Narrow Streets, Timely Response

Overhang 14 feet

Healthy Streets for America

Dan Burden, Senior Urban Designer, Glatting Jackson and Director of Walkable Communities, Inc.

The agenda

1. Introduction by LGC	**Concepts, instructors, logistics, key definitions, problems and issues**
2. Roads, Traffic and communities	**Further introduction on how and why cities are changing, and how street designs are transforming to meet these needs.**
3. Emergency response equipment and needs	**Equipment size, scale, turning needs, operational needs, motorist behavior and more**
4. Connectivity and links	**New ways to access traditional and conventional neighborhoods. Adding points of entry for hard to reach sites.**
5. Healthy street principles and multi-lane roads	**Street layout, speed, capacity, toolbox, flexibility in design, principles, access, alleys, lanes, streets, avenues**
6. Traffic Calming Schools, Parking	**Best tools and methods for achieving safety and livability by getting speeds under control. (Includes emergency responders needs)**
7. Partnerships and approaches	**New ways of working out street designs and issues that work for everyone**

The World is Changing

Expect:

Option One:

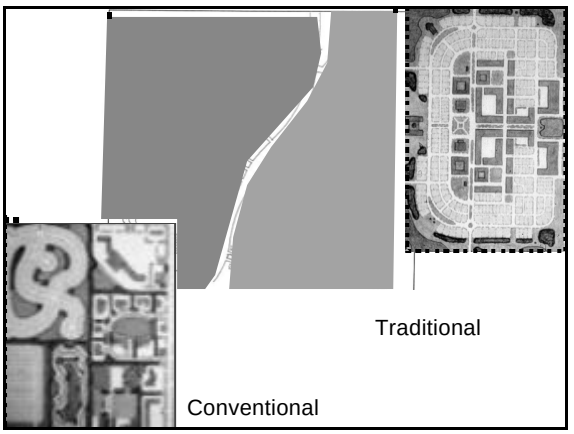
25% more traffic every ten years.
More intersections failing.
More people spreading out into canyons, ridges and other high risk locations.

Also Expect:
More cars per household
Limited new lanes and limits on intersections being rebuilt
More demand for slowing traffic
More demand for traffic to stay in motion
More demand for safer streets
More demand for quieter streets

Responder is here

Emergency is here

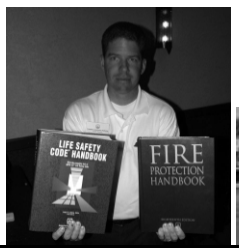
Conventional		Traditional
All trips are external	▶	Trips are mixed, internal
Travel uses strong road hierarchy	▶	Low hierarchy or none
High auto dependency	▶	Reduced auto trips
Streets and blocks may be long	▶	Blocks are short
Traffic calming is used	▶	Natural traffic calming



Traditional

Conventional

Emergency Response



Mobile Narrow Streets Workshop

Petaluma, California

Portland, Oregon

Emergency Response

Equipment Specifics

- Generally 9.5 feet from cabinet to cabinet (mirror to mirror)
- Tight turning radius (WB-30 is common)
- However, significant overhangs on front and back
- Vertical clearance varies, but 11 feet is common
- Aerial ladders do not work if extender legs not fully extended
- Many have cabinet doors that swing outward
- Many carry 7,000 gallons of water (very heavy)
- Some have ladder hydraulics that swing up and over

Performance Measure: Equipment is the right size and scale for multiple neighborhood missions.

Message: Do not oversize or over scale for mission

Overhang 14 feet

9.5 to 10 feet

Turning Radius must also accommodate overhang

Ask about the secret button

Extensions – 15-18 total width for operations

Emergency Response

Protect Access to all Locations

- No humps or bumps (some tables or raised intersections)
- Proper turn radii (protect right-turn entries)
- Preserve 20' operations width
- Bike lanes and parking help with turning radius
- Set landscape features back from corners
- Curb extensions are helpful in protecting access
- Provide high connectivity (system redundancy)
- Use care in tree selection and placement

Performance Measure: Able to maintain 4 minute response time to all most locations

Gainesville, Florida Emergency Response Team and Public Works Department

Unit is able to clear chicane at 28 mph

Critical entry to neighborhood. Streets are too narrow for rare event.

Bus breaks down, emergency call comes in.
Only one way in

Gainesville, Florida

Two micron clearance!!!

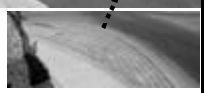
Gainesville, Florida

Motorist parks in Tee intersection blocks large equipment from entry

Solution?

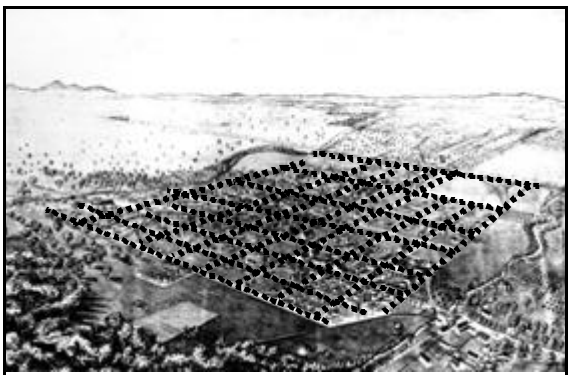
Curb extensions

Two-Step curbing



Gainesville, Florida

Connectivity



Conventional Development Pattern

When multiple points of access are not feasible (i.e. single point cul-de-sac access) then it makes sense to require wider street types.

TND Development

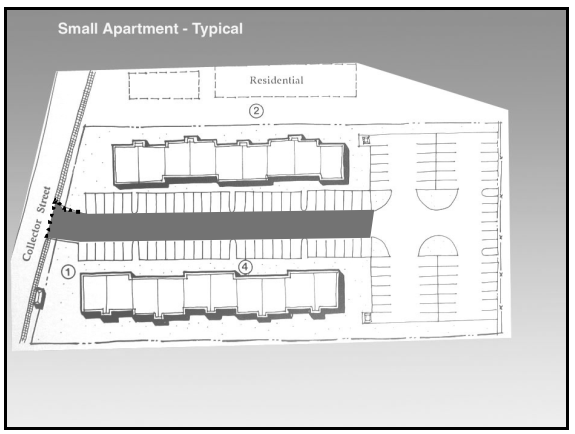
TND style streets which make use of many linked roads provide multiple points of access.

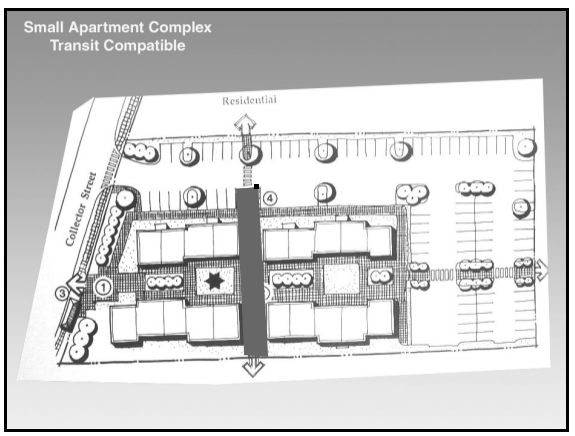
A site such as this one has a theoretical set of access routes numbering many dozens.

Hence, control of traffic speed 24-hours per day, 365 days a year provides the greatest public good and safety.

Meriam Park, Chico, California

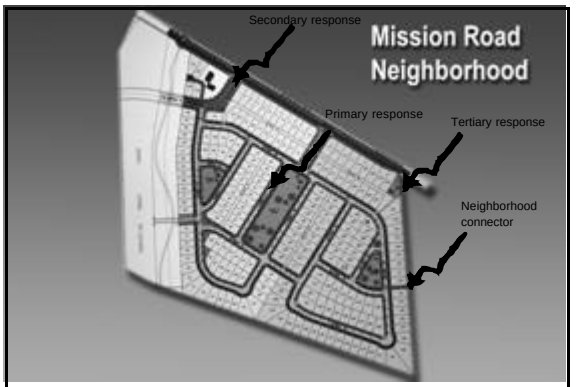
Stapleton, Denver, Colorado


Small Apartment - Typical
Residential
Collector Street
1
2
4


Small Apartment Complex
Transit Compatible
Residential
Collector Street
1
3
4


STOP


Mission Road
Neighborhood
Primary response

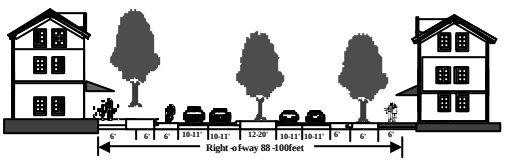


Use trail connectors and neighborhood connectors for added entries

Multi-lane Roads

New Tools and Tricks

BOULEVARD



Claremont, California


Brea, California


Federal Blvd., Denver, Colorado


Federal Blvd,
Denver, Colorado


Federal Blvd,
Denver, Colorado


Federal Blvd,
Denver, Colorado

Bellevue, Washington

186th S.E. Bellevue, Washington

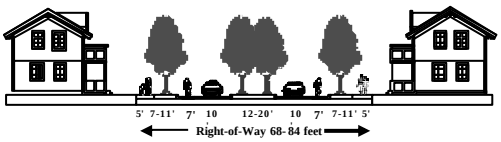
Bellevue, Washington

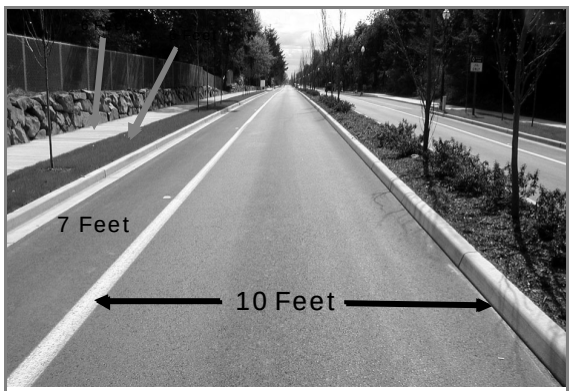
Bellevue, Washington

Bellevue, Washington

Sammamish, Washington

AVENUE





Curb-to-Curb 17 feet
33 mph running speeds

University Place, Washington

Curb-to-Curb 17 feet
38 mph running speeds

Natomas, Sacramento, California

University Place, Washington

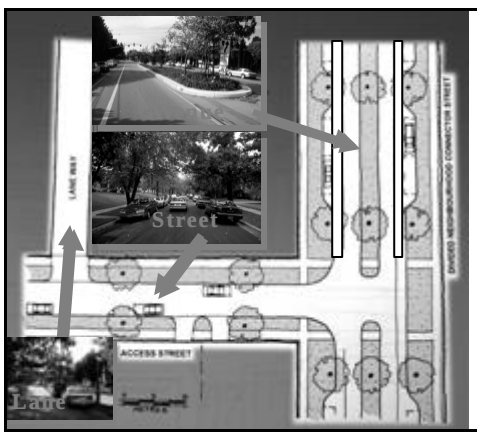
University Place, Washington


10
Feet
University Place,
Washington

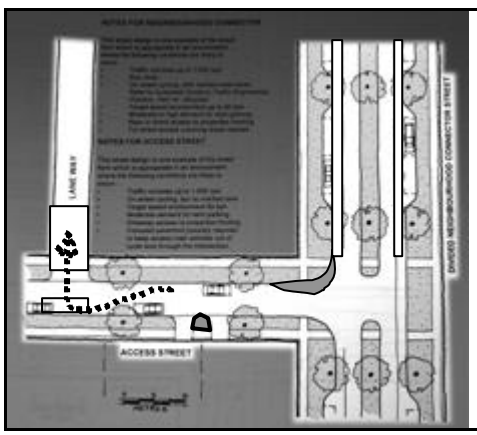

11 Feet
10 Feet
11 Feet
Mill Valley,
Washington


Martin Luther King, Pensacola, Florida

Assure Access

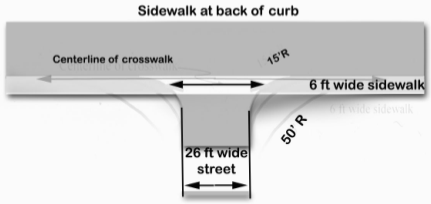


Healthy Streets



Access

Effect of Corner Turning Radii on Pedestrian Crossing Distances

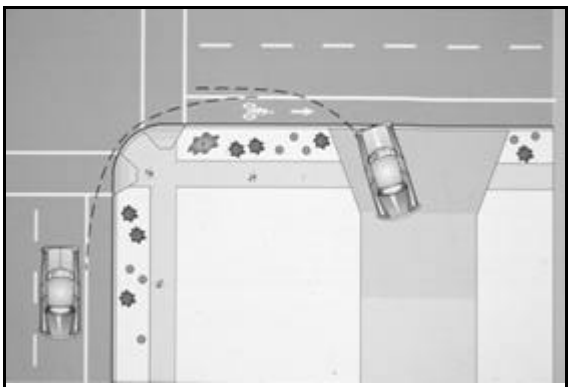


Radius	Crossing Distance	Increased Crossing	Percent Increase
15'	37'	+11'	42%
25'	50'	+24'	92%
50'	89'	+53'	203%

Would you allow your child to cross this street?

From 103 Feet to 26 Feet

La Mesa, California



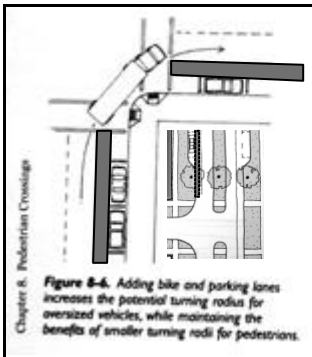


Figure 8-6. Adding bike and parking lanes increases the potential turning radius for oversized vehicles, while maintaining the benefits of smaller turning radii for pedestrians.

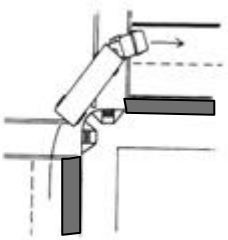


Figure 8-7. Allowing trucks to turn into the second lane of traffic increases the potential turning radius for oversized vehicles.

Plan must provide adequate turning radii, not excessive width

Departure road 20.0 feet wide, Entry road 20.0 feet wide
Turning radius of vehicle: WB-40

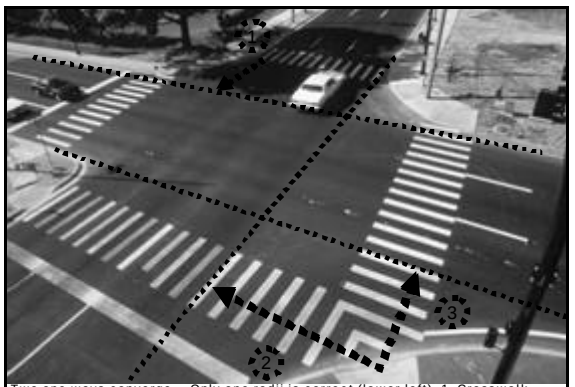
AASHTO and other national standards permit designers to use full roadway receiving radius for oversize vehicles

A fine grained road system with sell distributed traffic allows narrow entries

Use of different material to accent no-parking areas near intersection Davis, California

Use of different material to accent no-parking areas near intersection Davis, California

Mountable median nose



Two one-ways converge. Only one radii is correct (lower left). 1. Crosswalk is set back 25 feet due to wide radii. 2-3. Wide radii adds 2-3 seconds to crossing times (and adds to clearance interval and loss of cycle efficiency).

Charlottesville, Virginia

Healthy street system provide quick, efficient, uncluttered travel ways and response times on major routes leading up to local street system

Bike lanes provide places for motorists to pull over.

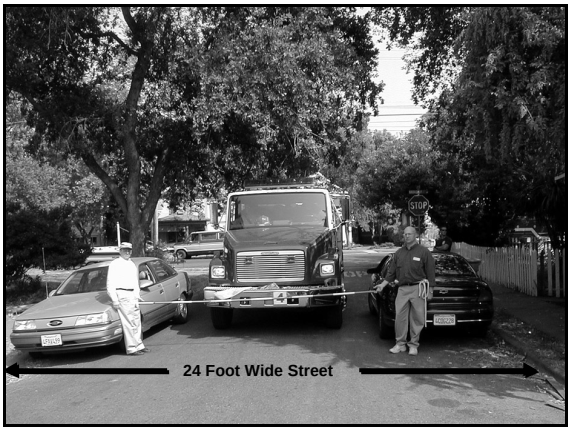
Widths of 5-7 feet are effective

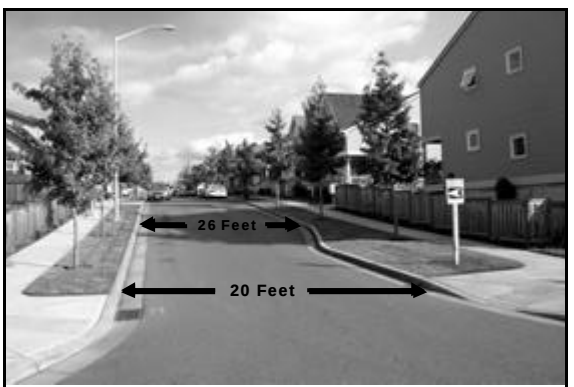
Chico, California

Healthy Streets provide adequate access to each turn into neighborhood and from each direction of arrival

Right turn entries are the most critical

Charlottesville, Virginia





Proper width entry, and protected space is on the correct side of the intersection

New Hope, Seattle, Washington

Proper width entry, but protected space is on the wrong side of the intersection

New Hope, Seattle, Washington

New Hope, Seattle, Washington


STOP

What fire administrators often fear

What Fire administrators should accept

Both streets are 28 feet wide (Yield Streets) Petaluma, California

Midblock Access

Seattle, Washington

Motor Court Issaquah Highlands, Washington

Upper Arlington, Ohio

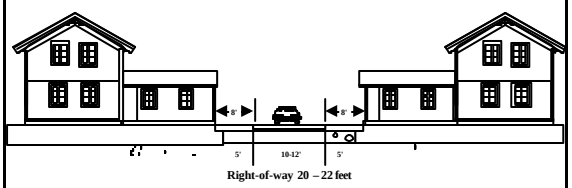
Suisun City, California

Healthy streets provide the best opportunity to sustain property value (traffic calmed neighborhoods increase property values), which increases tax base to sustain high quality government services, including emergency response.

Speeds:	**20-22 mph**	**28-32 mph**
Value	**Same homes**	**$5-15K less**

Suisun City, California

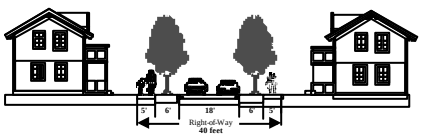
ALLEY



Right-of-way 20 – 22 feet

Corner radii are tight, but mountable

LANE



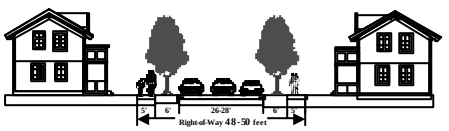
Philadelphia, Pennsylvania

Celebration, Florida

Oakland, California

Alley and Lane

STREET



24 Feet Wide Palo Alto, California

24 Feet Wide Palo Alto, California

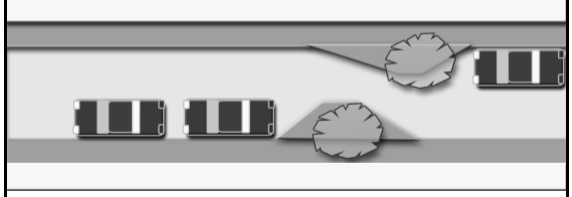
24 Feet Wide Palo Alto, California

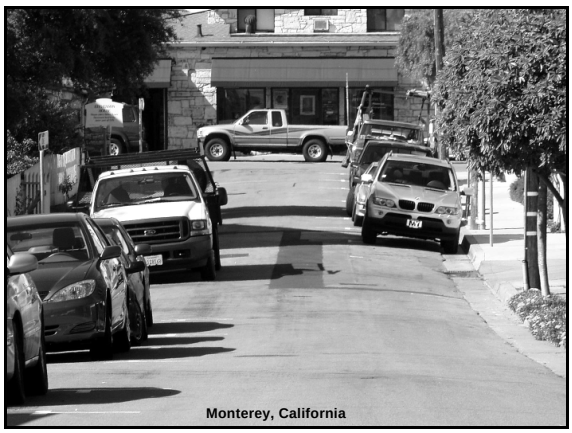
Doe Mill Chico, California

Doe Mill Chico, California

Cambridge, Mass.

Traffic Calming -- On Street Parking





Monterey, California

Gainesville, Florida

Roundabouts