Implementation: Beyond Allocating Width

Is there room for Complete Streets?

Does current street classification enable Complete Streets?

Do we have to widen roads to fit everything?

2

There's room: it needs to be recaptured

3

Does it fit within the available right-of-way?

Is this an efficient use the available right-of-way?

4

Does it fit within the available right-of-way?

Don't ask: "How much ROW do we need?" Ask: "How much ROW do we have, what do we want, and how do we design it to fit?"

5

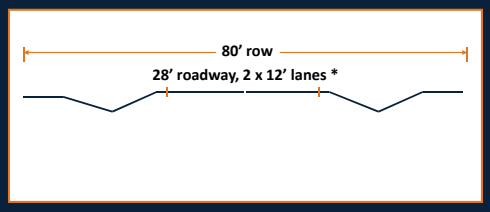
Conventional design: from the inside out

Add up (wide) travel lanes, run out of ROW
Result: one narrow curbside sidewalk

6

How much ROW for sidewalks & bike lanes?

Let's start with a 28' roadway & ditches in 80' R.O.W.

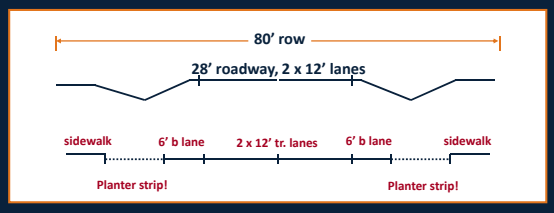


*** 24' of traveled way = 30% of R.O.W.**

7

How much ROW for sidewalks & bike lanes?

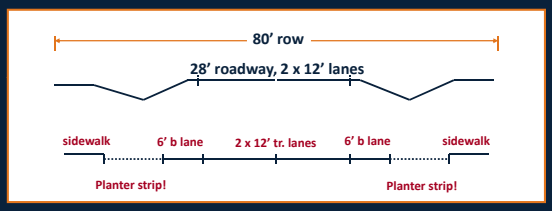
Let's "add" bike lanes, sidewalks, and planter strips



8

How much ROW for sidewalks & bike lanes?

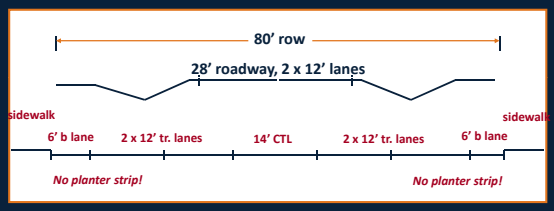
Everything fits, no problem…



9

How much ROW for sidewalks & bike lanes?

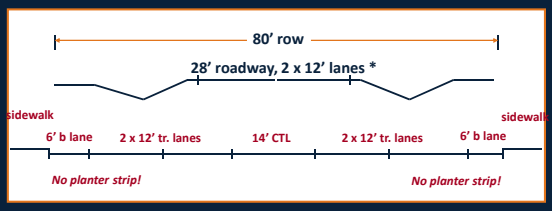
Now let's add 2 more travel lanes and a CTL…



10

How much ROW for sidewalks & bike lanes?

Uh-oh, who's taking up most of the R.O.W.?



*** 62' of traveled way = 77.5% of R.O.W.**

11

28' roadway & ditches in 80' ROW

24' of traveled way = 30% of R.O.W.

12

“Add” bike lanes, sidewalks, planting strip…

13

Everything fits, no problem!

14

Add 2 more travel lanes and CTL…

15

Uh-oh, who’s taking up most of the ROW?

62’ of traveled way = 77.5% of R.O.W.

16

New design: from the outside in

Add up desirable elements, fit in ROW

17

New design: from the outside in

Result:
nice sidewalks, bike lanes, adequate travel lanes

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Planning strategies to avoid overly wide streets

Land use

Street connectivity

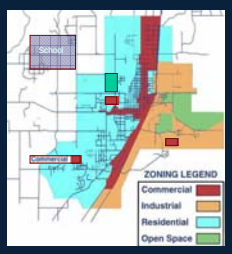
Reducing travel demand is best achieved by changing *Land Use* policies that bring destinations closer together

The problem:

- Commercial activities concentrated in auto-dominated corridors.
- Segregated land uses
- Result: long travel distances, not conducive to walking

Potential Solutions:

- Allow small-scale retail in neighborhoods
- Create neighborhood parks
- Site smaller schools close to parks and residences



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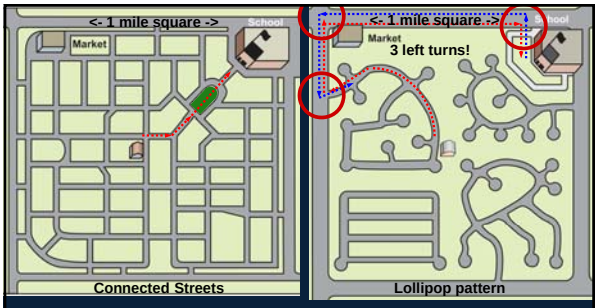

Connectivity creates a walkable, bikeable transit-oriented streets by

- Reducing distances;
- Offering more route choices on quiet local streets;
- Dispersing traffic: ***reducing reliance on arterials for all trips***

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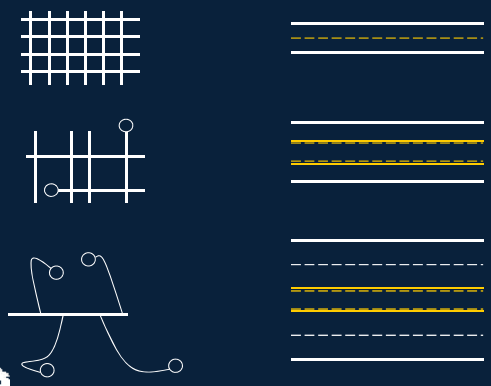
Connectivity

Travel lanes



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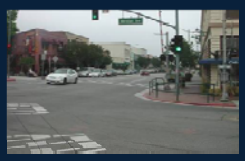
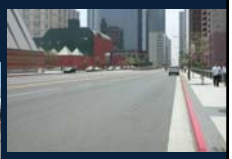
Should street width be based on classification?

Functional classification doesn't adequately describe the street's role in a community

All 3 are "arterials" yet look, feel and perform very differently





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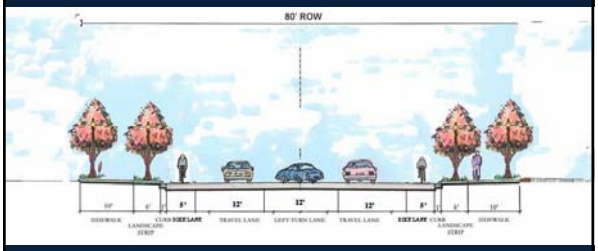
Context-Based Streets: More Descriptive Terms

26

Cross-section based on context

27

Cross-section based on context



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Design for street types

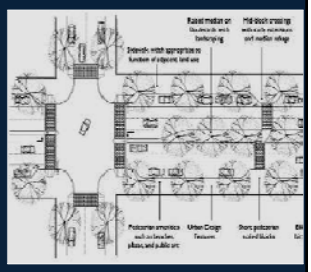
Design criteria:

- Physical configuration
- Surrounding context

Dimensions for

- Sidewalk environment
- Street
- Intersections

Target speed (desirable operating speed)



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Wide roads and motor vehicle LOS

Designing to LOS C or higher is waste of $$

- Allocate space for all users, accept resulting vehicle LOS

What about ped, bike and transit LOS?

Shorter ped crossing increases vehicular LOS at signals

30

Wide roads increase motor vehicle speed

Speed increases crash severity for all users

Over 35 MPH reduces roadway capacity

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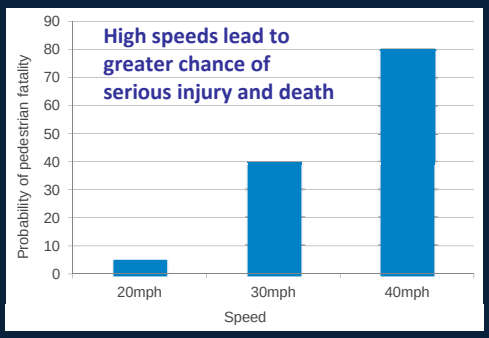
Speed Matters



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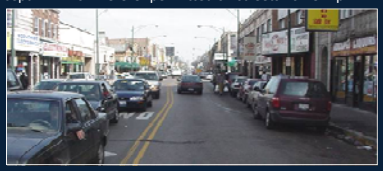
Narrower Travel Lanes

10' and 11' lanes are safer than 12' lanes on urban arterials with speeds under 45 MPH

AASHTO Green Book allows narrower lanes:

- 9' on local residential streets
- 10' on low speed arterials & collectors
- 11' for streets with trucks

Florida Greenbook allows for narrower lanes: 12' but not less than 10' except in TNDs where 9' permitted on streets 20-25 mph.



"Relationship of Lane Width to Safety for Urban and Suburban Arterials": Study by Potts, Harwood, and Richard

33

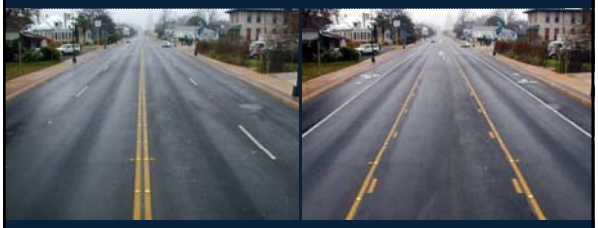
Reinventing a roadway:
Transform a 5-lane commercial strip to …

34

… a safer road for everyone, without adding R.O.W.
How? Narrow travel lanes

35

How to make room: Road Diets

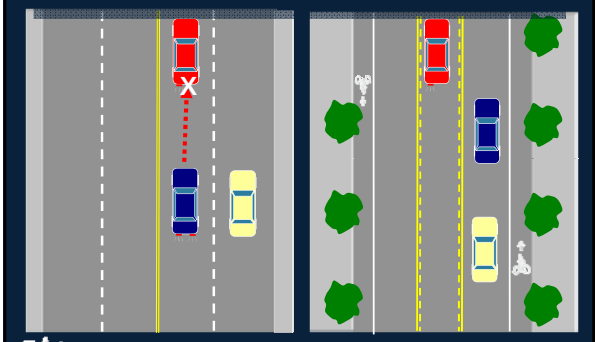


Convert 4-Lane Road to 3-Lane and TWLTL

29% crash reduction

36

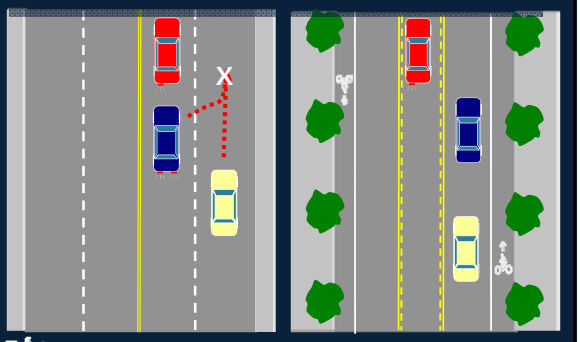
Crash Reduction



Rear end

37

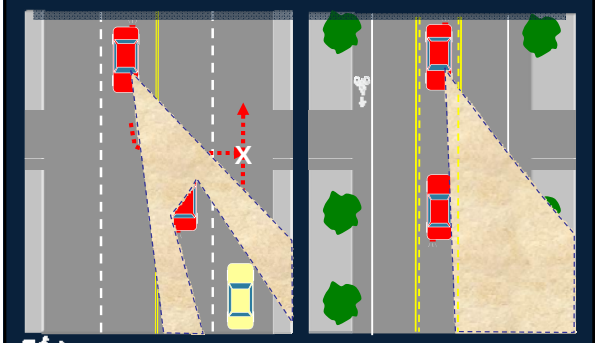
Crash Reduction



Side swipe

38

Crash Reduction



Left turn/broadside

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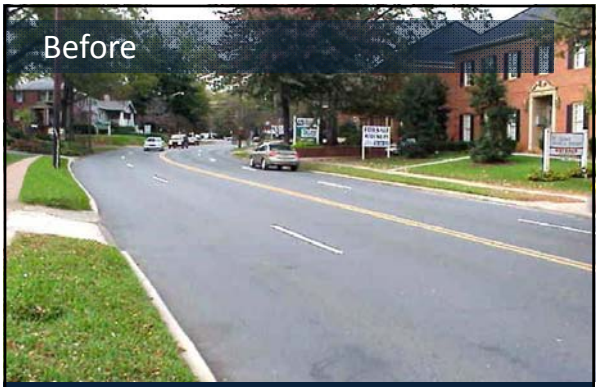
Handles 20,000 ADT

Mission District, San Francisco
North-South ADT

40

Before



Reclaiming road space creates room for ped islands

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Concept

Reclaiming road space creates room for ped islands

42

Reclaiming road space creates room for ped islands

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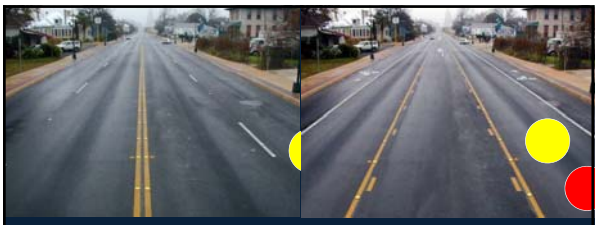
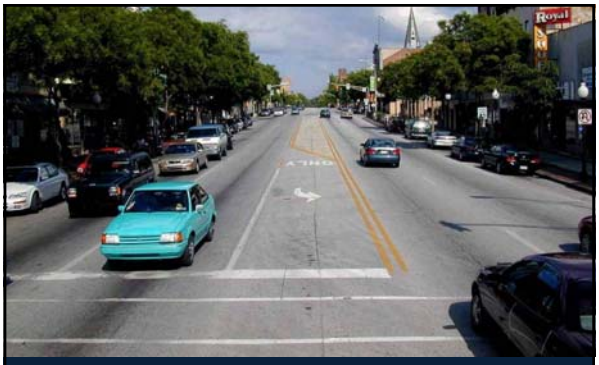


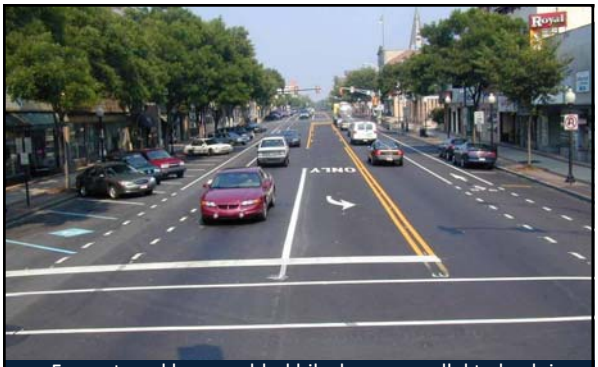
- Which road carries more traffic?
- Which road produces higher speed?
  - 4-lane: faster driver can pass others
  - 2-lane: slower driver sets speed
- Which road produces higher crash rate?
- Which is better for bicyclists? Pedestrians? Businesses?

44



This 5-lane Main Street was converted to…

45



Fewer travel lanes; added bike lanes; parallel to back-in diagonal parking on one side; new pavement

46

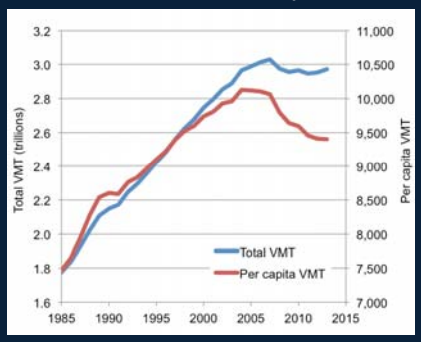
There's potential on one-way streets too:
Is this street operating at capacity?

47

This area was recaptured from a 4th travel lane; the street took on a whole new life

49

Will traffic volumes always increase?



Source: FHW, Census Bureau, SSTI

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Exercises

- Are there candidates for road diets in your area?
- How would the space be reallocated?
- Brainstorm ideas on how you'd like to classify roadways in your area

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