Tyson's Corner
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Breaking the CODE

12 Code Obstacles to Smart Growth and What Cities are Doing to Remove Them

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12 Code Obstacles

1. Parking and Traffic Code
2. Building Code
3. Uniform Fire Code
4. Clean Water Act
5. Fair Housing Act
6. State Schools Codes
7. Congestion Management Program
8. Zoning & Subdivision Codes: Design and Parking
9. Road Design Code
10. Street Typologies and Transportation Performance Measures
11. Impact Fees
12. Environmental Compliance

1. Parking and Traffic Code

- Residential Parking Permit Districts
  - Critical for addressing spillover parking concerns of infill development
  - Requires neighborhood vote on parking district
- Arlington County parking program to balance different stakeholder needs
  - Residents – permit program to reduce spillover from transit
  - Business operators – meters and short term shop front parking
  - Developers – appropriate provision of development parking
  - Government agencies – efficient operations and minimum cost

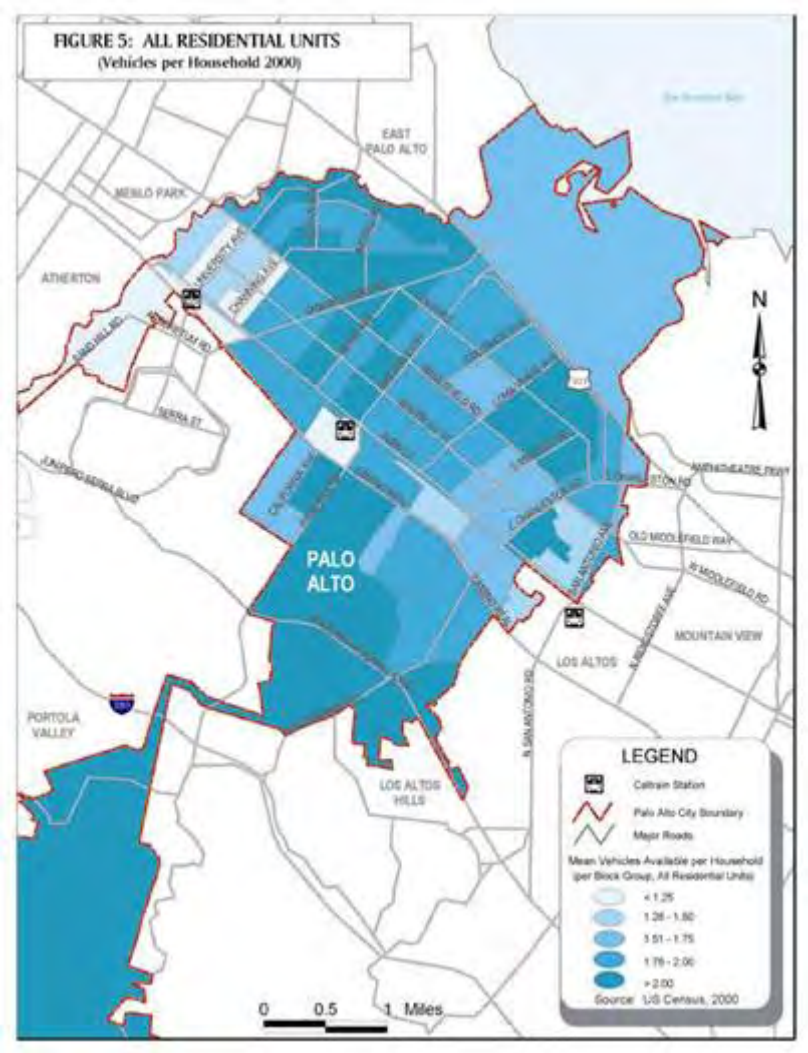
8. Zoning & Subdivision Codes: Design

- Conventional zoning's intent:
  - limit height & density
  - segregate uses
  - require setbacks
  - provide ample free parking
- Starting to be addressed well in form-based codes
- Solution: To provide assurance to developers and reduce risk:
  - **Codes must allow transit-oriented development AS OF RIGHT**

8. Zoning Code: Parking Requirements

- Continued over-reliance on ITE *Parking Generation Manual*. Use this only for isolated, auto-oriented uses.
- Requirements often set **50-100% higher** than average demand seen in *Parking Generation* manual.
- Strategies
  - Adjust based upon local conditions
  - Incentivize parking strategies to reduce traffic and improve design
  - Abolish minimums
  - Establish maximums
- **Examples…**

Tailored Parking: Palo Alto

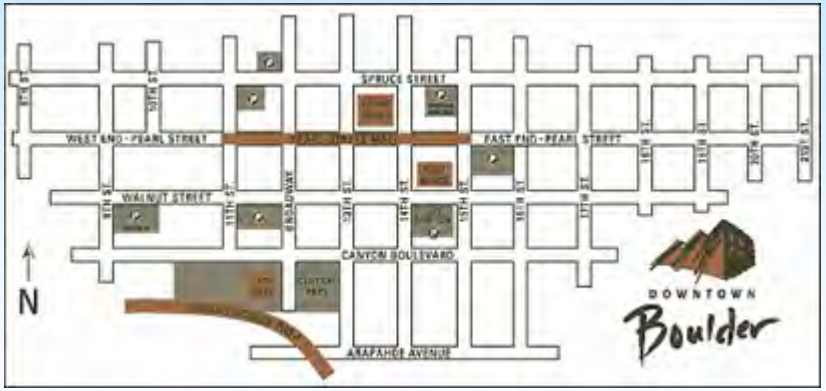


- <u>Existing Requirement:</u> 4.0 spaces per 1000 s.f.
- Need 5,744 spaces above observed demand to bring all downtown to 4.0 standard. At $51K/space, $293 million
- <u>Downtown, Observed peak:1.9</u> spaces per 1000 s.f.
- Palo Alto updating its zoning code to vary parking requirements by
  - Density
  - Transit Access
  - Income
  - Household size

Incentivized Parking

- Strategies to reduce parking demand:
  - Pricing
  - Unbundling
  - Car-Sharing
  - Other demand management (e.g. EcoPasses)
- Strategies to reduce parking impacts:
  - Shared parking
  - Structured parking
  - Stacked parking/parking lifts
  - Design requirements (e.g. wrap parking in active uses)

Incentivized Parking: Boulder



- Downtown developers discouraged from building parking
- Instead, they pay a parking and transportation in lieu fee
- Fees used to build well managed public garages – and fund transit, bicycle and pedestrian improvements
- Program managed by downtown Business Improvement District, CAGID

Constrain Parking Supply

Catherine Preston, City of Cambridge

- Overall principle: encourage less auto-oriented development
- Promotes self-selection – residents with fewer cars live close to transit
- Different approaches:
  - Parking maximums
  - Requirements/incentives for demand management
- Needs to be complemented with Residential Permit Parking or other strategies to stop overspill

Parking Maximums

- Promote alternatives to the private automobile
- Can tackle congestion if related to roadway capacity or mode shift goals
- Maximize land area for other uses
- Appropriate in areas with strong real estate market where priority is to minimize auto dependence
- Examples: downtown San Francisco, Portland, Cambridge

Parking: High & Low Traffic Strategies

	Typical Minimum Requirements	'Tailored' Minimum Requirements	Abolish Minimum Requirements	Set Maximum Requirements
Typical Tools	• Requirement > Average Demand • Hide all parking costs	Adjust for: • Density • Transit • Mixed Use • 'Park Once' District • On-street spaces • ...etc.	• Market decides • Garages funded by parking revenues • Manage on-street parking • Residential pkg permits allowed by vote	• Limit parking to road capacity • Manage on-street parking • Market rate fees encouraged/ required
Traffic	**High**			**Low**
Housing Costs	**High**			**Low**
Pollution	**High**			**Low**

9. Street Design Codes

- AASHTO *Green Book*: NOT a standard, fairly flexible
- But state DOT manuals often adopt largest dimensions in *Green Book*
- Major confusion between California Highway Design Manual and local street codes.
- Highway Design: Safe for high-speed rural roads where few pedestrians are present. Accommodates "driver error."
- Urban streets: Accommodating fast auto speeds creates danger for everyone.
- Arterial/Collector/Local framework – no place for main streets or boulevards

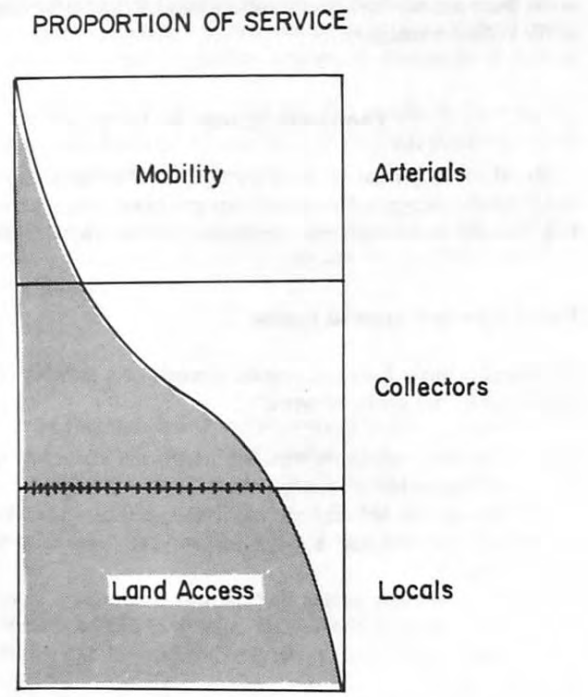
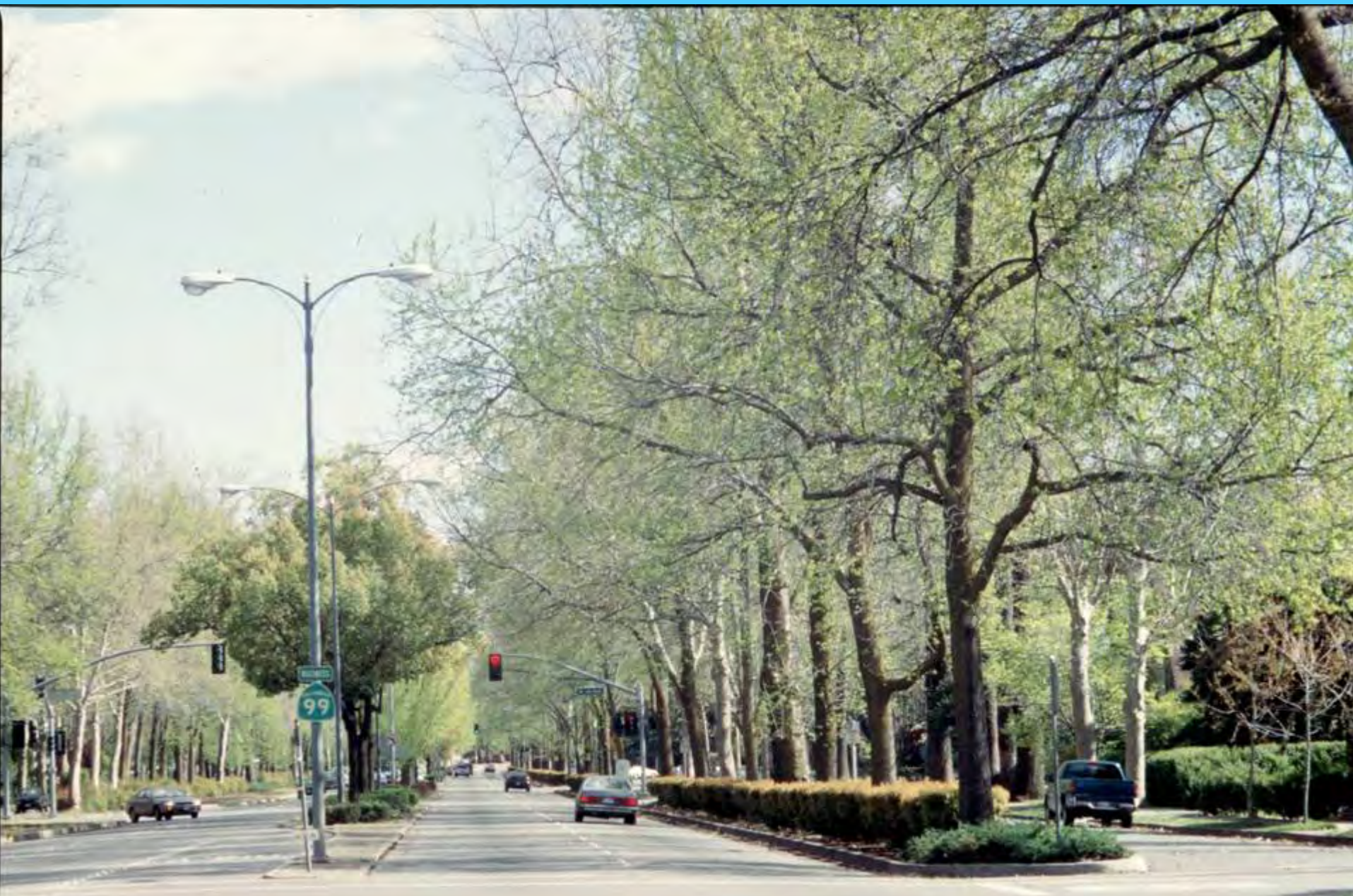


Figure I-5. Relationship of functionally classified systems in service traffic mobility and land access.

A Legal Highway

The Esplanade, Chico, CA: Safe, Beloved and Illegal



The Esplanade, Chico, CA: Safe, Beloved and Illegal

9. Street Design Codes - Solutions

- ITE "*Traditional Neighborhood Street Design Guidelines – A Recommended Practice*"
- ITE "*Traffic Calming: State of the Practice*" – its standards directly challenge/ contradict old practices
- Vermont – New flexible state standards invite departures from AASHTO, senior agency engineers transferred
- Maryland – dumped state standards, reverted to *Green Book*

Useful Articles: "From Highway to My Way"

http://www.its.berkeley.edu/techtransfer/resources/newsletter/01spring/myway.html
http://user.gru.net/domz/main.htm
http://www.citebc.ca/Nov97_Asphalt.html

10. Street Typologies and Performance Measures

- Definitions buried in code language part of the problem, particularly “arterial,” “collector,” “local” suburban classifications that only describe the auto flow function of streets.
- Seattle’s new street typologies include:
  - Priority for each mode
  - Urban context
  - Physical form

10. Seattle Street Typologies

- Start with urban context:
  - Urban Center
  - Urban Village Center
  - Urban Village
  - Single-Family Residential Neighborhood
  - Manufacturing/ Industrial Centers

Map 3-1: Sample Street Classification System

10. Seattle Street Typologies

- Add Transit layer
  - 1st priority transit network
  - 2nd priority transit network
  - 3rd priority transit network

Map 3-1: Sample Street Classification System

10. Seattle Street Typologies

- Add automobile layer:
  - 1st priority auto network: freeways and major arterials
  - 2nd priority auto network: arterials and collectors
  - 3rd priority auto network: “local” streets

Map 3-1: Sample Street Classification System

10. Seattle Street Typologies

- Add bicycle layer
  - 1st priority bike network
  - 2nd priority bike network

Map 3-1: Sample Street Classification System

10. Seattle Streets

- Can also add:
  - Pedestrians
  - Freight
  - Environmental priorities
  - Special place types
- Result: Shorthand classification code that addresses both the context and full function of every street:
  - Broadway: $C_{UC}T_2A_2P_1$
  - Aurora: $C_{UV}T_2A_1$

Classification	Shorthand
CONTEXT	
Urban Core and Urban Center main streets	C_{UC}
Commercial streets in Hub and Residential Urban villages	C_{CS}
Hub urban villages and residential urban villages	C_{UV}
Single family residential areas	C_{SF}
Manufacturing/ Industrial Centers	C_{MI}
TRANSIT ROLE	
UVTN (Primary Transit)	T_1
Secondary Transit	T_2
Tertiary Transit	T_3
AUTO	
Primary Auto	A_1
Secondary Auto	A_2
Tertiary Auto	A_3
BICYCLE	
Primary Bicycle	B_1
Secondary Bicycle	B_2
PEDESTRIAN	
Primary Pedestrian	P_1
Secondary Pedestrian	P_2
TRUCK	
Primary Truck ('Heavy Vehicle')	H_1

10. Seattle Street Performance Measures

- Appropriate typologies allow for performance measures that balance all modes. *Quality* of Service rather than *Level* of Service.

MODE / FUNCTION	CONTEXT ZONE	Minimum QOS	Desirable QOS	Preferred QOS
Transit		Transit QOS	Transit QOS	Transit QOS
UVTN	All	≥+1	≥+1.5	≥+2
Secondary transit	Urban Center Village	≥-1	≥-0.5	≥+1
	Urban Village Commercial Streets	≥-1	≥-0.5	≥+1
	Hub/Residential Urban Villages	≥+0.5	≥+1	≥+1
	Single family residential areas	≥+0.5	≥+1	≥+1
Other transit	All	-	≥-1	≥-0.5
Auto		Vehicular V:C	Vehicular V:C	Vehicular V:C
Primary Auto	Urban Center Village	<1.2	<0.8	>0.6
	Urban Village Commercial Streets	<1.2	<1.0	>0.6
	Hub/Residential Urban Villages	<1.0	<0.8	>0.6
	Single family residential areas	<1.0	<0.6	<0.4
Secondary Auto	Urban Center Village	<1.2	<0.8	>0.6
	Urban Village Commercial Streets	<1.2	<1.0	>0.6
	Hub/Residential Urban Villages	<1.2	<0.8	>0.6
	Single family residential areas	<1.2	<0.6	<0.4
Tertiary Auto	All	-	<0.9	<0.8
Bicycle		Bicycle QOS	Bicycle QOS	Bicycle QOS
Primary Bicycle	Urban Center Village	D	B	A
	Urban Village Commercial Streets	D	C	A
	Hub/Residential Urban Villages	C	B	A
	Single family residential areas	B	A	A
Secondary Bicycle	Urban Center Village	D	B	A
	Urban Village Commercial Streets	D	D	A
	Hub/Residential Urban Villages	D	B	A
	Single family residential areas	D	B	A
Pedestrian		Pedestrian QOS	Pedestrian QOS	Pedestrian QOS
Primary Pedestrian	Urban Center Village	B	A	A
	Urban Village Commercial Streets	B	A	A
	Hub/Residential Urban Villages	C	A	A
	Single family residential areas	D	B	A
Secondary Pedestrian	Urban Center Village	C	B	A
	Urban Village Commercial Streets	C	B	A
	Hub/Residential Urban Villages	C	B	A
	Single family residential areas	D	B	A

Application

- Broadway $C_{UC}T_2A_2P_1$

FUNCTION	CONTEXT ZONE	Minimum	Desirable	Preferred	Measured
Transit					-0.8
Secondary	Urban Center Village	≥-1	≥-0.5	≥+1	
Auto					0.75
Secondary	Urban Center Village	<1.2	<0.8	>0.6	
Pedestrian					B
Primary	Urban Center Village	B	A	A	

Application

- Broadway $C_{UC}T_2A_2P_1$

FUNCTION	CONTEXT ZONE	Minimum	Desirable	Preferred	Measured
Transit					**-0.5**
Secondary	Urban Center Village	≥-1	≥-0.5	≥+1	
Auto					**0.8**
Secondary	Urban Center Village	<1.2	<0.8	>0.6	
Pedestrian					**A**
Primary	Urban Center Village	B	A	A	

- Result: OK to slightly degrade auto QOS to improve transit and pedestrian QOS. Signal prioritization OK, but not dedicated transit lane.
- Goal: Bring all measures into *balance*

Four Suburban Office Park Examples

- NASA Research Park
- Hacienda Office Park
- South San Francisco TDM Ordinance
- Stanford University General Use Permit

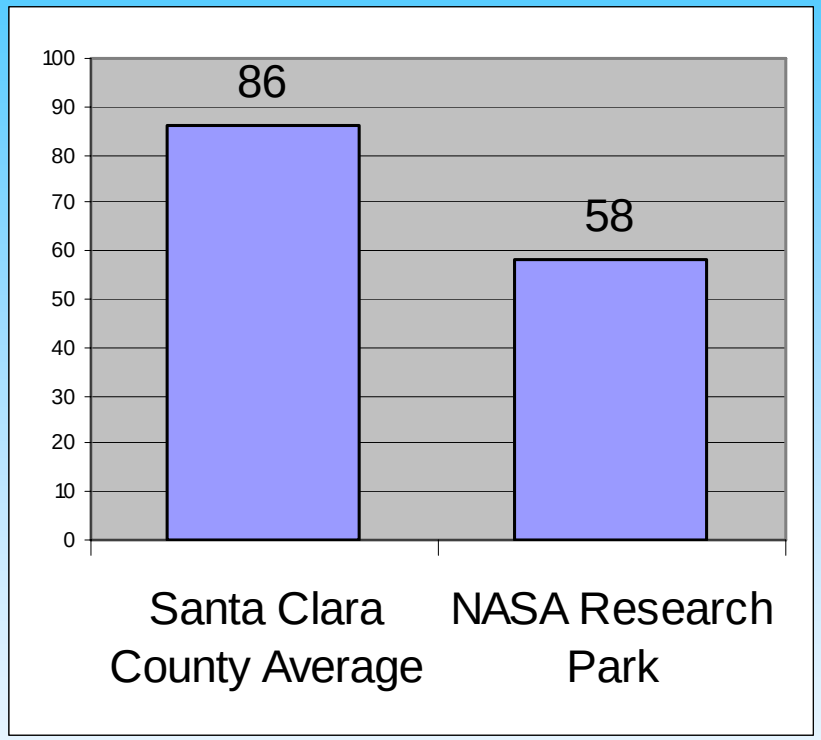
NASA Research Park:

Military Base Re-Use and Public-Private Partnership

Mountain View, California

NASA Research Park

- Trip Reduction Goal
  - 58 Cars per 100 Employees/Students
  - 32% reduction from Santa Clara County average



NASA Research Park

- 2000 acres of federal property under authority of NASA
- 10 Partners, including:
  - University of California at Santa Cruz
    - Minimum 600k sf office, lab and classroom
    - 500k sf student and faculty housing
    - Negotiating to be housing master developer
  - Carnegie Mellon University
    - 500k sf office, lab,classroom,housing
  - San Jose State University
    - 350k sf office, lab,classroom, housing
  - Foothill-DeAnza Community College District
  - Space Technology Center
    - Negotiating partnership with Stanford University, Santa Clara University, and San Jose State University

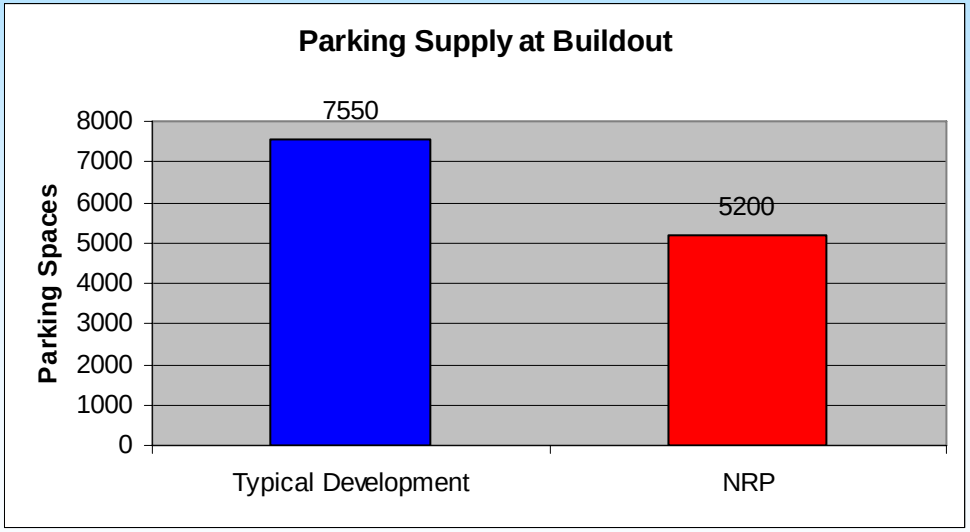
Bay Trail Extension
(Proposed)
Bay Trail Extension
(Proposed)
Occasional Ordnance Storage
Closed Ordnance Storage
ARC Security Fence
(Proposed)
Charleston Bridge
(Proposed Location)
Wright Ave. Expansion
(Proposed)
Consolidated
Ordnance Storage
Open Gate for VTA
(Proposed Location)

NASA Research Park – TDM Requirements

- Supportive TDM Site Design
  - Bicycle Network
  - Pedestrian Network
  - Mixed-Uses
  - On-Campus Housing
- Site-Wide TDM Programs
  - Robust Shuttle System
  - Site-Wide EcoPass
- Partner/Lessee Programs
- Parking Charges & Shared Parking

NASA Research Park – Parking Requirements

- 28% fewer parking spaces than typical development
- 75% of parking spaces will be "shared" between land uses
- Supply = mix of existing, surface & structure



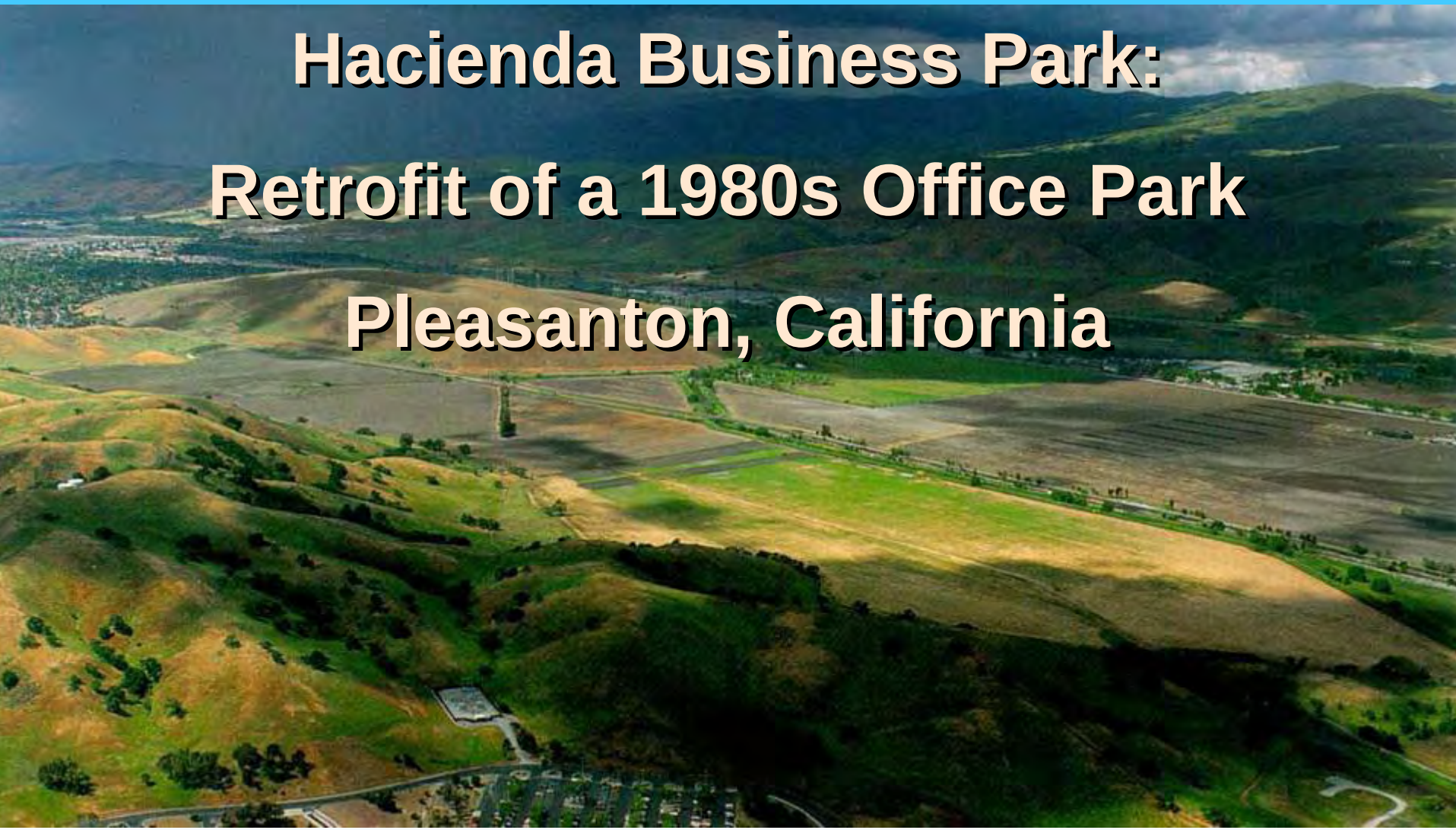
NASA Research Park: Parking Pricing

- Parking Fees vary by Location, by Carpool Designation, and by Reserved vs. Shared
- 2015 parking fee: $75/mo. (carpool) to $165/mo (reserved)
- Parking fees established by hourly rate; Payment via debit cards
- No “discount” for monthly parking; The less you park, the less you pay
- Partners, Lessees, & Tenants MUST pass on the cost of parking or offer parking cash-out
- Cost of parking visible to *both* residents and employees/students

Hacienda Business Park:

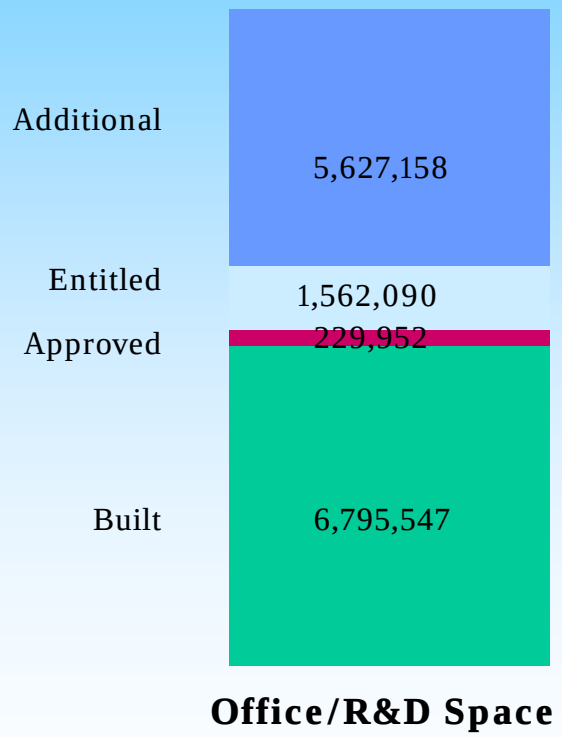
Retrofit of a 1980s Office Park

Pleasanton, California



WRT SOLOMON ★ E.T.C.

Traffic Comparison: Hacienda and NASA Research Park

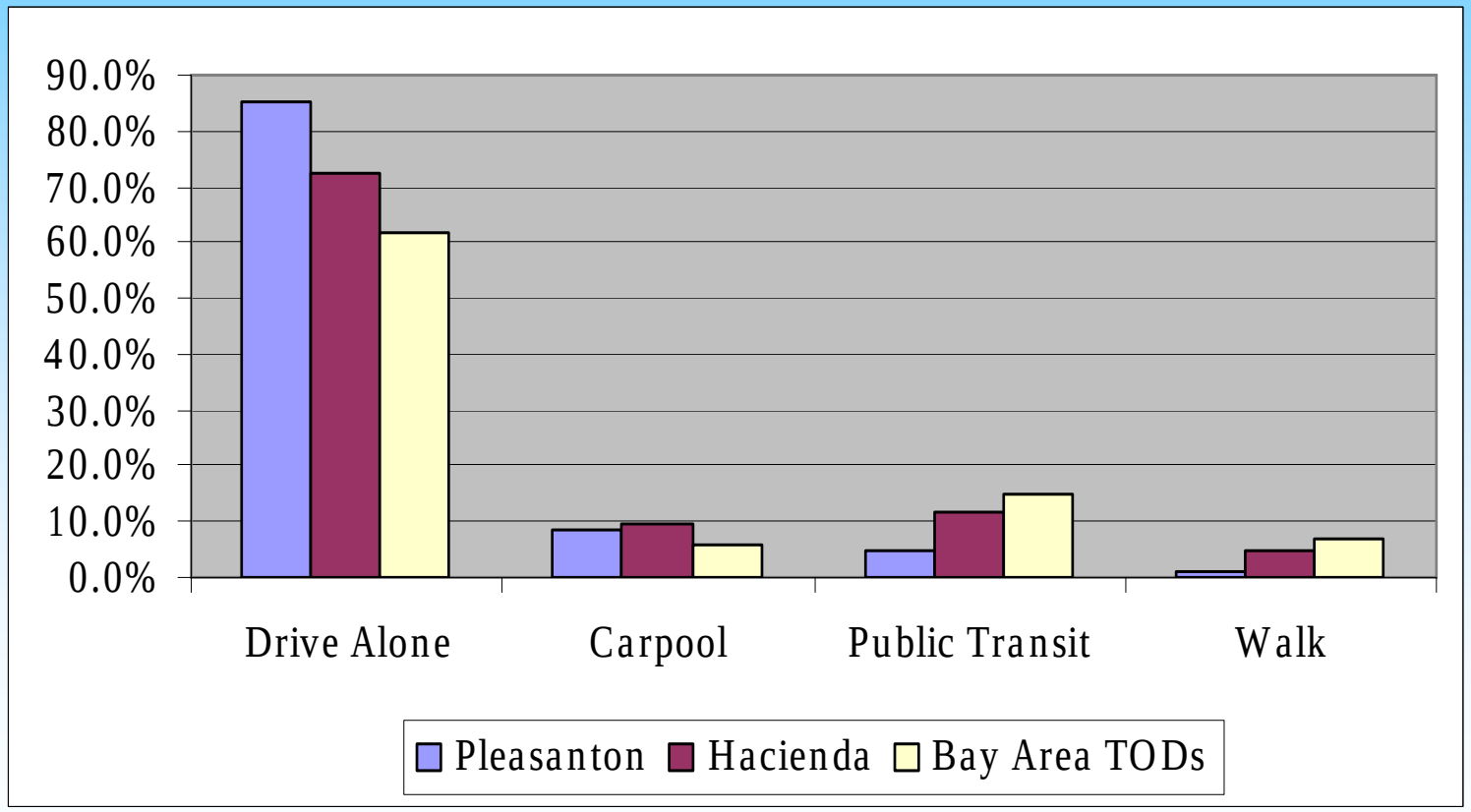


If Hacienda employees had same mode split as NASA employees, an additional 5.6 million square feet of office is possible – with no increase in traffic.

	Hacienda	NASA Research Park
Peak hour trip generation	1.33	.77
Drive alone mode share	79%	52%

Traffic Comparison

Trip generation is lower because more residents at Hacienda can walk and take transit to work. If Hacienda were transit *oriented*, effect would be stronger.



Source: Census 2000, Cervero, 1993

South San Francisco TDM Requirements

- Applicable to all non-residential developments to be located on east side of Highway 101.
- Requires 35 percent alternative mode usage & additional increase with increased FAR.
- Ordinance lists measures and potential trip reduction credit. Development must implement enough to reach 35% or more.

South San Francisco TDM Requirements

- Required Elements:
  - Bicycle Parking
  - Ridematching Services
  - Designated Employer Contact
  - Direct Route to Transit
  - Free, Preferential Carpool & Vanpool Parking
  - Guaranteed Ride Home
  - Information Boards/Kiosks
  - Passenger Loading Zones
  - Pedestrian Connections
  - Promotional Programs
  - Showers/Clothes Lockers
  - Shuttle Program
  - Participate in TMA

South San Francisco TDM Requirements

- Optional Elements:
  - Alternative Commute Subsides/Parking Cash Out
  - Bicycle Connections
  - Compressed Work Week
  - Flextime
  - Land Dedication for Transit/Bus Shelter
  - Onsite Amenities
  - Paid Parking at Prevalent Market Rates
  - Telecommuting
  - Reduced Parking

Stanford General Use Permit

❖ General Use Permit

- A blanket EIR for any future academic development.
- Up to 5 million square feet or seven TransAmerica Pyramids.
- University commits to no additional peak period automobile trips than 1989 levels.

Stanford General Use Permit

- Determined it is cheaper to pay commuters not to drive than to provide more parking
- Restructured campus transit system
- Developed bicycle program
- Developed array of TDM programs
- Built 3 million square feet of new development with no increase in peak period auto commuters.
- Reaffirmed commitment to “no new trips” policy for next phases of development

Stanford: Results

Added over 3 million square feet of building area

Most development occurred on or adjacent to a new 1.5 mile bike/transit mall, Olmsted's key east-west axis.

Rebuilt campus transit system and tripled its budget to over $1.5 million a year. At $1 per passenger ride or $2 per commuter shifted from driving, a great investment

Increased bicycle program budget from $5000 to $800,000 a year.

- Over 21% of commuters ride their bikes, and 75% of some departments arrive by bicycle

Implemented an array of Transportation Demand Management Programs

Implemented partial Parking Cashout Program

Stanford: Conclusions

- It is often cheaper to pay people not to drive or to provide alternatives than to build parking – in structure or surface lots.
- Same model works for private development – traffic reduction efforts by developers get projects approved quickly and cheaply.
- Reductions in the drive-alone rate between 25% and 60% are readily achievable, even in the most suburban locations.
- If someone tells you it cannot be done or it is too expensive, they are not looking at the big picture.

Summary

- Limit *traffic* rather than development
  - TDM requirements
  - Parking controls
  - Adjust trip generation formulas
- Manage parking demand and parking spillover
  - Residential parking permits
  - Price parking/parking cash-out
  - Parking maximums
  - Eliminate minimums or vary according to location and TDM
- Design parking well
  - Underground, “wrapped” or behind

Summary

- Design streets with pedestrians as highest priority
  - High quality sidewalks
  - Frequent crossings
  - Small blocks
- Integrate street grids
  - Connectivity a critical element for walking, biking and transit use
- Use market incentives
  - Impact fees
  - Parking pricing/parking cash-out
  - Universal transit passes

For More Information

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