

# “Complete & Great Streets” ...

love your local engineer?  
Is this really happening?  
How are communities doing this?





Why do we need complete streets in NM?

Love your local engineer?



# What is FHWA saying about Road Diets?



## A RESIDENT'S GUIDE FOR CREATING SAFE AND WALKABLE COMMUNITIES

**ROAD DIET: NARROWING OR ELIMINATING TRAVEL LANES ON A ROADWAY TO MAKE MORE ROOM FOR PEDESTRIANS AND BICYCLISTS.**

### Purpose/Benefits

- Reduces motor vehicle speed.
- Provides more space for pedestrian and bicycle facilities.

### Agency Considerations

- The road must adequately accommodate traffic flow.
- Extra lanes can be converted to bike lanes, on-street parking, a raised median, or buffers.
- A road diet may divert traffic to a nearby street or neighborhood.

### Common Resident Questions and Answers

**Q:** Won't this cause more traffic congestion?

**A:** A road diet can't be applied to every street. Road diets are most effective where streets have been "overbuilt" to meet existing traffic volume. When applied appropriately, traffic will remain relatively unchanged.



Street before road diet



Street after road diet



FHWA-SA-07-016

[http://safety.fhwa.dot.gov/ped\\_bike/ped\\_cmnty/ped\\_walkguide/resource7.cfm](http://safety.fhwa.dot.gov/ped_bike/ped_cmnty/ped_walkguide/resource7.cfm)

# What is FHWA saying about Road Diets?

**HSIS**  
HIGHWAY SAFETY INFORMATION SYSTEM

The Highway Safety Information System (HSIS) is a multi-State safety database that contains crash, roadway inventory, and traffic volume data for a select group of States. The participating States—California, Illinois, Maine, Michigan, Minnesota, North Carolina, Ohio, Utah, and Washington—were selected based on the quality of their data, the range of data available, and their ability to merge the data from the various files. The HSIS is used by FHWA staff, contractors, university researchers, and others to study current highway safety issues, direct research efforts, and evaluate the effectiveness of accident countermeasures.

  
U.S. Department of Transportation  
Federal Highway Administration

Research, Development, and Technology  
Turner-Fairbank Highway Research Center  
6300 Georgetown Pike • McLean, VA 22101-2296

## SUMMARY REPORT

### Evaluation of Lane Reduction “Road Diet” Measures on Crashes

*This Highway Safety Information System (HSIS) summary replaces an earlier one, Evaluation of Lane Reduction “Road Diet” Measures and Their Effects on Crashes and Injuries (FHWA-HRT-04-082), describing an evaluation of “road diet” treatments in Washington and California cities. This summary reexamines those data using more advanced study techniques and adds an analysis of road diet sites in smaller urban communities in Iowa.*

A road diet involves narrowing or eliminating travel lanes on a roadway to make more room for pedestrians and bicyclists.<sup>1)</sup> While there can be more than four travel lanes before treatment, road diets are often conversions of four-lane, undivided roads into three lanes—two through lanes plus a center turn lane (see figure 1 and figure 2). The fourth lane may be converted to a bicycle lane, sidewalk, and/or on-street parking. In other words, the existing cross section is reallocated. This was the case with the two sets of treatments in the current study. Both involved conversions of four lanes to three at almost all sites.

Road diets can offer benefits to both drivers and pedestrians. On a four-lane street, speeds can vary between lanes, and drivers must slow or change lanes due to slower vehicles (e.g., vehicles stopped in the left lane waiting to make a left turn). In contrast, on streets with two through lanes plus a center turn lane, drivers’ speeds are limited by the speed of the lead vehicle in the through lanes, and through vehicles are separated from left-turning vehicles. Thus, road diets may reduce vehicle speeds and vehicle interactions, which could potentially reduce the number and severity of vehicle-to-vehicle crashes. Road diets can also help pedestrians by creating fewer lanes of traffic to cross and by reducing vehicle speeds. A 2001 study found a reduction in pedestrian crash risk when crossing two- and three-lane roads compared to roads with four or more lanes.<sup>2)</sup>

Under most annual average daily traffic (AADT) conditions tested, road diets appeared to have minimal effects on vehicle capacity because left-turning vehicles were moved into a common two-way left-turn lane (TWLTL).<sup>3,4)</sup> However, for road diets with AADTs above approximately 20,000 vehicles, there is an increased likelihood that traffic congestion will increase to the point of diverting traffic to alternative routes.

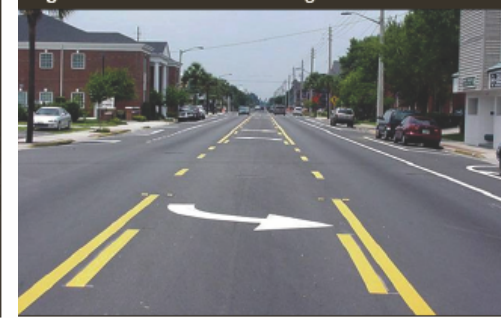
While potential crash-related benefits are cited by road diet advocates, there has been limited research concerning such benefits. Two prior studies were conducted using data from different urbanized areas. The first, conducted by HSIS researchers, used data from treatment sites in eight cities in California and Washington.<sup>5)</sup> The second study analyzed data from treatment sites in relatively small towns in Iowa.<sup>6)</sup> While the nature of the treatment was the same in both studies (four lanes reduced to three), the settings, analysis methodologies, and results of the studies differed. Using a comparison of treated and matched comparison sites before and after treatment and the development of negative binomial regression models, the earlier HSIS study found a 6 percent reduction in crash frequency per mile and no significant change in crash rates at the California and Washington sites. Using a long-term (23-year) crash history for treated and reference sites and the development of a hierarchical Poisson model in a Bayesian approach, the later Iowa study

Figure 1. Photo. Four-lane configuration before road diet.



Source: Pedestrian Bike Information Center, “Road Diets” training module, 2009.

Figure 2. Photo. Three-lane configuration after road diet.



Source: Pedestrian Bike Information Center, “Road Diets” training module, 2009.

- Safety evaluation
  - 51 sites
  - CA, IA, & WA
  - Suburban sites
    - 13-26,000 AADT
- 29% accident reduction
  - All modes of travel!!

FHWA-HRT-10-053 or HRDS-06/06-10(1M)E

# Toolbox on Intersection Safety and Design

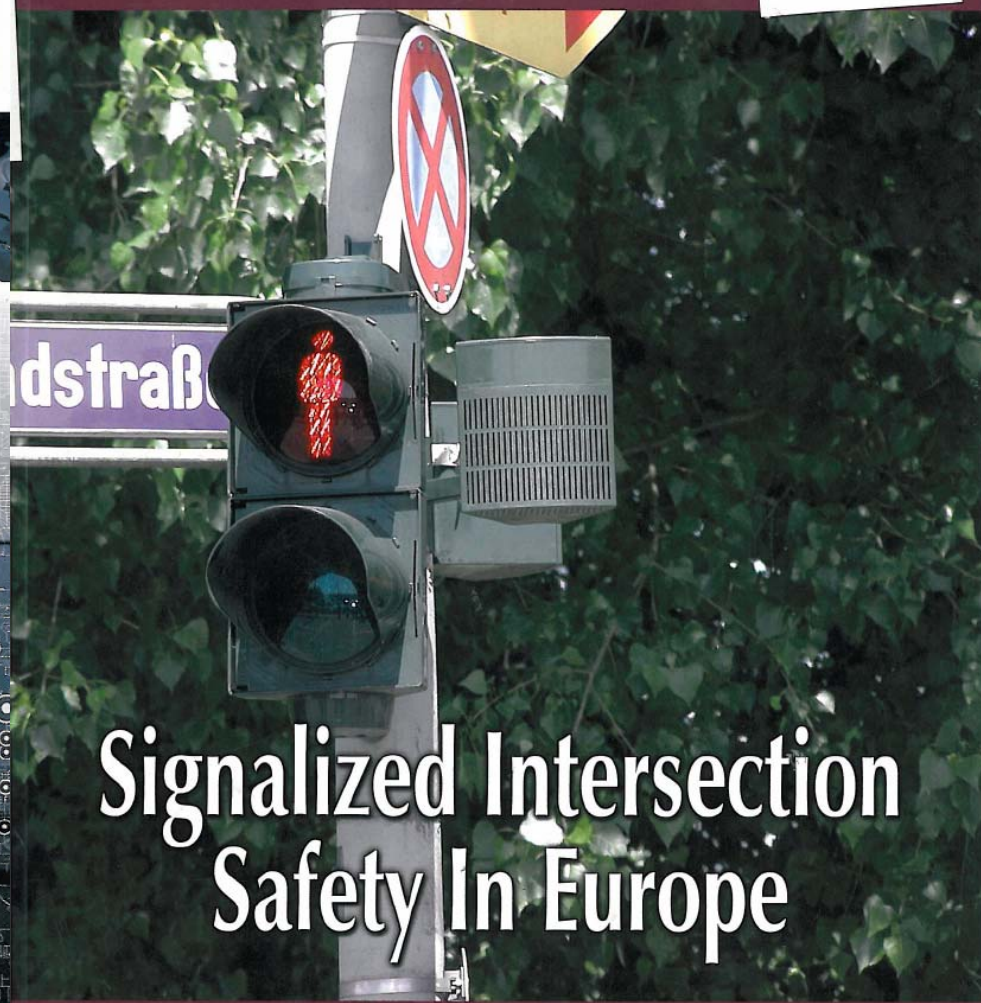
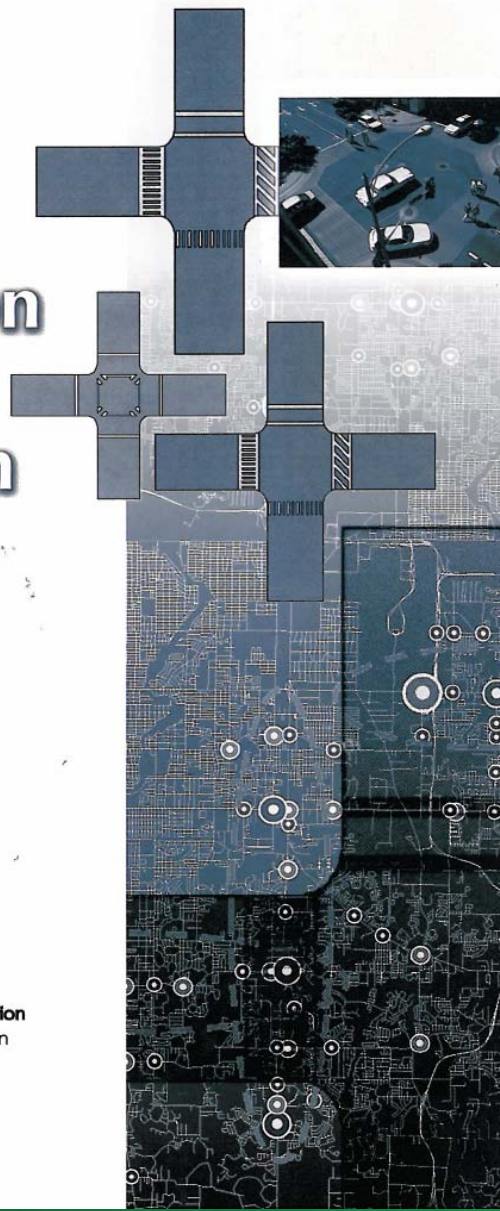
September 2004



Institute of Transportation Engineers



U.S. Department of Transportation  
Federal Highway Administration



# Signalized Intersection Safety In Europe



U.S. Department of Transportation  
Federal Highway Administration  
International Technology Exchange Program

DECEMBER 2003



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TRANSPORTATION CONSULTANTS

What are professional transportation organizations saying?

# Guide for the Planning, Design, and Operation of Pedestrian Facilities



American Association of State Highway and Transportation Officials

July 2004



October 1999

## Traditional Neighborhood Development

### Street Design Guidelines



A Recommended Practice of the Institute of Transportation Engineers



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What are professional transportation organizations saying?

# Innovative Bicycle Treatments

An Informational Report



By Jumana Nabti, Matthew Ridgway  
and the ITE Pedestrian and Bicycle Council

 Institute of Transportation Engineers

# Alternative Treatments for At-Grade Pedestrian Crossings



An Informational Report by  
**Nazir Lalani**  
& the ITE Pedestrian and Bicycle Task Force



Institute of Transportation Engineers



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What are professional transportation organizations saying?



# Design and Safety of Pedestrian Facilities

A Recommended Practice of the  
Institute of Transportation Engineers

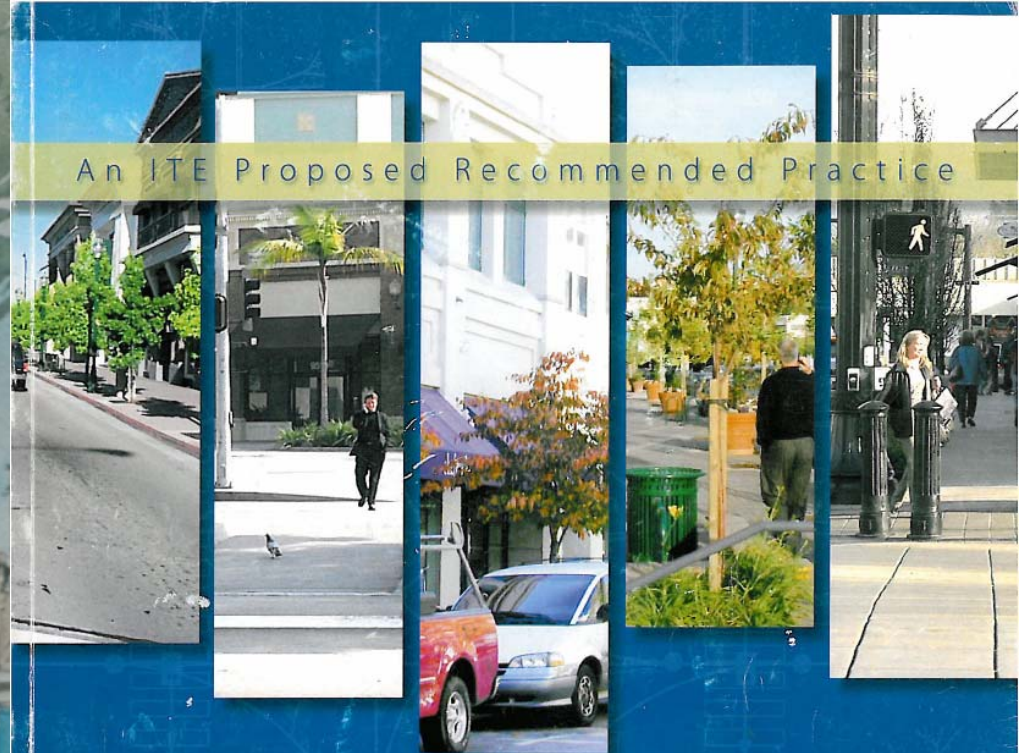


Prepared by:

Traffic Engineering Council  
Committee TENC-5A-5

Charles V. Zegeer, Chair

March 1998



An ITE Proposed Recommended Practice

## Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities



Institute of Transportation Engineers



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What are professional transportation organizations saying?

Audio will play over this slide



What are you telling the engineering community?

**Table 1**  
**Level of Service Descriptions**

Illustration	Level of Service	Description of Traffic Conditions	Signalized Intersections	Unsignalized Intersections
			Average Delay <sup>1</sup> (sec / veh)	Delay <sup>2</sup> (sec / veh)
	A	<i>Free Flow / Insignificant Delay</i> Extremely favorable progression. Individual users are virtually unaffected by others in the traffic stream.	0 to 10	0 to 10
	B	<i>Stable Operations / Minimum Delays</i> Good progression. The presence of other users in the traffic stream becomes noticeable.	> 10 to 20	> 10 to 15
	C	<i>Stable Operations / Acceptable Delays</i> Fair progression. The operation of individual users is affected by interactions with others in the traffic stream.	> 20 to 35	> 15 to 25
	D	<i>Approaching Unstable Flows / Tolerable Delays</i> Marginal progression. Operating conditions are noticeably more constrained.	> 35 to 55	> 25 to 35
	E	<i>Unstable Operations / Significant Delays Can Occur</i> Poor progression. Operating conditions are at or near capacity.	> 55 to 80	> 35 to 50
	F	<i>Forced, Unpredictable Flows / Excessive Delays</i> Unacceptable progression with forced or breakdown of operating conditions.	> 80	> 50

This is the  
priority we  
gave  
engineers  
over 50 years  
ago

1. Overall intersection LOS and average delay (seconds/vehicle) for all approaches.

2. Worst approach LOS and delay (seconds/vehicle) only.

Source: Fehr & Peers Descriptions, based on *Highway Capacity Manual*, 2000 Methodology (Transportation Research Board).

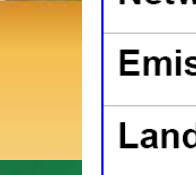
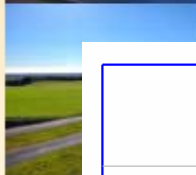


# Smart Mobility 2010

A Call to Action for the New Decade



November 2009



## Now we have a new priority

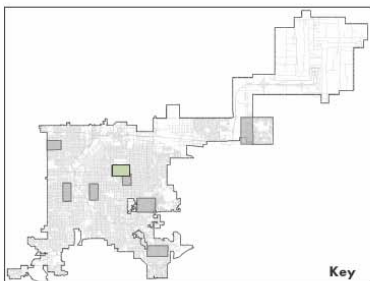
Smart Mobility Measure	Acceptable Performance?	
	Option A	Option B
Speed Suitability		✓
Multi-Modal Mobility		✓
Ped and Bike Mode Share		✓
Network Management	✓	✓
Emissions	✓	✓
Land Use Efficiency		✓
Multi-Modal Level of Service		✓
<b>Percent Checked</b>	<b>28%</b>	<b>100%</b>

# Colfax Avenue

between York and Colorado



Two travel lanes in each direction, two-way center left-turn lane, on-street parking on both sides of the street, attached sidewalks with a tree and utility pole buffer on both sides.



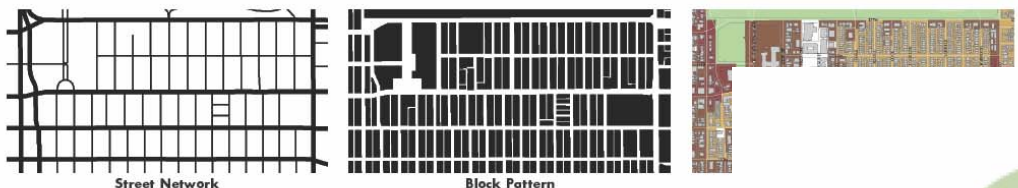
**Context Zones Legend**

- Downtown Neighborhood
- Urban Center Neighborhood
- General Urban Neighborhood
- Urban Neighborhood
- Urban Edge Neighborhood
- Suburban Neighborhood
- Special Context (Parks & Open Space)
- Special Context Industrial
- Special Context (Campus and Airport)

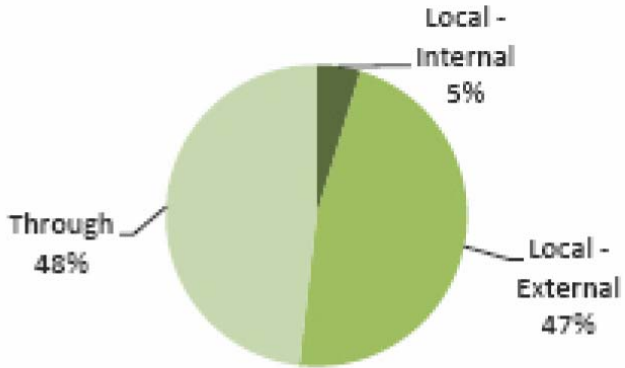
Living Streets



Areas of Change



	Street Network				Block Pattern				Land Use Mix						
% Effective	99%	11	1.6	65	100	1,670	270	1 to 6	32.8%	33.9%	6.6%	0.0%	1.4%	0.6%	15.0%
Number of Lanes or Additional Capacity															
Connectivity Score															
Curb-to-Curb Right-of-Way															
Average Block Perimeter (feet)															
Average Block Face along Corridor (feet)															
Buildings to Street Ratio															
Single-Family															
Multi-Family															
Retail/Commercial															
Mixed Use															
Office															
Industrial															
Institutional															



## Trip Types

- Local - Internal (Origin AND Destination within 1 mile radius)
- Local - External (Origin OR Destination with 1 mile radius)
- Through (Origin AND Destination outside of 1 mile radius)

Source: DRCOG Regional Model (2005 STP Versions)

# How are transportation engineers working to build "complete & great streets"?



Two travel lanes in each direction, two-way center left-turn lane, attached sidewalks on both sides with utility poles

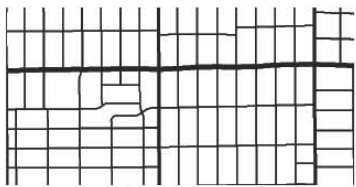


**Context Zones Legend**

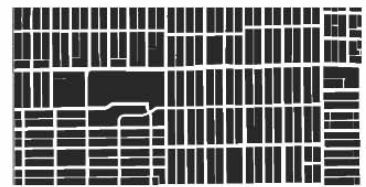
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Areas of Change



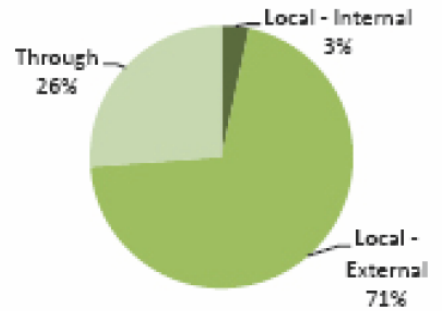
Street Network



Block Pattern



Street Network					Block Pattern				Land Use Mix					
% Effective	Number of Lanes of Additional Capacity	Connectivity Score	Curb-to-Curb	Right-of-Way	Average Block Perimeter (feet)	Average Block Face along Corridor (feet)	Building to Street Ratio	Single-Family	Multi-Family	Retail/Commercial	Mixed use	Office	Industrial	Institutional
100%	8	1.8	60'	Average 70' (varies between 60-90')	1,700	270'	1 to 5	64.6%	20.6%	7.3%	0.6%	1.0%	1.1%	1.2%



Trip Types

- Local - Internal (Origin AND Destination within 1 mile radius)
- Local - External (Origin OR Destination with 1 mile radius)
- Through (Origin AND Destination outside of 1 mile radius)

Source: DRCOG Regional Model (2005 STP Versions)

# How are transportation engineers working to build "complete & great streets"?

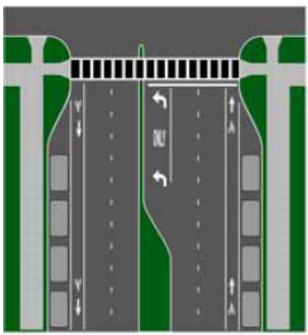
Is this really happening?



## MAIN STREET FOUR LANE WITH MEDIAN

### Description

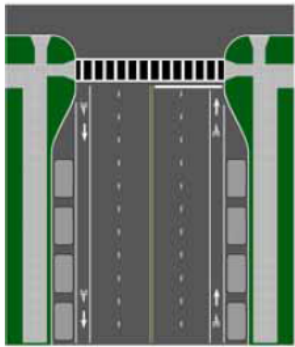
All of the main street design concepts are intended for roadways located within the Urban Centers or TOD areas where there is the potential for a high level of pedestrian activity. Accordingly, an increased amount of accommodations should be considered for creating safer crossing environments for pedestrians and bicyclists. In the case of the Main Street Median design, while within the Urban Centers this concept is not intended for the heart of the pedestrian activity centers. Therefore, increased accommodations should be provided in the form of reducing crossing distances and more clearly identifying crosswalks, but additional enhancements should not be necessary. Few if any midblock crossings should be associated with the Main Street Median cross-section.



## MAIN STREET FOUR LANE WITHOUT MEDIAN

### Description

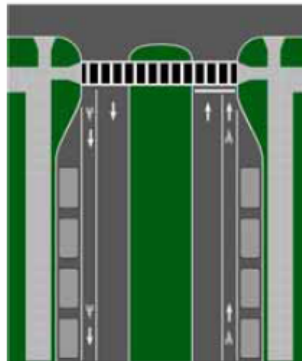
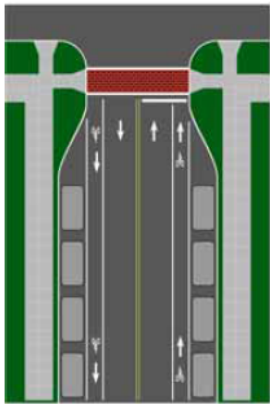
The Main Street Without Median design concept, while located within the Urban Centers and TOD areas, is similar to the Main Street Median design, but offers less protection for the pedestrian or bicyclist. This roadway design should not be used in the higher pedestrian activity areas; nonetheless, a increased level of accommodations should be provided in the form of reducing crossing distances and more clearly identifying crosswalks, but additional enhancements should not be necessary. Midblock crossings of the Main Street Without Median design should be avoided.



## MAIN STREET – PARALLEL PARKING

### Description

Once again, the main street design concepts are intended for roadways located within the Urban Centers or TOD areas where there is the potential for a high level of pedestrian activity. The Main Street narrower roadway section, less about moving pedestrians and bicycles. In addition to increased enhancements should be provided to more clearly identify crosswalks. Located deeper within the Urban Centers, midblock crossings should be avoided. Located deeper within the Urban Centers, midblock crossings should be avoided.



## RESIDENTIAL PARKWAY

### Description

While Residential Parkways will be located within the Urban Centers and TOD areas, pedestrian activity more representative of a typical neighborhood would be expected where such a roadway is located. Accordingly, vehicular travel speeds should already be reduced and awareness of the potential for pedestrians and bicyclists heightened. Therefore, enhanced crosswalk identifications are not necessary, but additional accommodations beyond the more vehicular oriented Parkway design should be provided. Midblock crossings should not be necessary along Residential Parkways unless to accommodate a path, in which case more excessive design concepts to accommodate pedestrians and bicyclists should be provided.

**Aurora Urban Street Standards**  
for  
**Transit Oriented Developments and Urban Centers**

**fp**  
**FEHR & PEERS**  
TRANSPORTATION CONSULTANTS

Prepared by:  
Fehr & Peers  
and  
David Owen Tryba Architects

For:  
City of Aurora, Colorado

November 6, 2006

















before



“The street should reflect the land use”

San Leandro, CA  
Bancroft Avenue



before



“ Parking in the ROW is public use”

Orinda Way  
Orinda, CA



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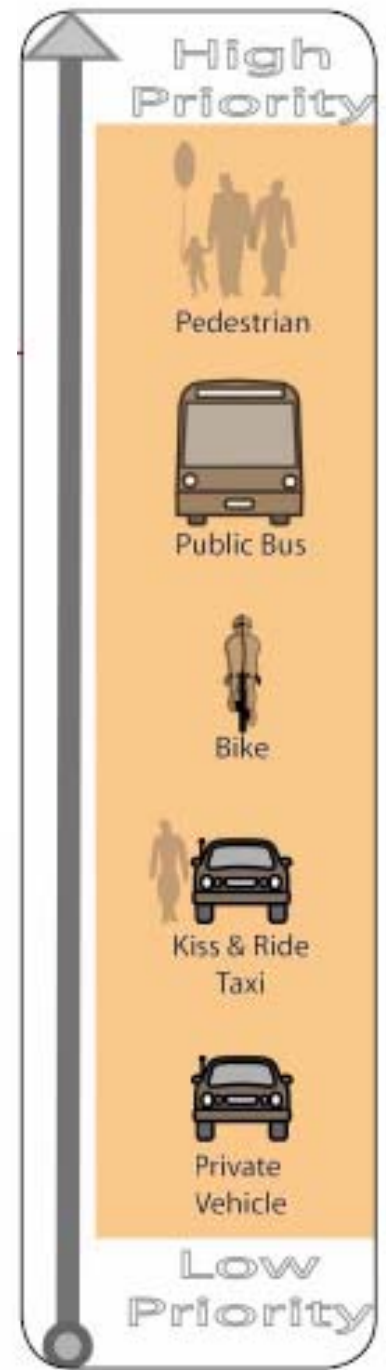
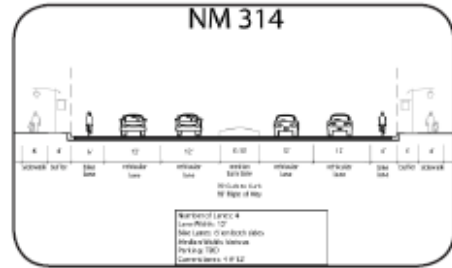
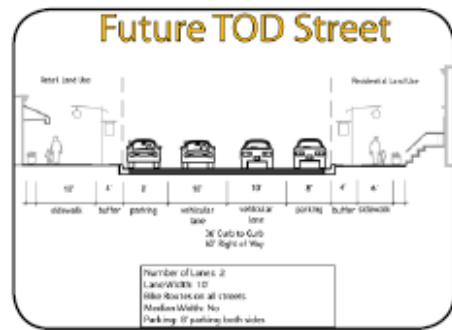
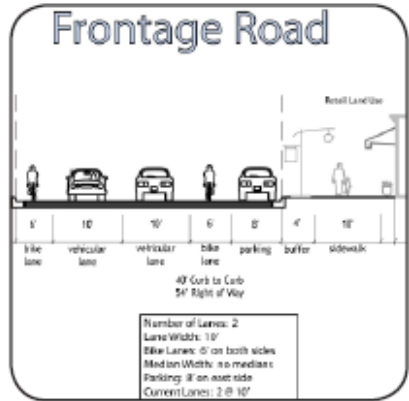
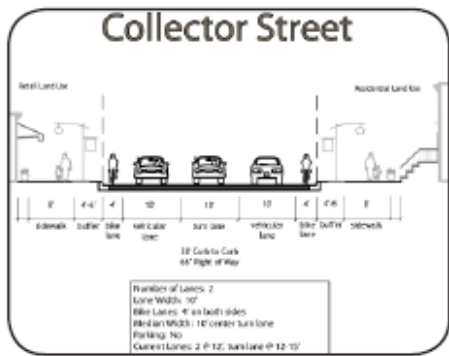
“Not all diets are  
high dollar  
solutions”

Blue Bicycle Lane,  
Brisbane, CA



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“Set priorities for access, then design the streets”

Los Lunas RailRunner Station, Los Lunas, NM



Choose Your Font Size: [T](#) [T](#) [T](#) Wednesday, November 4, 2009

## NMDOT Stimulus Stats

[Home](#) - [Stimulus Stats](#) | [NMDOT](#)

Entity	County	Proposed Projects	Description	Stimulus Funds
Albuquerque	Bernalillo	I-40 Trail Crossing at the Rio Grande	Construct bikeway/trail bridge over the Rio Grande	\$ 5,358,782
Albuquerque	Bernalillo	ITS-Albuquerque Traffic Management System	Replace traffic signal controllers, communications, camera monitoring, other ITS	\$ 2,651,176
Reserve	Catron	Downtown Rehabilitation (Mainstreets)	Road Improvements along Main Street	\$ 1,033,609
Chaves County	Chaves	Chaves County Pavement Preservation Project	Roads included are E. Brasher Road (C1-184) from Southeast Main Street (US 285) to the Old Dexter Highway (NM 256), Red Bridge Road (C1-106) from US 380 to 19th Street, 19th Street (C1-125) from Red Bridge Road to Fowler Road, Fowler Road (C1-123) from 19	\$ 830,000
Roswell	Chaves	West Brasher Road Reclamation	Reclamation and recycling of existing roadway pavement and base course. New 4" PMBP overlay.	\$ 831,489
Acoma Pueblo	Cibola	SP 36 half mile extension	SP 36 0.5 mile extension incl R/R Bridge (Total Cost \$5,225,000 ARRA to supplement GRIP 2 \$4,387,538)	\$ 1,200,000
Grants	Cibola	Nimitz Bridge	Single Span 2-Lane Bridge over the Rio San Jose.	\$ 800,000
Angel Fire	Colfax	North Angel Fire Road	Pavement Resurfacing 4 block area along US 64 in the Village of Cimarron. Construction of	\$ 762,000

**Los Lunas: New Street Connection south of Courthouse Road New Street from Rail Runner Station to Los Lentes as identified in MRCOG TOD \$ 1,092,715**

**Los Lunas: Construct at-grade crossings; identified as a safety need \$1,092,715**



How are communities doing  
this?



# Walking in other's shoes





Engaging a wide range of perspectives

Disagreement is OK



# Find "champions" for the project

