proposed.

Part 8: Focus on the Southwest: Improve Safety, Shade, and Street Life

Orange and Cherry South of 5th Street

The southwest corner of the South Campus neighborhood along Orange and Cherry from 5th to 9th adjoins the railroad tracks. Cherry, 6th, and 7th in this area has mainly modest single-family homes. Orange, backed by the railroad tracks, has light industry, warehouses, a few retail establishments, artisan workshops, and a new apartment complex (Portland Place) in these latitudes. As much of this stretch of Orange is bleakly treeless and industrial and is deserted after working hours, especially southward toward 8th and 9th, students find it undesirable and avoid it, especially at night.



Orange Street





Orange is however a fascinating street with great potential, with pleasant sidewalks and landscaping presently between 5th and 3rd, and with an evolving mix of uses including small fabrication labs and the new 'Portland Place' apartment complex just south of 5th:

Idea Fab Labs, Orange St



Portland Place Apartments, Orange St

A challenge over time will be to enhance the other blocks (6th-9th; also 2nd-3rd) while fostering overall increased lively use of the street for a greater proportion of the day and night. *Making 6th and 7th a pair of one-way streets with protected bike lanes*, as proposed above, could result in heavier use, more business success, and greater safety on both Cherry and Orange in these latitudes.

As was noted about the stretch of west 2nd from Cherry west to the railroad tracks, ***planting and tending trees*** will be crucial to restore a pleasant streetscape, as most of the area here also offers no shade. At about \$250 per 8-10' tree planted (howmuch.net), this could be scores of trees and thus tens of thousands of dollars. However, planting intelligently here could sow the seeds for great things in the medium and longer term in this somewhat neglected but promising part of the neighborhood.

Invest in Trees and Green Spaces

As we noted in our Existing Conditions report, *more than half* of students surveyed in our Existing Conditions report cited the ***many and beautiful trees*** as *what they liked best* about the South Campus neighborhood, citing cool shade over sidewalks and streets, the green milieu, 'nature', and the 'enclosed, safe feeling' they bring to many parts of the neighborhood. In summer especially, this ***mature urban forest*** – cultivated and celebrated in Chico for more than a century, and remarkably well-preserved in much of the neighborhood - reduces the urban 'heat island' effect and makes streets pleasant for residents, pedestrians, cyclists, and drivers.

Recent city budget difficulties have reduced investment in professional care of this unique and life-enhancing collective resource in this neighborhood as elsewhere in Chico, as *extreme drought conditions* have weakened or killed many trees and *long-term climate change* threatens others. The researchers concur with the students that *no other single aspect of the neighborhood contributes as much to the quality of daily experience* as this forest passed down to us from previous generations. Thinking of this conjuncture as ***a 'natural budget' crisis*** may help us see that this critical dimension of collective capital stock in this neighborhood – which keeps property values higher than they otherwise would be – should be protected and invested in, and not be further damaged, eroded, or spent down without the most serious consideration of the consequences.

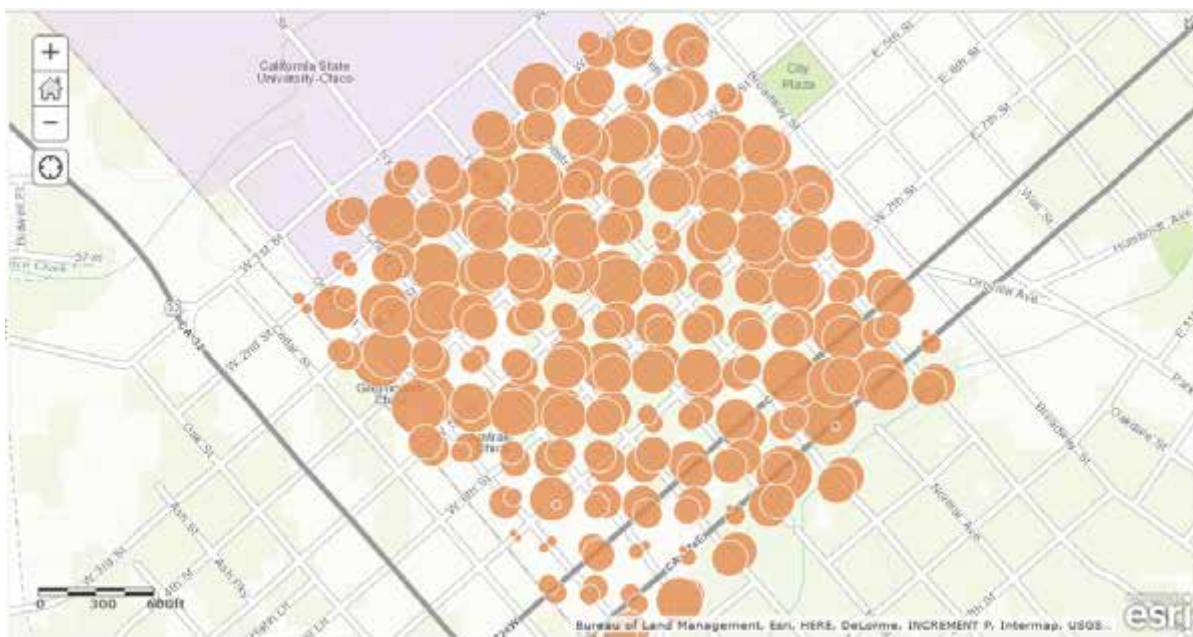
One of the six main goals of the Chico 2030 General Plan's section on Open Space and Environment is to 'provide a healthy and robust urban forest'. Among other priorities noted, the City and its partners should aim to enhance the street tree canopy; require street and parking lot tree planting in new development;



work with commercial parking lot owners to improve the shade canopy; and use volunteer groups and property owners to plant new trees, care for newly planted trees, maintain young trees, and provide information and instructions regarding such care and maintenance (2030 General Plan OS-6.1.1). The City's projected Urban Forest Management Plan (UFMP), still in draft, calls for 'a continuous forest canopy [with] trees of all sizes at maturity... multi-aged and diverse,' with citizens as active partners (Chico UFMP). Urban forest restoration projects are also one kind of project congruent with the U.S. Conference of Mayors' Climate Protection Agreement (USCMCPA), signed by the City in 2006.

Clear priority locations for improving Chico's urban forest in the South Campus neighborhood can be seen on this street audit map from the 'Existing Conditions' report:

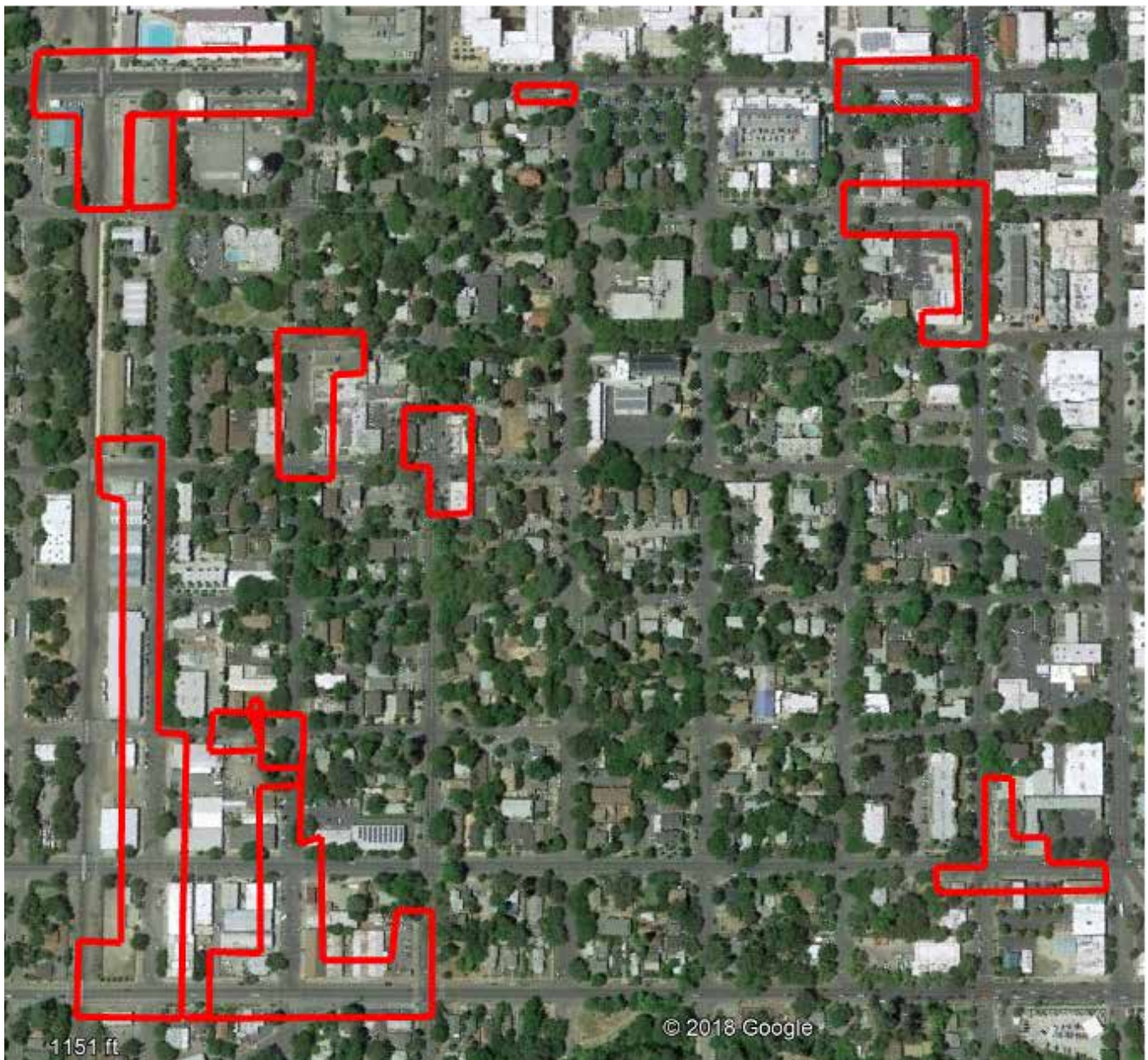
Street audit map 11. Mid-blocks / tree cover? (*larger circle = more tree cover*)



As can be seen, areas where this crucial dimension of quality of life is most impoverished are *along westernmost 2nd Street, along southern Orange and Cherry streets, and on stretches of 9th Street.*

Building tree cover for the future in these blocks would be a great investment in the City's future and quality of life. For one bare block, five or six medium-size mature well-chosen trees can provide a continuous canopy of shade. The cost for such trees while they are eight to ten feet high is roughly \$200 each, with roughly \$50 for labor, for a total of \$250 *per tree* (howmuch.com). Thus young shade trees can be planted on one side of *one full block for about fifteen hundred dollars* or potentially more. Costs rise quickly if larger older trees are planted or if sidewalk or pavement must be removed.

Given how crucial such trees are to any quality of environment in the neighborhood, planting such trees on bare sun-blasted blocks such as those on west 2nd or south Orange seem an excellent investment over time for modest cost in the near-to-medium term. Mobilizing students, citizen groups, and businesses to monitor and help care for such trees could reduce their maintenance and care costs going forward. Thus, based on city planning principles and our own analyses of the gaps in tree cover, *we recommend planting three to six shade trees each on one or both sides of the following blocks in this image:*

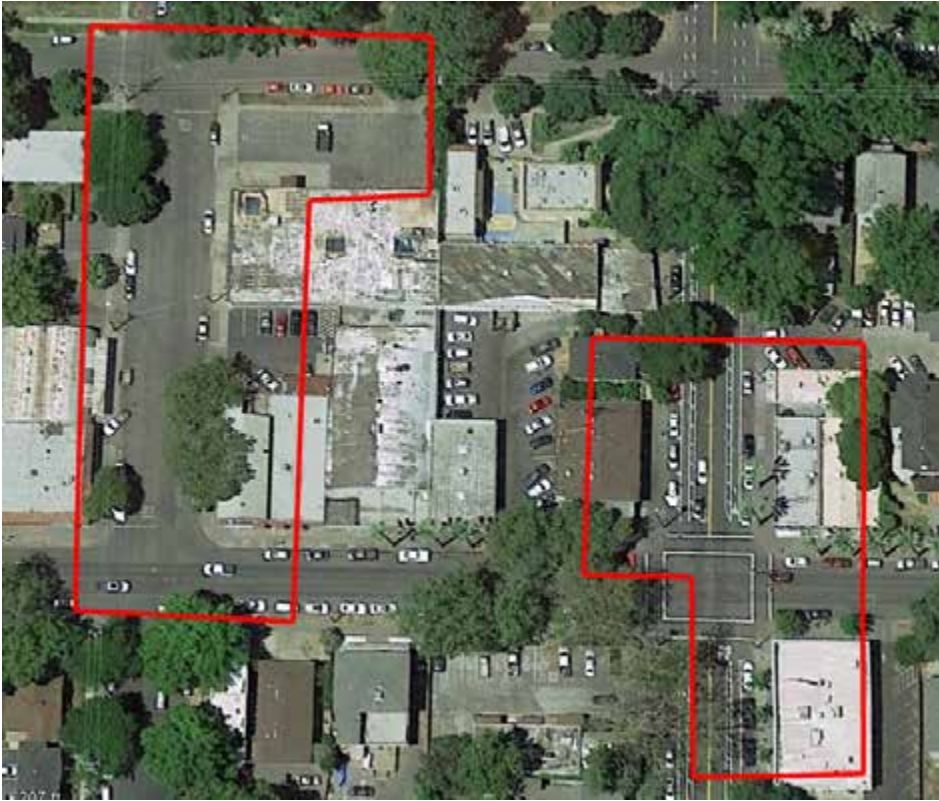


This would be very roughly a total of 32 *block sides*, at a cost of \$1500 or more *per block side*, for ***a total cost of about \$50,000*** or more. Priority areas include west 2nd between Cherry and the railway tracks, west 2nd between Salem and Normal, west 3rd between Salem and Normal, Orange between 2nd and 3rd, Cherry between 3rd and 4th, Orange south of 5th, 8th & 9th between Ivy and the railway tracks, and 8th between Salem and Main.

A closer view of the issues on the western side of the neighborhood:



An example of these tree cover gaps are shown in the following images from mid-Cherry/Ivy:



tree cover gaps mid-Cherry and mid-Ivy



Cherry Street looking north from 5th



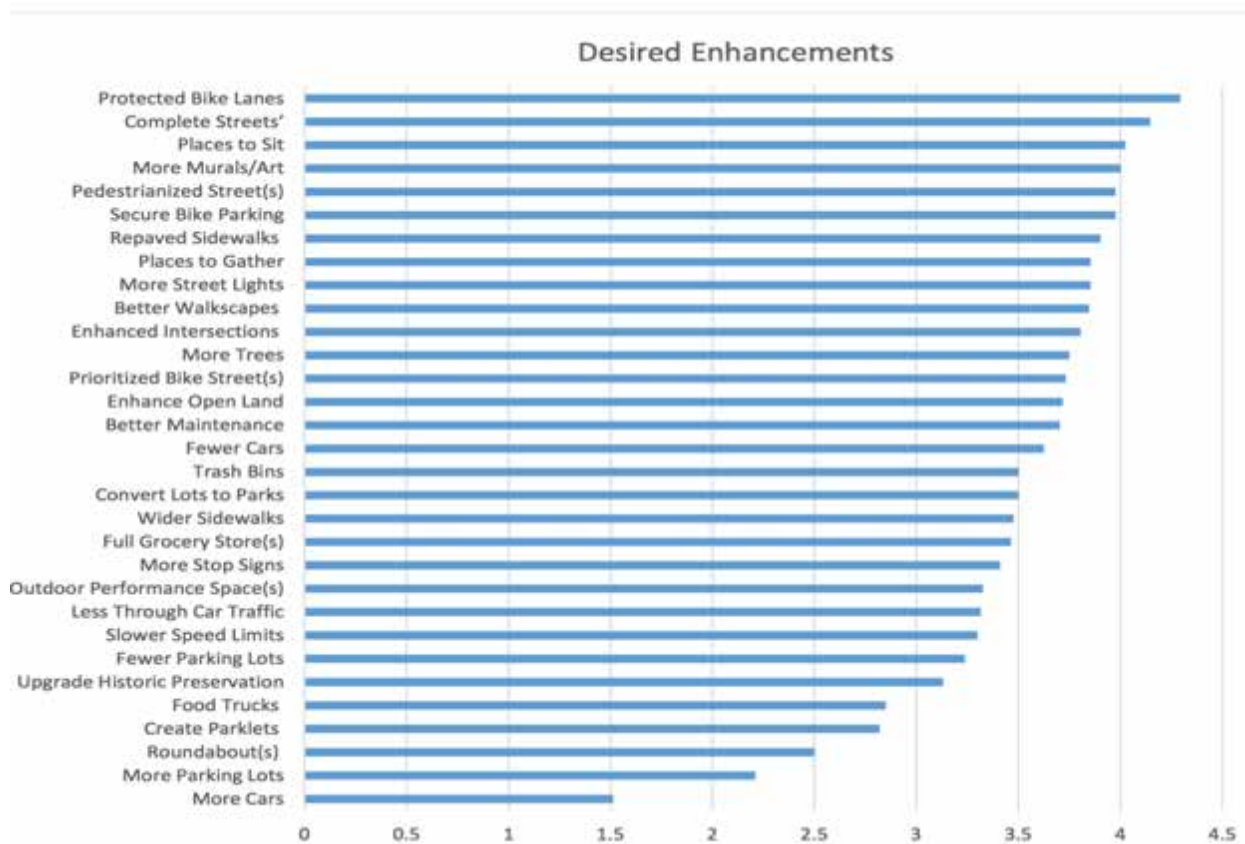
Cherry Street looking north from 5th (street view)

More details of such projects, exploration of costing and means of funding, and specific professional recommendations for tree care and planting in the neighborhood, are beyond the scope of this report.

Please see the separate Institute of Sustainable Development report on the neighborhood's urban forest for authoritative recommendations.

Imagine Parklets

Among the most desired enhancements in the neighborhood for students surveyed were 'places to sit' and 'places to gather'. 'Places to sit' ranked after only 'protected bike lanes' and 'complete streets' in students' preferences. Again, from our Existing Conditions report:



Eaton & Ryll 2016

As discussed above, many students proposed park-like facilities for the northwest parking lots along west 2nd west of Cherry, and for the grassy open lot along 3rd between Orange and Cherry.

As wide north-south named streets like Chestnut become more pedestrian and bike-friendly, there is opportunity for niche parklets to come into being, especially where one or more car parking spaces is removed. Combined for example with chicanes proposed above, they could begin to populate street space now solely devoted to unused open asphalt on a wide roa.

One student points to San Francisco's experiments with such parklets:

Parklets (San Fran)

"San Francisco has embraced parklets on a long-term basis as a number of former parking spaces all across the city have been permanently converted into the now ubiquitous parklets. San Francisco's PARK(ing) Day, an annual celebration of parklets...A key part of the event's success is its connection to law. PARK(ing) Day was not presented as a protest, a plea for change, or a proposal for reform. On the contrary, PARK(ing) Day was expressly presented as something already legal. PARK(ing) Day provides a powerful invitation to citizens around the world to rethink the city and their place in it." Presenting something like this to the public of Chico would not only give the area more background, but provide a peaceful place for gathering.



Creating spaces like these along Chestnut St. (pictured Chestnut & 5th) invite community interaction and provides a great place to eat and talk.



Oatman

Anyone Can Do It

In San Francisco, parklets are often funded by local business and crowdsourcing (costing around \$25,000), and constructed by neighborhood volunteers. In Chico, a similar program may be put in place. An organization could endorse the leasing of any former parking space to create an event similar to the one taking place there. According to the PARK(ing) Day's official website, "The PARK(ing) Day License allows you to legally to use the creative concept and the term "PARK(ing) Day," which is a registered trademark of Rebar. As you will see when you read the license, it is designed to limit the commercial exploitation of the event, and keep participation focused on the principles of community service, creativity, experimentation, generosity and play. PARK(ing) Day is about making new experimental forms of public space for public activities, not for commercial uses or promotions." This proves just about anyone can start a movement by creating a space similar to these.



Oatman



Such parklets seem highly feasible and require only the release of one or more parking spaces along a wide north-south street for conversion into a node of sociable gathering and refreshment. Again, temporary installations could be welcomed as creative contributions to such street life, and funds crowd-sourced if not allocated by the City.

Gathering Spaces and Public Seating

There are very few places to sit in the neighborhood (outside Sapp Hall on Salem Street is one exception), and this was noted frequently by students surveyed. *Allowing improvised parklets to be established* for a day or a week or more, with temporary inexpensive seating, might be a good way to *test places* for permanent installations. The time frame could be very quick, and costs minimal until the desirability and feasibility of the site is shown. Shade and a quiet space along a street with lively foot traffic might be the best criteria for such a location.

One student proposal called for enhancements to 3rd Street from Chestnut to Orange that would include benches and flowerbeds, showing an image of where this might be done on the grassy lot on the north side of 3rd between Cherry and Orange:



The Perfect Street: Zone 2



Zone 2 represents an area designated for benches and flower beds. All in all, this will make the neighborhood more attractive and it will encourage people to spend more time outside doing everyday things such as meeting a friend.

COST: 2 benches on each side of the five blocks=4 benches per block=20 benches @ \$123.70 each = \$2,474.00 (total cost). In between each bench we will put flower beds to make the neighborhood more appealing.

COST: A flower bed in between two benches on each side of the five blocks=2 flower beds per block=10 flower beds @ \$68.97 each= \$689.70 (total cost)



Gonsalves & Harrod

If the city has authority to place such benches and flower planters by the sidewalk as proposed, this could be a wonderful and inexpensive enhancement of public life on this block and others, making a small park-like environment and meeting place in public view. Costs per one side of a block would be roughly *\$325 for two benches and a flowerbed, or a thousand dollars or more to put benches all along one side of a street block.* Heavier concrete benches may be several times the cost of those portrayed in the image above.

Nonetheless, the cost is relatively modest for the potential benefits, and the time frame could be short if the city approved. Here again is a plan that might be tried temporarily for a week or a month to see its effects, as long as the materials could be protected from theft. Of course, wherever there are parks, pleasant seating, and gathering spaces, issues of policing, loitering, and homelessness such as those that have at times plagued the City Plaza and Depot Park may have to be addressed.



Public Art

Another among the most desired enhancements in the neighborhood for students surveyed were ‘more murals/art’. These ranked after only ‘protected bike lanes’, ‘complete streets’, and ‘places to sit’ in students’ preferences.

Beautifying Chico

- ▶ There are many large blank walls around Chico’s center that could be turned into beautiful canvases full of life and color.
- ▶ These are two murals that are currently being displayed in Chico. There are a couple of others but not nearly enough.



Koop

As the student notes, relatively little public art is found in the neighborhood at present, though the murals along **the Salem Street parking structure** between 3rd and 4th are a wonderful exception:



Salem Street

It is wonderfully pleasant to stop in the shade and admire this work as one passes down Salem. More commissioned art of this quality would be a boon to the neighborhood.

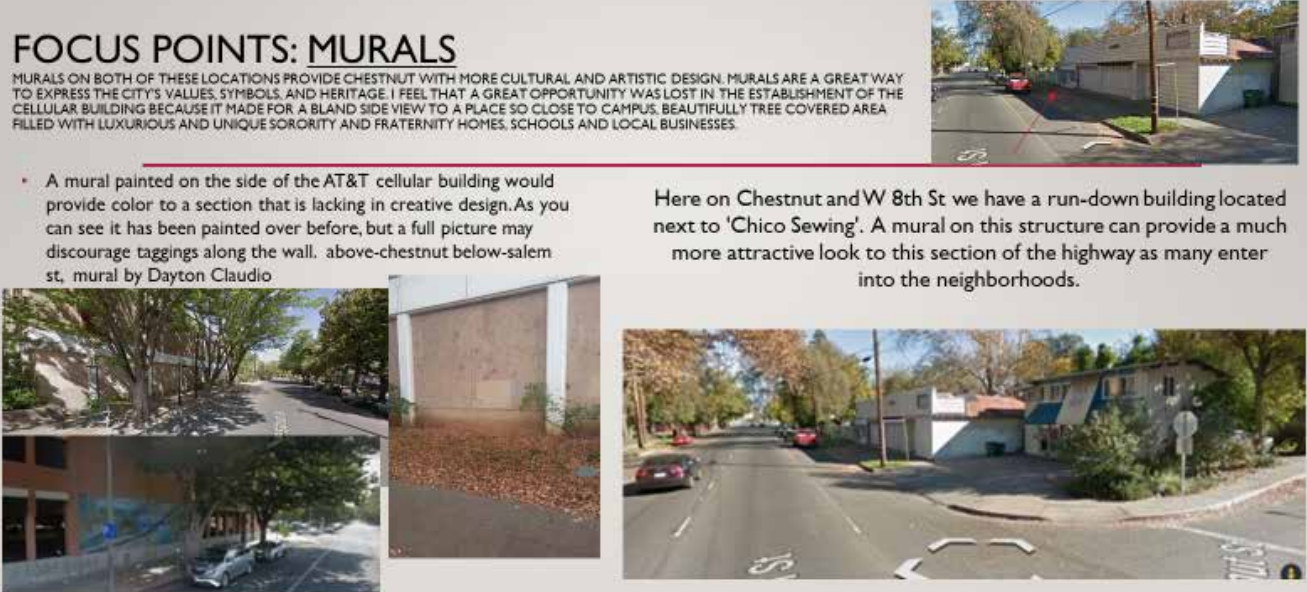
One student project for Chestnut Street proposed murals for the **blank walls of the AT&T building**:

FOCUS POINTS: MURALS

MURALS ON BOTH OF THESE LOCATIONS PROVIDE CHESTNUT WITH MORE CULTURAL AND ARTISTIC DESIGN. MURALS ARE A GREAT WAY TO EXPRESS THE CITY'S VALUES, SYMBOLS, AND HERITAGE. I FEEL THAT A GREAT OPPORTUNITY WAS LOST IN THE ESTABLISHMENT OF THE CELLULAR BUILDING BECAUSE IT MADE FOR A BLAND SIDE VIEW TO A PLACE SO CLOSE TO CAMPUS, BEAUTIFULLY TREE COVERED AREA FILLED WITH LUXURIOUS AND UNIQUE SORORITY AND FRATERNITY HOMES, SCHOOLS AND LOCAL BUSINESSES.

- A mural painted on the side of the AT&T cellular building would provide color to a section that is lacking in creative design. As you can see it has been painted over before, but a full picture may discourage taggings along the wall. above-chestnut below-salem st. mural by Dayton Claudio

Here on Chestnut and W 8th St we have a run-down building located next to 'Chico Sewing'. A mural on this structure can provide a much more attractive look to this section of the highway as many enter into the neighborhoods.



Oatman

The blank walls along north 2nd Street between Hazel and Salem are prime candidates for street-level art of some kind, perhaps first in temporary exhibitions to test public response:




Basic Services and Maintenance

LIGHTING. Many students and other observers have called for better lighting, *especially in the ‘deep streets’ (6th and 7th) and along Cherry and Orange* nearer the campus. Indeed, **poor street lighting** was the second-most common response to the question ‘What do you like least about the neighborhood among students surveyed, after ‘dangers from car traffic’, and the *associated dangers of crime* were also noted explicitly by some respondents. We do not examine these important issues in this report, as analyses of them can be found elsewhere, and they have been recognized and addressed in recent initiatives.

SIDEWALKS. Students and other observers have listed **uneven and cracked sidewalks**, especially in the south and west of the neighborhood, as a notable hazard to be addressed where possible. This seems increasingly important as people spend more time visually engaged with their phones while walking.

Here is part of a student proposal for the enhancement of W. 3rd Street from Chestnut to Orange:

The Perfect Street: Zone 3



Zone 3 represents the area designated for sidewalk for pedestrians. All down W. 3rd Street there are many cracks and broken areas in the concrete sidewalks that need to be redone to make it safer for pedestrians and add to the overall appeal of the neighborhood.

COST: The cost to redo the sidewalk in Zone 3 down W 3rd Street from Chestnut to Orange is factored into the calculations done on Slide 3.

Gonsalves & Harrod

NEW SIDEWALKS

- ▶ In order to make the sidewalks safer for pedestrians and bicyclists we need to redo the concrete in Zones 3 and 4. In many parts of the sidewalk on W. 3rd street there are large hazardous cracks.
- ▶ **COST:** W. 3rd Street= 0.5 Miles
- ▶ Concrete needed for both sides= 1 mile of concrete
- ▶ Concrete Sidewalk Cost (45,092 square feet): Low: \$76,354.73 High: \$87,446.38
- ▶ Concrete Sidewalk Labor, Basic (3,392.3 hrs): Low: \$237,826.07 High: \$288,274.01
- ▶ Concrete Sidewalk Job Supplies: Low: \$9,520.87 High: \$10,830.62
- ▶ Concrete Sidewalk Equipment Allowance: Low: \$87.60 High: \$140.91
- ▶ Total Cost to Install Concrete Sidewalk: Low: \$323,789.26 High: \$386,691.93
- ▶ https://www.homewyse.com/services/cost_to_install_concrete_sidewalk.html

Gonsalves & Harrod



This estimate seems quite high, as these sidewalks and others in the neighborhood need only be repaired, not installed from scratch. Estimating \$9 per square foot for repairing sidewalks (www.fixr.com) rather than \$75 per cubic yard to install them, and blocks about 300' long, sidewalks of four feet in width would cost about *ten thousand dollars per block side* to repair. To fully repave seven blocks of sidewalk on both sides of a full given street would thus be about \$140,000. As neither the authors of this report nor the students in our class are professional contractors, we must leave it to more qualified readers to assess these costs with more confidence.

TRASH AND LITTER. Parts of the neighborhood (esp. parts of 6th and 7th 'deep streets' and around stretches of Ivy) are frequently marred by uncollected trash and litter. Students surveyed for our Existing Conditions report noted *poorly-maintained buildings and unkept yards*, and *trash and garbage* in some areas.

Street audit map 10. Mid-blocks / well-maintained? (larger circle = better maintained)



From the point of view of student respondents, pockets of neglect center around southern Orange, Chestnut and 7th, western 5th Street, and western 3rd Street. Most of 9th Street also ranks poorly.

Possibly fraternities and sororities can play a role in the northern parts of the neighborhood closer to campus. One student proposal read in part:

“In the South Campus Neighborhood, it is evident that the quality of the houses are more run down, and promote a dirty unkempt atmosphere for the pedestrians and the people who are living in this area.... By beautifying the streets by simply picking up garbage, and promoting a better moral for the housing properties in this neighborhood, we could possibly increase the overall quality of life and the feel of these houses. The idea is to implement a widespread program where all of greek life is involved, so that we can set a precedent for the Chico streets for the future. While it is clear that sorority involvement is lacking, we could include some incentive or prize in participating in a widespread cleanup.” (Starke and Durflinger)

Another student proposal sees selectively-deployed trash bins as a useful solution which can also bring more lively art into the neighborhood:\

Solving the Trash Problem with Artwork



Install Ceramic Artistic Trash sites at the corner of every intersection on West 3rd Street from Chestnut to Orange. These trash cans can be made by local students willing to volunteer their time, this saves money by cutting down on labor costs.

COSTS: On average a 30 gallon concrete garbage can costs roughly about \$320 and we would want to insert 2 of them at every intersection on W. 3rd Street from Chestnut to Orange (10 trashcans total= \$3,200)

Each trash can should have two sides, a side for trash and a side for recycling. This encourages pedestrians to throw away their trash and recycle their bottles rather than just throwing them on the ground where the trash takes character away from our beautiful neighborhood.

Gonsalves & Harrod

In this student accounting, costs for a full street would run just over *three thousand dollars*. This seems eminently feasible and relatively modest in cost for the potential benefits. If competitive or commissioned art was included, possibly at additional cost, or possibly generated by students at the university, it might bring a greater pride and sense of place to the streets on which these were placed.

Conclusions

This report has showcased the work of lower-division undergraduates, new to urban planning and design, as they interpret and document the South Campus neighborhood and propose ways to enhance it in one set of class assignments within a larger Anthropology curriculum. As noted in the introduction, none of us are professional planners, developers, or contractors, and the resulting technical limitations of our proposals are evident in the materials presented. Nonetheless the insights – at times inspired – that they represent come out of a broad spectrum of perspectives of those exposed to some principles of current urban design, joined in the hope of enhancing the safety, heritage, and quality of experience of this unique neighborhood. We hope that in the above report we have put forward a group of ideas and proposals that others with more specialized skills and knowledge can assess and move forward into realization for a more pleasant, equitable, and sustainable city.

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About the authors: David Eaton is a professor of Anthropology at CSU Chico. Alexander Ryll is a graduate student in the same department.

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