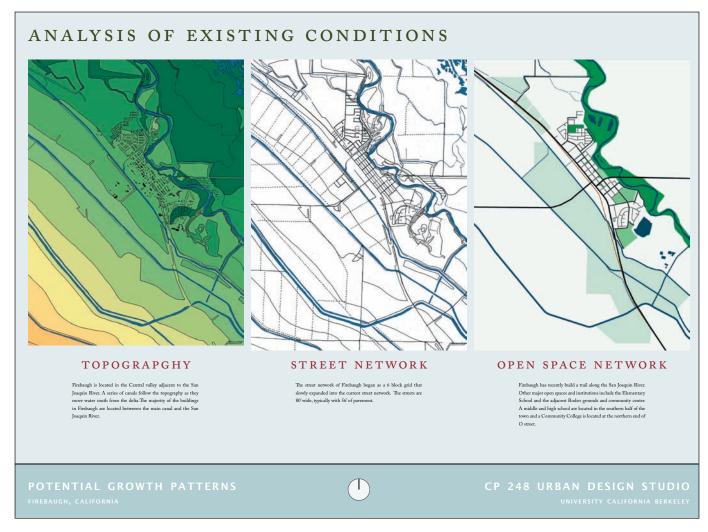
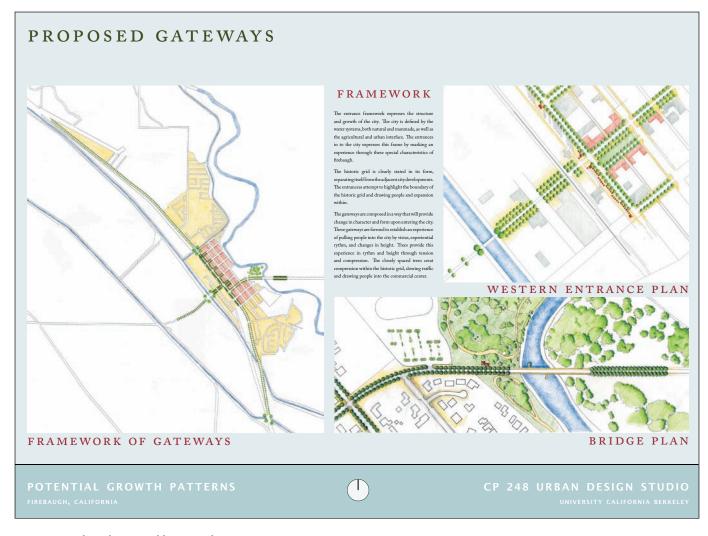
Appendix

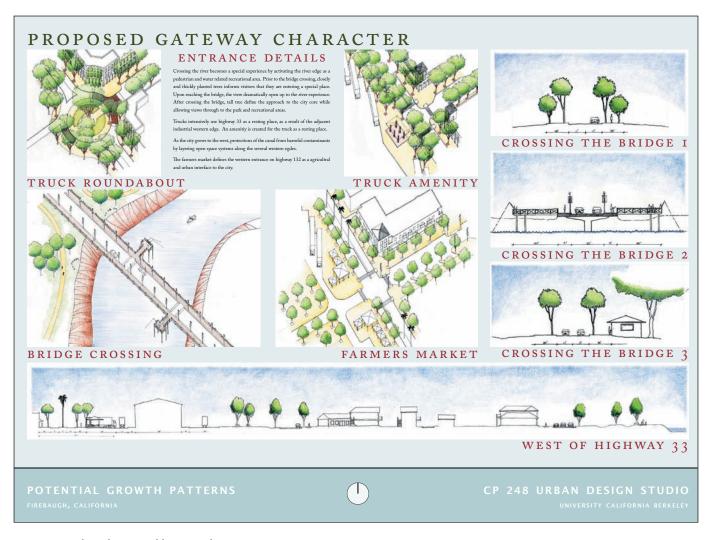


During the 2006 Spring Semester Urban Design students at UC Berkeley analyzed the City of Firebaugh and made a series of initial design proposals based on a variety of themes. The boards on the following pages were prepared by the students for a presentation to community members on May 10th, 2006. Many of the students' recommendations became the basis for further investigations during the charrette.

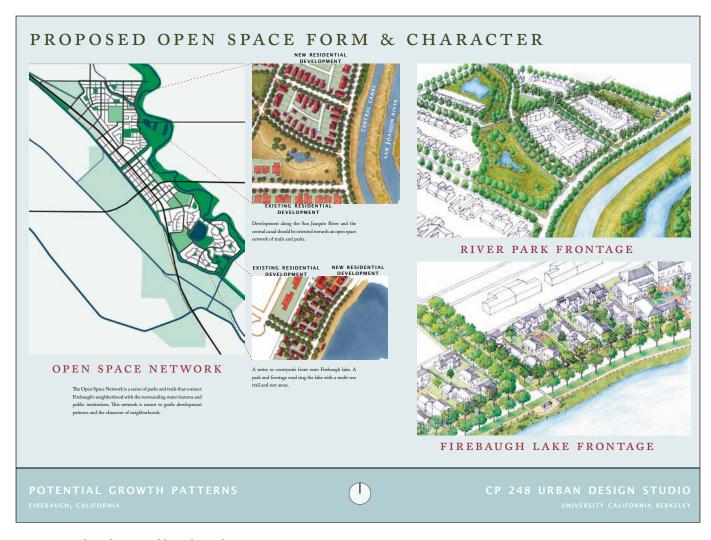
Above: Presentation board prepared by UC Berkeley Urban Design students John Miki and Chunchun Tao illustrating regional analysis of topography, streets and open space.



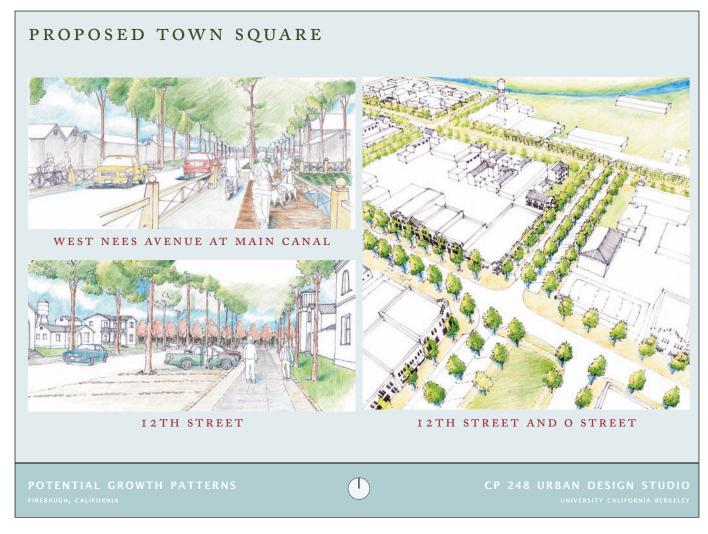
Presentation board prepared by Vijo Cherian and Patrick Hood-Daniel illustrating gateway strategies.



Presentation board prepared by Vijo Cherian and Patrick Hood-Daniel illustrating gateway strategies.



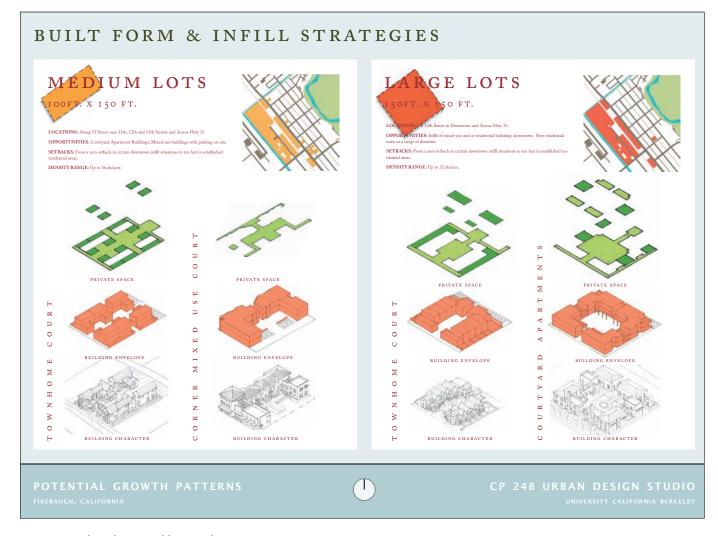
Presentation board prepared by John Miki and Chunchun Tao illustrating potential open space strategies for new residential development in Firebaugh.



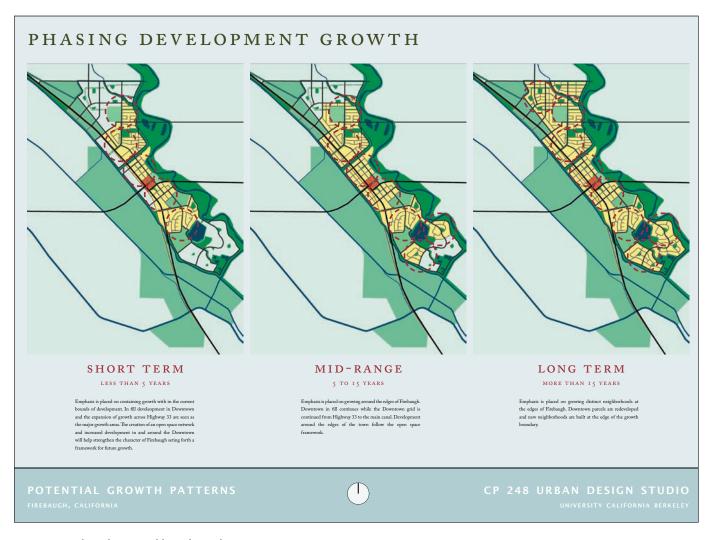
Presentation board prepared by John Miki and Chunchun Tao illustrating a new town square along Highway 33 in central Firebaugh.



Presentation board prepared by David De La Pena and Corinne Stewart illustrating building prototypes for small infill lots in central Firebaugh.



Presentation board prepared by David De La Pena and Corinne Stewart illustrating building prototypes for medium and large infill lots in central Firebaugh.



Presentation board prepared by John Miki and Chunchun Tao illustrating recommended growth strategies for Firebaugh.

Charrette Flyer

Revitalize Firebaugh!

COMMUNITY WORKSHOPS

Highway 33 and Downtown Improvement Plan

- Work with nationally known community planner Dan Burden to identify recommendations for safe and attractive streets and an active town center.
- ➤ Share your ideas with friends and neighbors for beautifying our city, creating safe streets and neighborhoods, and promoting more business and job opportunities.
- A team of urban design experts will translate your vision into a plan to make Firebaugh a more inviting place to walk, shop, gather and do business.

Please Join Us!

Thursday, July 13

OPENING TOWN MEETING ► 6:00 - 8:00 p.m.

Friday, July 14

Walking tour ➤ 4:00 - 5:00 p.m.

Community Design Fair > 5:30 - 8:30 p.m.

Monday, July 17

CLOSING TOWN MEETING & PRESENTATION OF PLAN 6:00 - 8:00 p.m.

All events will take place at Firebaugh Middle School Cafeteria • 1600 16th St.

Food & refreshments provided!





For more info: Jose Antonio Ramirez (559) 659-2043 or citymanager@ci.firebaugh.ca.us

Josh Meyer, (916) 448-1198 x310 or jmeyer@lgc.org

Organized by the Local Government Commission and the City of Firebaugh with a Caltrans Environmental Justice Planning Grant.

¡Mejoremos el Pueblo de Firebaugh!

TALLERES DE LA COMMUNIDAD

Plan para mejorar el centro y la carretera 33

- → Un experto a nivel nacional en planeación y diseño, Dan Burden, estará presente para ayudarnos a preparar un plan para crear calles más seguras y atractivas, y un centro más activo.
- Participe con sus amigos y vecinos en crear un plan para embellecer nuestro pueblo, crear vecindarios seguros y promover más negocios y trabajos en Firebaugh.
- ➤ En base a nuestras ideas y nuestra visión para el futuro de Firebaugh, los expertos en diseño urbano prepararán un plan para mejorar la calidad de vida en este pueblo.



Commission

¡Participe y ayúdenos!

jueves, 13 de julio

PRIMERA REUNIÓN
DE LA COMUNIDAD

6 a 8 de la noche

viernes, 14 de julio

Caminata de investigación ➤ 4 a 5 de la tarde

FERIA DE DISEÑO

DE LA COMUNIDAD

5:30 a 8:30 de la noche

lunes, 17 de julio

REUNIÓN DE CLAUSURA Y PRESENTACIÓN DEL PLAN 6 a 8 de la noche

Todos los eventos se celebrarán en la Cafetería de la Escuela Secundaria, Calle 16, #1600

Comida y refrescos en todos los eventos.

Para más información comuníquese con Jose Ramírez, Ciudad de Firebaugh, 559-659-2043, citymanager@ci.firebaugh.ca.us, o con Josh Meyer, Local Government Commission, 916-448-1198 x310, jmeyer@lgc.org.

Organizado por la Local Government Commission y la Ciudad de Firebaugh con financiamiento del Departamento de Transporte de California (Caltrans)



Focus Meeting Attendees

Alma Antuna United Security Bank

John Baltierra Rotary Club

IanBarrimondFresno County SheriffRasaBecinaGabriela's CD Flores

David Berggren Caltrans

Maria C. Ceomora

Renee DeVere Fresno COG

Bianca Echeveste Echeveste Sheep Company

Rick Elrod Madera

Donald Fischer Fischer Lumber

Charles Fleming David Flores

Ralph Garcia EDC Sewing Fresno Co.

Don Gela Firebaugh Desp

Sean Howard

Bob Hull Caltrans-Project Manager

Steve Hurt

Cliff Jones FLDUSD

Devon Jones Fresno County EDC

Mitch Keys Firebaugh Faith Fellowship
Ray C. Knight Firebaugh Planning Commission

Henry Lara

Maurice Ledford Rotary Club Jose Leon-Barraza Fresno Co. Elsa Lopez Firebaugh PD

Steve Malanca

Paul Marquez Caltrans Planning

Paul Marquez Caltrans
Dwight McCraw Business
Lorena Mendibles Caltrans

Mike Mills Caltrans-Landscape Architecture

Mike Panelli Los Banos CHP
Stefan Pellegrini Opticos Design, Inc
Pedro Ramirez Caltrans Planning
Susan P. Ramirez Administrative Assistant

Jose Antonio Ramirez City Manager Pedro Ramirez Caltrans Lynette Rebecch Business

Marlese Roton West Hills College

Oscar Sablan Rotary, Sablan Medical Clinic, FLDUSD

Steve Sakata Caltans-Design Ben Sanabria Firebaugh Towing

Jose R. Santoyo Central Valley Engineering

Karl Schoettler Collins & Schoettler, City of Firebaugh

Ray Sciaroni

Fernando Serna Caltrans

Markala Stanton

Paul Steinhauer Market America

Mary Thomsen

Wendy Tukloff FLDUSD

Gloria Tznado

Wayne Walters Superintendent, FLDUSD

Focus Meeting Notes

Schools Representatives Focus Meeting July 13, 2006 8:00 – 9:00 AM Andrew Firebaugh Community Center

Attendees:

Marlise Roton, West Hills College

Cliff Jones, Firebaugh-Las Deltas Unified School District

Susan Ramirez, Firebaugh-Las Deltas Unified School District

Wendy Tukloff, Firebaugh-Las Deltas Unified School District

Wayne Walters, Firebaugh-Las Deltas Unified School District

Jose Antonio Ramirez, City of Firebaugh

Notes:

It is important as you come into town to have a facelift from both directions. Need to showcase the river. And need to build on the plaza that the City already has at the West Hills College site. The campus has 500 students. All are from this area. A growing number are taking online classes, which is resulting in lower enrollment. This lets students work. Most prepare to transfer to CSU or UC programs; e.g. physicians assistant programs. It is nice to spend time around the park and river. The nicest area is near the high school.

It is important to increase attendance since it is declining. Find ways to stimulate the economy. For example, Mojave tried to use the airport as catalyst for commercial development. In this area, what would make you want to come to Firebaugh? Jobs are limited. Housing is reasonably priced. People can get nicer homes for a lesser price. San Antonio riverwalk: river here could be developed in similar way with shops, short walk that is commercially developed. This would be a nice place to get away from larger cities like Fresno. There is potential for tourism as well as jobs in this area.

Is there an opportunity to make the highway better? Any examples?

Citrus Heights. As you arrive in Firebaugh, see what is pleasing and what is not. Look at what looks professional, inviting. Concentrate on visual sense of the community. Is it place I'd like to live? Does it feel safe? Expand the college. That creates focus of activity.

How do kids get to school?

There are 2400 students. We transport 1200 - 1300 students on buses. We need safety at drop off and pick up locations. Picking up children from across 33. It costs \$6 per mile. Look at reducing miles.

Susan Ramirez:

The entry into town is not very inspiring. It would be nice to see some beautification. Also, need to bring businesses into downtown. Need to increase student

enrollment. It dropped by about 82 from last year. The total is 2400. We've lost about 130 in the last 2 years. Businesses are leaving and people are moving looking for jobs. I like to park by the river and parks. The nicest area is by the high school. Beautiful river but need other things to bring that to life.

Is there any transit?

Bus service? One bus to Fresno a day. It leaves in the morning and comes back in afternoon.

What are the housing prices?

Housing prices here are less expensive than in Los Banos.

This is my First day on the job. There is tremendous community spirit in this City. I Grew up in Fowler. It has a main street. You feel there is a center – the ability to walk through and know everyone. But I don't get that sense in Firebaugh, like Visalia. Trees, landscaping alone would make a difference. Goal: students that grow up, live here, and return here. Want children that grow up here to want to come home. For grocery shopping, people go to Madera, for other shopping they go to Fresno. Madera has a Wal Mart and Office Depot.

What are the big things that could attract people in time?

Need a good grocery store, but I hate to challenge local businesses. We have a local drugstore and hardware store. Hate to see them go away although their prices are high enough. Same with hardware. You go to it if you can get it.

If I'm making large purchases for the school, I make individual trips to Fresno. If I need one thing, I get it in Firebaugh. But larger, bulk purchases, it is cheaper to go into the larger store, Fresno.

The key is the people. When trying to improve things we don't want to hurt local businesses. Recognize that we're great agricultural center. Farmers market. People will come to Firebaugh for melons. Use that as a point to attract people. A Big issue is jobs. Need to attract jobs. We're looking to attract a vocational training center, partnering with West Hills. Should also try to attract some regional shopping activities. Then you could attract people to live her. Some light industry.

I'm trying to get sheet metal factory. But it is hard to get land.

This process will help to bring these issues out into the open. We have to find ways to adapt and become attractive to people. Otherwise towns die out. Play up recreational activities along the river, bring in a golf course.

We're working with SSA Architects out of Santa Cruz to revitalize Maldonado Park. We also have a grant for a trail with from Maldonado Park and then connecting to existing trail along the river. Continue to high school. The City owns 30 acres near the river. Could build a golf course there.

The first impression is very important. As you come into town you judge the town based on what you see. If I'm an investor and see that people aren't main-

taining front yards, that buildings are not well maintained or blighted, I have trouble seeing the potential. What can we do to get others to invest? If the City invests others will invest. Need to make improvements. And then get building owners to maintain façade. Theme that we can get the City to focus on. Most businesses are leasing so they don't invest in their businesses. It's contagious. If we start making improvements we'll see others follow. We can give some carrots in the way of grants. Will then make vacant lots in downtown attractive to develop. We also need economic development activities, light manufacturing, agribusinesses. Create more jobs. Shopping Center is something we've been working on. Near the trailer park. We need about 10 acres to do a master planned shopping center. The trailer park is in bad shape, unpaved, blighted, people crossing highway, no fire hydrants. Redeveloping that site would be key. Problem: where to relocate the residents that live there.

The biggest problem: No one wants to sell property. Want to do higher density housing. To bring down costs, need to put more than 4-1/2 homes/acre. Can offer homes at less than \$175k with higher density.

Does the code currently allow higher density?

No.

We can try to illustrate through this project that if Firebaugh goes one way property values will stay low but if you get a different vision then the land value of reluctant sellers goes up.

Have you looked at a target for this type of housing? Look at people that would be interested in coming to Firebaugh and look at other approaches; e.g. cluster homes with open space, etc. Attract young families where people can afford to own a home.

Our Economic Development strategic plan is to "beat Kerman." We want property values to be higher than theirs. They don't have a downtown. Kerman is attracting folks from Fresno who want more affordable housing. Property values have appreciated over 30% in Fresno County. The City has a one million dollar grant for first time homebuyers, which can help about 10 families. Valle del Sol houses are going to be going for over \$350k. 187 homes. A Project around the lake.

We should make use of the water. Use the river to create canals for some new development.

Can't do that since water rights for San Joaquin River are all spoken for.

The City just got a safe routes to school grant. We're considering "walking buses." If the trails were completed, that would help.

The key is to work together. Get the City to work together with the schools, community colleges.

Firebaugh, SR33 and Downtown Project Agencies Focus Group Meeting July 13, 2006 10:00 – 11:00 AM Andrew Firebaugh Community Center

Attendees:

Jose-Leon Barraza, Fresno County ED

Devon Jones, EDC serving Fresno County

Ralph Garcia, EDC serving Fresno County

David Berggren, Caltrans

Lorena Mendibles, Caltrans

Paul Marquez, Caltrans

Pedro Ramirez, Caltrans

Kart Schoettler, Collins & Schoettler

Renee DeVere, Fresno COG

Notes:

The attendees were asked to introduce themselves and talk about their current activities and interests that relate to the project.

Fresno County Economic Development Department

We're working with all cities on a community enterprise zone application to the state. This is an important tool for economic development. It gives employers in the area tax credits that would apply to hiring eligible people and for acquisition of equipment (exempt from sales taxes). Up to \$20 million for corporations, \$1 million for individuals. Many jurisdictions have applied and obtained designation. This is a unique opportunity. We are competing with other jurisdictions that have already received designation. The cities need to tell what type of infrastructure and programs they have in place. The application needs to demonstrate that cities and the county have the capacity to be successful in the creation of jobs, marketing, promotion, helping the business community and that there is land available for businesses to come in. This forces communities to do self-evaluation of what resources are available to show that they have the capacity to be successful. The ED corporation is already providing some functions to help with expansion/retention of businesses. There is a lot of interest from cities to participate. Every jurisdiction on its own needs to identify ways to improve itself.

Caltrans District planning coordinator for Fresno County

I've seen the impact that LGC has had to create walkable communities. We're seeing implementation of some improvements and safety projects in Cutler and Orosi that came out of a charrette organized by the LGC. We saw similar interest in a charrette in West Fresno. It is important to get residents involved. The District has some staff with personal connections to Firebaugh. There is interest in connections between transportation, housing, land use and how to revitalize

communities. Looking for successful input from residents to get a great plan.

Planning consultant to the City

We're updating Firebaugh's General Plan. We expect this process to help get a vision of what Firebaugh wants to be. Smart Growth is a wonderful thing. People know what they want. It just has to be drawn out. There is wisdom everywhere you go and it's exciting to see this happen in Firebaugh.

Caltrans Representative

Systems Planning, Project Manager for TCR for Route 33

I went to school in Firebaugh. My parents still live here. I have lots of connections to this place. I used to work the fields in the summer. This was a great place to grow up. I would like to see more job diversity in Firebaugh. Give people other jobs other than agriculture.

Fresno Economic Development Corporation

We're working with rural cities. We received a USDA Rural Development Grant to promote business expansion, attraction and retention. Build capacity. We have an Americorps Vista program with 3 in training to work in rural cities. We also partner with the Economic Opportunities Commission. We did survey of all businesses to identify their needs. We did visioning and goals setting session 2 years ago. Capital improvement plan. The City Manager has been instrumental in all of that. This is a fun city to work with. I see potential. This was one of the thriving communities of the West Side. It has to diversify and bring other industries, commercial and retail. Can't depend solely on Agriculture. Need balance to get quality of life. There are opportunities along Hwy. 33.

Firebaugh could be a a model to duplicate elsewhere. That way you don't have to reinvent the wheel. Any community can do the same thing.

Vista Volunteer with the Economic Development Corporation

I'm excited to be here and to learn what to do.

Caltrans Grant Project Manager

I have had a long history of working with Firebaugh. I will be attending several of the workshops.

Caltrans Route 33 TCR Project Manager

Provided the traffic volumes for Highway 33. ADT: 12,500, with 30% comprised of truck traffic. Peak: 1,300 with truck traffic at 28%.

Caltrans Planning Dept. Representative

My husband was raised and lived here. The in-laws still live here. I would like to see more jobs for everybody, especially for young people raised here who end up moving out of town. Many go to College in Fresno and don't come back. Main

Street: nothing much there. Needs some tender loving care.

City Contract Engineer

My first trip out here was in 1945. There were 1,500 people, 99% Italian, now 8,000 people, 95% Hispanic. Now there are several large developers that are seeing potential for housing here. 2 national builders in recent years have shown interest. Need a shopping area in City. There is only one kind of supermarket. Most folks go to Fresno, Madera to do shopping. Upgrading infrastructure all time. Are currently dealing with wastewater and treatment.

There is the potential for industrial development west of the railroad, like Toma-Tek. What happens downtown is very important. Folks who buy houses here are going to want to shop here. Should try to do shopping development for the new people coming. Few trains come through. It goes to Fresno and to Los Banos.

What would draw new businesses and new families? What's missing?

Need to get into niche markets. Example, Fiesta Foods in Tulare came from Los Angeles and caters to the Latino market. Rural cities need to look at niche markets. Cities that are close together should cooperate and show there is a larger market. Can also partner with businesses, eg, Ace Hardware.

Transportation issues. Big issue is bridge that floods.

Green technology would attract people. Working at company doing solar energy, biodiesel.

We know there's a lot of leakage in Firebaugh. But because we haven't hit the magic population number we have to do work and show where money is going and to show that there's potential to invest here. Most shopping in town is convenience. Very few franchises. Need to indentify land where businesses can come in and get the infrastructure in place. We're working with a specific property that has depth next to railroad. We need to find another place in town to build affordable housing for residents that are currently there.

For Selma we looked beyond and could see that there were over 200k residents in nearby proximity. We could come up with similar numbers for Firebaugh. The Niche market becomes important because people will come to you.

The combined market area can include Mendota, San Joaquin and Dos Palos.

We have about 30,000 people within 10 miles.

Work with the community college. A great asset. Example, Selma hardware added Spanish-speaking staff and sales increased significantly.

The information that the EDC office has on existing businesses is very important. But you also have to look at following up on needs, for example, technical assistance, financial assistance, etc. Need to focus on how to bring those services to the community. Also need to identify land where businesses can come into the area. Need sites for new businesses. An asset this city has is the river. There is an

opportunity for tourism promotion. The small b&b in town is always booked. New airport. Eagle Field. Have events out there. Opportunities for tourism. Develop the bridge.

There is a problem with folks crossing 33. The right of way is 100-130 feet.

Caltrans in recent years has shown more flexibility with regard to highways that cut through towns, e.g. roundabouts.

There is difficulty maneuvering out of the bakery on 33. If cars back out they end up in the highway.

Caltrans is doing a study to look at alternatives to route 180 through 33.

The downtown used to have a theater and other stores (drugs, jewelry). It has nice wide sidewalks. Need to make it very attractive to make it work well. There is lots of traffic that comes through Firebaugh and it is easy to get people to come through. There needs to be more restaurants.

Could take advantage of community events to town that draw people, like the Mexican Rodeo and Firebaugh Cantaloupe Festival.

The plan is for a farmers market. The City Council supports it. Looking to start September 15 in downtown with music and movies on the street. Locals will be allowed to bring their things to sell. Lindsey Friday nights is a model. It is hard to tell when you're in downtown. There is nothing off of 33 or 13th that tells you you're in downtown. We to not only revitalize but to clearly define downtown.

Downtown could use a façade improvement program. Parlier was very successful. You can look at other downtowns to see what they've done. Example: Exeter and Lindsay public art.

Firebaugh, SR33 and Downtown Project Business/Community Services Focus Group Meeting July 14, 2006 7:00 – 8:30 AM Jack's Prime Time Restaurant

Attendees:

Members of the Firebaugh Rotary Club

Notes:

Rotary Club President Jose Antonio Ramirez opened the meeting, introduced the project, and turned the meeting over to Dan Burden, the lead charrette facilitator. Dan asked people to share what they would like to see addressed at the charrette.

Like Cambria, CA, people need a reason to stop in Firebaugh.

How do we get an enhanced view of the river?

Dan Burden: Once you have crafted the vision, people are willing to collaborate.

Truck traffic is a problem. There is no sense of welcome entering town. Need a place for the truckers.

Downtown facades: need more uniformity, colors and textures that complement one another.

Hwy 33 acts like a bypass – need something to attract people of 33.

Dan Burden: Need to slow traffic, so eyes can pick up visual attractions off sidestreets.

There is the question of whether 33 will be connected to 180. That will mean more traffic.

There is no definition off 33 – if there is a downtown or how to get into downtown. People only see the ballfield at the high school after leaving town.

There needs to be signage off 33 – City Hall, food services, etc. On football night, stadium lights are on, but out-of-towners can't otherwise find their way.

Could add things like murals, like the lights across the bridge – do the same elsewhere for a common theme.

What about an airport business park?

Mendota has fountains. There is no connection to the river here, especially from the north. Ponds and fountains along the railroad would work. Need to give people a connection to the river.

Need a shopping gathering area, shopping center to keep people spending here.

Families have moved from Firebaugh because there are no jobs. We need to work together to form non-ag-based businesses. Need some industry to keep people that are here now.

We need to diversify the economy and encourage people to sell underutilized property.

Toney Daysog of Applied Development Economics, a consultant to the City addressed the group about the retail analysis they were doing. A key finding showed \$3.5 million being lost in general merchandise. This is being spent elsewhere. It is not enough to support a large new general merchandise store, but could be the basis for existing store expansions. He suggested that they devise strategies to capture what is being lost now, like changing the storefronts.

During earlier times, there was a merchant-controlled mentality. Didn't want new businesses. Counted on the people that were stuck here. Now it is important to compete with other places. Need control of the look of businesses. Don't discourage other businesses and competition.

Need to build the town as a novelty. Find novelty – uniqueness. Street entertainers, for example.

Firebaugh, SR33 and Downtown Project Caltrans Focus Group Meeting July 17, 2006 10:00 – 11:00 AM Andrew Firebaugh Community Center

Attendees:

David Berggren, Caltrans - Planning

Paul Marquez, Caltrans - Planning

Pedro Ramirez, Caltrans - Planning

Bob Hull, Caltrans - Project Manager

Steve Sakata, Caltrans - Design

Mike Mills, Caltrans - Landscape Architecture

Notes:

Lead facilitator Dan Burden presented preliminary design concepts developed by the charrette consultant team based on the focus meetings and public workshops. The group was then invited to comment and discuss their issues and goals for the project.

Driveways on Hwy 33 – we would like to have a permit for every driveway, but this is a problem on an older highway. We try to clear it up with new development, or reduce driveway openings to standard size.

Truck parking problems along Hwy 33 – the goal is to control it, not prohibit.

What about the cost of landscaping? Need the right species and planting techniques. The community will need to take responsibility for maintenance. Caltrans pays the electric bill for street lighting.

Regarding locating a truck parking area, would it be in the Hwy 33 right of way? Could Hwy 33 funding go to develop the truck parking area? It could go to make driveways, and landscaping, but not the actual lot. Also, regarding no-parking signage for trucks, not sure what the procedure would be . . . perhaps just a request from the City is needed for Caltrans to provide.

Would the use of a roundabout involve narrowing 33 to 2 lanes?

Yes, a roundabout with 2 lanes could handle 22 to 23,000 cars.

Would curbing have to be moved?

No.

One of the charrette team consultants added in details about visual access to the river from 33 and bridge improvements, such as piers.

Dan Burden discussed the importance of adding an 8 to 10 inch edge stripe on 33

for bike lines to better control the environment by providing clear definition of the area of operation for cars.

Dan Burden reviewed other off-site (non Hwy 33 changes):

P Street – design for high pedestrian traffic

Gateway examples

O Street – create outdoor patio space for more activity

Alleys - space for small accessory units

Q Street - riverfront design

More on 33 – bike lanes can serve as pullouts for emergency vehicles to pass; signed truck turnaround points could be located at Clyde Fannon and South of 14th Street – a roundabout and one-way truck parking loop would help facilitate truck movements.

It was pointed out that it would cost about \$25,000 for 1.3 miles of painted edges.

Roundabouts – people aren't used to them. A charrette team consultant pointed out that there are rotaries in Mexico – glorietas. Can use good signage. The main problem is hesitation around yield. A first roundabout could be introduced on 13th Street to help people get used to them.

How do bikes use roundabouts?

If the speeds are okay, experienced riders take the lane. For others, can build ramps through the sidewalks.

There is a good example of a roundabout in Patterson – looks nice with palm trees.

Roundabouts are sprouting up in Washington state. They are the norm in rural sections of Europe.

Have you measured or determined the needs where bike lanes and sidewalks need to go?

We've observed pedestrians on P and 33 in the north, and in the south, near Head Start. Need to complete the sidewalk on the city side of 33.

What about lighting? Would lighting on Avenue 7-1/2 affect Hwy 33 choice?

Any discussion about themes?

We've stayed away from this in our recommendations.

Last thought: remember there is maintenance cost for all this.

Public Events Attendees

Jack & Genell Antonia Abevalo Antuna Alma John Baltierra **Phyllis** Baltierra David Berggren Maria Borrso de C. Maria Calderon Pete Cardella John F. Cinatl Lorina Cleinte Cook Jim Berlita Corimona Cheryl Craddock Deanne Crockett Bianca Echeveste Rosalinda Espincia Etchegouberg Denise Ines Fraga Nicolas Fraga

Ines Fraga Marta Frausto Guthrie Roger Gutierrez Georgina Brian Hansen Craig Knight Ray C. Knight Knight Margie Tucker Knight Margie Knight Mari Locke Martin Lopez Maria Jim Lowe Ray Maldenado Javier Marquez

Mari Martin Maria C. Morales Maria G. Moya Gloria Moya Hilda Perez Rigoberto Perez Cuca Perez Pat Perry Joe Perry Powell Barbra Jose Antonio Ramirez Lynette Rebecch Betty Rebecch Rodriguez Joe Mari Sabe Mele Sablan Sablan Maria

Oscar Sablan Sablan Tony Stacy Sablan Civilo Sava Silva Jose Guadalupe Silva Mike Simmons Laxie Stewart Hilary Svde Thomsen Mary Allen Thomsen Gloria Tignado Mary VanPelt David VanPelt Rosalinda Vilchis Maria Vilchis

von Bieberstein

von Bieberstein

Walters

Barbara

Marshall

Wayne

Tree Guidelines for San Joaquin Valley Communities

by
E. Gregory McPherson
James R. Simpson
Paula J. Peper
Qingfu Xiao

Western Center for Urban Forest Research and Education USDA Forest Service, Pacific Southwest Research Station

March

5. Trees for San Joaquin Valley Communities

ree selection is a compromise. There is no perfect tree that matches all the criteria required by specific sites: beautiful flowers and form, deep rooting, drought tolerance, pest/disease resistance, rapid growth, strong branch attachments, low BVOC emissions, and so on. Finding the best tree takes time and study. Collecting information on conditions at the site is the first step. Consider the amount of below- and above-ground space, soil type and irrigation, microclimate, and the type of activities occurring around the tree that will influence its growth and management (e.g., mowing, parking, partying). In most cases, it is too expensive to alter site conditions by making them more suitable for a specific tree species. Instead, it is more practical to identify trees with characteristics that best match the existing site conditions, particularly those conditions that will be most limiting to growth.

The matrix in this chapter presents information to assist tree selection. Tree species recommended in general for San Joaquin Valley communities are listed alphabetically by mature tree size category — large, medium, and small. Information is presented on characteristics influencing selection for energy and water conservation (i.e., solar friendly, deciduous/evergreen, irrigation requirement, growth rate), air quality improvement (ozone-forming potential), and reducing infrastructure conflicts (surface rooting, tidiness, pruning requirement). A general assessment of each tree's suitability for street, yard, and park locations is also presented.

We received helpful reviews of this information from Alan Lagarbo (City of Modesto), Keith Warren (J. Frank Schmidt & Son Co.), and Janet Rademacher (Mountain States Nursery).

References used to develop the tree selection matrix are listed in Chapter 6.

Key to the Matrix

- A: Mature tree height (ft.)
- B: Mature tree crown spread (ft.)
- C: Tree Type: D=deciduous, E=evergreen, S=semi-evergreen
- **D:** Solar friendly trees provide winter solar access as well as summer shade; trees numerically ranked based on crown density, time of leaf drop, time of leaf out, crown area and growth rate; NDA=no data available (Ames 1987).
- **E:** Growth Rate: F=Fast; M=Moderate; S=Slow (Gilman et al. 1996). Note that actual growth rates depend on soils, irrigation, and other factors.
- F: Longevity: L=Long (>50 years); M=Medium (25-50 years); S=Short (<25 years) (Gilman et al. 1996).
- **G:** Availability of cultivars (an asset when trees with specific traits are needed to match site conditions, such as upright form, pest resistance, fruitless): Y=Yes; N=No.
- **H:** Resistance to pests and disease: S=pest/disease sensitive; R=resistant; F=free from pests/disease (Gilman et al. 1996).
- I: Problems with surface roots: Y=can form large surface roots; O=occasional problem; N=not a problem (Reimer 1996).
- J: Contribute to ozone formation (data only available for Los Angeles): H=>10; M=1-10; L=<1 g ozone per day, NDA=no data available (Benjamin and Winer 1998).
- **K:** Other important features that influence tree selection such as irrigation requirement (from Costello and Jones 1992), soil tolerance, tidiness, and pruning requirement (Gilman et al. 1996, Reimer 1996).
- L: S-Street=difficult growing conditions, in heavily used areas: median, streetside, commercial plaza, and retail. Y- Yard=less difficult growing conditions, less public, sometimes restricted space: residential yard, common areas in residential developments, commercial office. P- Park=less restricted space, public use: parks =, schools, cemeteries, commercial campus/industrial park.



S/P	litter, low irr.	I	0	Ø	~		П	z	0	50-70	50-70	Platanus acerifolia 'Yarwood' or 'Bloodgood' London plane
ס	native, low irr.	3	0	П	z	F	П	z		40-50	40-60	Pinus torreyana torrey pine
ס	low irr., limb breakage	٦	z	ဟ	z	<u>_</u>	3	z	т	35-60	35-80	Pinus pinea Italian stone pine
Y/P	low irr., litter	_	0	v	z		П	z	ш	30-40	60-90	Pinus canariensis Canary Island pine
S/Y/P	litter, high irr., flowers	3	~	נג	~	F	3	z	т	30-40	60-80	Magnolia grandiflora Southern magnolia
S/Y/P	fruits, mod. im., fall color	Ξ	0	70	~	_	3	z	D	35-50	60-75	Liquidambar styraciflua sweetgum
S/Y/P	mod. irr., tough conditions, fruit	NDA	z	70	z	Г	≤	~	0	40-60	40-60	Gymnocladus dioica Kentucky coffee tree
S/Y/P	mod. irr., fall color	٦	0	ဟ	~	Г	П	~	o	45-50	60-70	Fraxinus pennsylvanica 'Patmore' 'Leprechaun,' 'Centerpoint,' green ash
S/Y/P	mod. irr., fall color	Г	0	တ	~	_	П	~	O	35-50	40-60	Fraxinus americana 'Autumn Purple,' 'Chicago Regal' - white ash
ס	litter, little irr., limb breakage	I	~	70	~	3	П	z	т	30-80	40-80	Eucalyptus papuana, sideroxylon, ghost gum, red ironbark eucalyptus
S/Y/P	fruit, mod. irr., avoid clay soil	L	0	ZJ	Z	٦		~	Ü	40-50	40-70	Celtis australis, occidentalis European/common hackberry
												Large Trees >50 ft. Height
L Suitability S=Street Y=Yard P=Park	Comments (soil, drought, tidiness, pruning)	Ozone Forming Potential	Sur- face Roots	H Pest/ Disease Resistance	G Cultivars Avail.	F Long- evity	Growth Rate	Solar Friendly	Туре	B Mature Spread ft.	A Mature Height ft.	Tree Name

Large Trees >50 ft. height

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Tree Name	A Mature Height ft.	B Mature Spread ft.	Туре	D Solar Friendly	E Growth Rate	F Long- evity	E F G Growth Long- Cultivars Rate evity Avail.	H Pest/ Disease Resistance	Sur- face Roots	J Ozone Forming Potential	K Comments (soil, drought, tidiness, pruning)	Suitability S=Street Y=Yard P=Park
Platanus x hispanica 'Columbia' London plane	40-60	40-60	D	z	L	_	>	œ	0	I	litter, low irr.	S/P
Quercus frainetto 'Forest Green,' Forest Green oak	40-50	30-40	Ω	Z	L		>	တ	0	I	low. irr., acoms	Υ/P
<i>Quercus ilex</i> holly oak	40-50	40-50	Е	z	Σ	Z	z	Y.	0	I	mod. irr., acoms	Υ/P
Quercus suber cork oak	02-09	40-50	Ш	z	Σ	_	z	œ	0	I	low irr., acoms	۵
Quercus virginiana, fusiformis Southem, escarpment live oak	50-80	50-80	ш	z	Σ	_	>	œ	0	Ξ	mod. irr., acoms	۵
Taxodium distichum bald cypress	20-60	25-30	O	>	L	_	z	œ	z	Σ	mod. irr., rusty fall color	S/Y/P
<i>Umbellularia californica</i> California laurel	40-60	40-60	ш	z	တ	_	z	L	0	Σ	native, mod. irr.	S/Y/P

Large Trees >50 ft. height

Eucalyptus micrott coolibah Geijera parviflora Australian willow Koelreuteria panic bipinnata, elegans goldenrain, Chines and Formosan flar	Eucalyptus coolibah Geijera par Australian	Eucalyptus coolibah		Diospyros virginiana (male clones), persimmon	Dalbergia s	Cinnamomun camphor tree	Cercidium : palo verde	Brachychito bottle tree	Acer freem Blaze,' Aut	Acacia stenophylla shoestring acacia	Medium Ti	Tree Name
clones), persimmon Eucalyptus microtheca, coolibah Geijera parviflora Australian willow Koelreuteria paniculata, bipinnata, elegans goldenrain, Chinese flame, and Formosan flame tree	rsimmon microtheca, viflora willow	rsimmon microtheca,	rsimmon (IIIale	virginiana (mala	Dalbergia sisoo, rosewood	Cinnamomum camphora camphor tree	Cercidium x 'Desert Museum,' palo verde	Brachychiton populneus bottle tree	<i>Acer freemanii</i> 'Autumn Blaze,' Autumn Blaze maple	nophylla acacia	Medium Trees 30-50 ft. Height	
40-50 30-35 30-40	40-50 30-35	40-50		30-50	30-50	40-60	25-35	35-50	40-50	30-40	t	A Mature Height
40-50 20-25 20-40	40-50 20-25	40-50		20-40	30-50	50-70	25-35	25-40	30-40	20-30		B Mature Spread ft.
٥		m	ш	D	S	m	ဟ	П	D	П		с Туре
	~	z	z	Y	z	z	z	z	Y	Z		D Solar Friendly
	3	п	П	S.	R	3	П		M	R		E Growth Rate
	3	3	۲	L	M	Г	3	٢	M	L		F Long- evity
	z	z	z	Υ	Z	z	~	Z	Υ	Z	:	G Cultivars Avail.
	70	п	TI	S	R	70	П	F	R	ZJ		H Pest/ Disease Resistance
	z	z	0	Z	0	~	z	~	0	z		Sur- face Roots
	I	г	H	NDA	NDA	Г	٦	NDA	7	٦		J Ozone Forming Potential
	litter, mod. irr., attractive flowers/fruit	low maint., mod. irr.	low irr., soil tolerant	mod. irr., litter, fall color	low irr., low maint	mod. irr., shallow roots	thornless, low irr.	fruit litter, mod. irr.	mod. irr., fall color	very low irr., thornless		Comments (soil, drought, tidiness, pruning)
	S/Y/P	S/Y/P	S/Y/P	Y/P	S/Y/P	S/Y/P	S/Y/P	S/Y/P	S/Y/P	S/Y/P		L Suitability S=Street Y=Yard P=Park

Medium Trees 30-50 ft. height

Chapter 5

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	Mature	Σ	Type	Solar	ŧ	Long-	Long- Cultivars	Pest/	Sur-	Ozone	Comments	Suitability
	Height		;	Friendly	Rate	evity	Avail.	Disease	face	Forming	(soil, drought,	S=Street
Tree Name	نه'	±						Resistance	Roots	Potential	tidiness, pruning)	Y=Yard P=Park
Paulownia tomentosa	40-50	40-50	Q	\	ь	Σ	z	Ľ.	0	NDA	litter, mod. irr.	S/Y/P
Pistacia chinensis 'Keith	40-50	30-40	۵	>	Σ	Σ	>	ட	0	٦	low irr, fall	S/Y/P
Davey', Chinese pistache											color, use male clone	
Prosopis alba 'Thornless' thornless Mesquite	25-35	25-35	ဟ	z	4	Σ	>	œ	0	7	thomless, low irr.	S/Y/P
Pyrus calleryana 'Trinity,' 'Chanticleer,' flowering pear	25-35	15-20	۵	z	Σ	Σ	>	œ	z	_	mod. irr., fruit litter, fall color	S/Y/P
Sapium sebiferum Chinese tallow tree	25-40	25-35	Q	٨	L	S	z	Ŧ	0	NDA	low irr., fall color, poison seeds	>
Tilia americana 'Redmond' Redmond linden	30-50	30-45	D	٨	Σ	٦	>	ď	z	NDA	mod. irr., fall color	S/Y/P
<i>Ulmus</i> 'Frontier,' 'Prospector' Frontier and Prospector elm	35-50	25-45	O	\	Щ	₹	\	œ	0	_	mod. irr., disease resist.	S/Y/P
Ulmus parvifolia 'Athena', 'Allee,' Chinese/lacebark elm	40-50	25-35	O	z	ш	တ	\	æ	z	Γ	freq. pruning, mod. irr.	S/Y/P
Zelkova serrata 'Green Vase' Green Vase zelkova	40-60	40-60	۵	\	₽	_	\	œ	z	٦	low irr., orange fall color	S/Y/P

Medium Trees 30-50 ft. height

	A	В	ဂ	9	ш	п	ດ	I	_	_	×	_
	₹ ā	Mature Spread	Туре	Solar Friendly	Growth Rate	₹ φ	Cultivars Avail.	Pest/ Disease	Sur-	Ozone Forming	Comments (soil, drought,	Suitability S=Street
Tree Name	.#	ft.						Resistance	Roots	Potential	tidiness, pruning)	P=Park
Small Tree < 30 ft. Height												
Acer bergerianum and	20-30	20-30	o	~	S	Z	٧	R	z	٦	mod. irr.,	d///S
truncatum, trident and											attractive fall	
'Norwegian Sunset' maple											color	
Amelanchier 'Autumn	15-25	10-20	D	Y	S	3	٨	S	z	ADN	white flws, fall	S/Y/P
Brilliance', serviceberry											color	
Arbutus unedo	10-30	10-30	Ш	z	တ	≤	~	п	z	NDA	low irr., needs	S/Y/P
strawberry tree											pruning	
Cercis canadensis,	15-25	15-25	O	~	S	S	z	ZJ	Z	Г	low-mod. irr.,	S/Y/P
occidentalis, Eastern and Western redbud											flowers/fall color	
Chilopsis linearis	15-30	15-25	o	NDA	S	S	Z	T	Z	I	very low irr.,	S/Y/P
desert willow											needs pruning,	
Chitalpa tashkentensis	20-30	20-25	O	NDA	3	3	~	IJ	z	NDA	litter, mod. irr.,	S/Y/P
chitalpa											flowers	
Lagerstroemia indica x L.	15-25	10-20	o	~	S	S	~	ZJ	z	_	low irr., needs	S/Y/P
faurei clones, crape myrtle											training,	
(Calawba, Chelokee, Fecus etc.)											104013	ſ
Malus 'Snowdrift' and 'Golden Raindrops,' crabapple	15-25	15-25	0	z	3	S	z	70	z	_	mod. irr., litter, attractive flws.	
Prunus 'Cascade Snow'	20-25	15-20	O	~	3	တ	~	ZD	z	_	high irr., white	S/Y/P
Cascade Snow cherry											flowers	
Prunus cerasifera 'Krauter	20-30	20-30	O	~	3	တ	~	တ	z	_	mod. irr., fruit	Y/P
Vesuvius' 'Thundercloud,'											litter, pink	
purple leaf plum											flowers	

Small Trees <30 ft. height

Tree Guidelines

Chapter 5

	4	В	ပ	٥	ш	ш	g	Ŧ	_	7	¥	٦
Tree Name	Mature Height ft.	Mature Spread ft.	Туре	Solar Friendly	Growth	Long- evity	Cultivars Avail.	Pest Sur- Disease face Resistance Roots	Sur- face Roots	Ozone Forming Potential	Comments (soil, drought, tidiness, pruning)	Suitability S=Street Y=Yard P=Park
Syringa reticulata 'Ivory Silk' Ivory Silk Japanese tree lilac	20-30	15-20	۵	>	Σ	Σ	>	œ	z	NDA	mod. irr., white flowers	S/Y/P
Quercus buckleyi 'Redrock' redrock oak	20-30	20-25	۵	NDA	Σ		>	œ	z	I	low irr., red fall color	S/Y/P
Vitex agnus-castus chaste tree	10-15	15-20	۵	NDA	L	Σ	>	œ	z	NDA	low irr., flowers	S/Y/P
Xylosma congestum shiny xylosma	15-30	15-30	Ш	z	Σ	Σ	z	œ	z	NDA	low irr., needs training	S N/P

Small Trees <30 ft. height