regional brief

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Livable Streets, Dangerous Roads

Traffic Calming Endangers the Lives of Those in Need of Emergency Services

Jenna Ashley Robinson

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200 W. Morgan, #200
Raleigh, NC 27601
phone: 919-828-3876
fax: 919-821-5117
www.johnlocke.org

Executive Summary

As the Triangle grows, motorists face significant increases in traffic congestion. City and county planners are hired, in part, to suggest plans that will alleviate this congestion. Unfortunately, they are doing the opposite. Based on city staff recommendations, city councils in Raleigh and neighboring cities have fallen victim to the latest planning fad: traffic calming. This seemingly worthwhile goal has significant detrimental consequences, including increased traffic congestion, more deaths due to slower emergency vehicle response times, and unnecessary costs to taxpayers.

What Is Traffic Calming?

The Institute of Transportation Engineers defines traffic calming as "changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes."[1] The City of Raleigh defines traffic calming as "the combination of mainly physical measures that reduce negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users."[2] Taken at face value, implementation of these definitions will increase traffic congestion, not alleviate it.

In Raleigh, the city's traffic-calming "toolbox" includes education and enforcement and familiar measures such as roadway striping, pavement markings, speed humps and bumps and raised crosswalks. The plan also includes bulb-outs (intersection curb extensions that reduce roadway width), raised median islands, mini-traffic circles, larger roundabouts, and mid-block street narrowings.[3]

A Short History of Traffic Calming

Traffic calming began as a grassroots movement in 1960s Europe, when *woonerven*, or "living yards" replaced streets in Delft. European "slow streets," designed for 20 mph traffic, emerged in the late 1970s. In Germany and Denmark, suburban slow streets were followed by traffic-calming measures on intercity highways in the 1980s.[4] In the United States, versions of traffic calming emerged along the West Coast in the late 1960s, and have remained common in cities in Washington, Oregon and California. In 1980, the first national study of traffic calming explored residential preferences related to traffic, collected performance data on speed humps, and reviewed legal issues.[5]

In North Carolina, traffic-calming measures have already been implemented in Asheville, Charlotte, Hickory and Winston Salem. The Town of Cary has conducted a pilot study and will likely implement traffic-calming measures in the near future.

Raleigh Is Implementing Traffic Calming

Raleigh's official Traffic Calming Program is limited to residential/local access and collector streets; 73 streets have been studied and are included on its traffic-calming priority list (see Appendix). Streets on the list are ranked based on speed, pedestrian activity, crash history and traffic volume. Construction has begun on the first three projects on the list: Ashe Avenue between Hillsborough Street and Western Boulevard, Plaza Place between Millbrook Avenue and Creedmoor Road, and Eagle Trace Drive in the Hedingham subdivision.

Traffic Calming Is Dangerous

Raleigh's traffic-calming devices are built in order to slow traffic. Curb bulb-outs, raised medians, and roundabouts are designed to slow passenger vehicles. For example, passenger vehicles on Plaza Way are forced into the center of the roadway by curb bulb-outs and then immediately forced to

the curb by a raised median. Negotiating this zigzag slalom course forces motorists to slow down. But these devices create even greater delays to emergency vehicles. Emergency vehicles' longer wheel-bases, stiff suspension, and high vehicle weights require their drivers to slow almost to a stop to negotiate the devices safely.

Scientific analysis predicts that deaths in a community rise due to delays of emergency vehicles caused by traffic-calming measures. Even minor delays to emergency vehicles caused by delay-inducing traffic-calming devices create far more risk to a community than speeding vehicles.

Researcher Ronald Bowman's analysis[6] shows that if Boulder, Colorado implemented its plans for traffic-calming devices, they would increase emergency vehicle response times. Bowman predicts that patients needing emergency treatment would incur an increased risk to their survivability of 85 to 1 for every one minute of additional delay to response times due to planned traffic calming. In other words, if emergency medical technicians were delayed one additional minute by traffic-calming devices, a heart attack patient would be 85 times more likely to die.

Assistant Fire Chief of Austin, Texas, Les Bunte applied the Bowman analytical techniques to the City of Austin.[7] His results predicted a risk factor of 35 to 1 for an additional increased delay of 30 seconds to Austin response times caused by deflection devices such as speed bumps and roundabouts. The Austin figures take into account only victims of Sudden Cardiac Arrest (heart attacks). Thus Bunte's analysis predicts that for every 30 seconds additional delay for emergency medical technicians caused by traffic-calming devices, a heart attack victim is 35 times more likely to die.

Because of delays and the risk to human life, firefighters and emergency service personnel across the country oppose traffic calming.[8] Bunte's study also showed that

Three Common Forms of Traffic Calming

1. Traffic Circle or Roundabout

2. Bulb-Out

3. Mid-Block Street Narrowing

Table 1: Effects of Traffic Calming Measures on Emergency Response Times

Community	*Traffic Calming Measure*	*Delay at Slow Point (in Seconds)*
Austin, TX	12-foot speed humps	2.8 (fire engine) 3.0 (ladder truck) 2.3 (ambulance w/o patient) 9.7 (ambulance w/ patient)
Berkeley, CA	12-foot speed humps	10.7 (fire engine) 9.2 (ladder truck)
	22-foot speed tables	3.0 (fire engine) 13.5 (ladder truck)
Boulder, CO	8-foot speed hump	4.7 (fire engine)
	12-foot speed humps	2.8 (fire engine)
	37-foot speed table	3.8 (fire engine)
	40-foot speed table	3.8 (fire engine)
	25-foot diameter traffic circle	7.5 (fire engine)
Montgomery County, MD	12-foot speed humps	2.8 (ladder truck) 3.8 (ambulance) 4.2 (fire engine) 7.3 (pumper truck)
	18-foot diameter traffic circle	5.4 (ladder truck) 3.2 (ambulance) 5.0 (fire engine) 7.0 (pumper truck)
Portland, OR	14-foot speed humps	5.2 (fire engine) 2.9 (custom rescue vehicle) 6.6 (ladder truck)
	22-foot speed tables	3.0 (fire truck) 0.3 (custom rescue vehicle) 3.0 (ladder truck)
	16-24 foot oblong traffic circles	6.1 (fire engine) 3.1 (custom rescue vehicle) 8.4 (ladder truck)
Sarasota, FL	12-foot speed humps	9.5 (ambulance)

Source: *Traffic Calming: The State of the Practice.*

in some cases, travel time of ambulances transporting heart attack victims doubled due to traffic calming.[9] Because of these risks, the Institute of Transportation Engineers' (ITE) "Guidelines for the Design and Application of Speed Humps"[10] (1997) states humps should never be placed on emergency response routes.

Studies performed by seven American cities and assembled by the Institute of Transportation Engineers show that speed humps, speed tables, and traffic circles (roundabouts) have negative effects on emergency response times[11] (see Table 1).

TABLE 2: COSTS AND EFFECTS OF VARIOUS TRAFFIC CALMING MEASURES

Measure	*Speed*	*Accidents*	*Capacity*	*Cost*
One-Way Streets	+37%	-38%	+19%	Variable
12' Speed Hump	-22%	-11%	-18%	$2000
14' Speed Hump	-23%	-41%	-18%	$2000
22' Speed Table	-18%	-45%	-12%	$2000
Longer Speed Table	-9%	-	-	$2500
Raised Intersection	-1%	-	-	$12,500
Traffic Circle	-11%	-29%	-	$3500-$15000
Narrowing	-7%	-	-	$8000
Choker	-14%	-	-20%	$7,000-$10,000
Half Choker	-19%	-	-42%	$3500-$5000
Diagonal Diverter	0%	-	-35%	$85,000

Source: Trafficcalming.org and the Institute of Traffic Engineers.

Moreover, it isn't clear that traffic-calming devices effectively combat safety hazards or protect pedestrians. While calming devices are built on the premise they will reduce accidents, a comprehensive study commissioned by the ITE and the Federal Highway Administration (FHWA) on traffic-calming projects in the United States concludes:

> Traffic calming in the U.S. is largely restricted to low volume residential streets. Collisions occur infrequently on such streets to begin with, and any systematic change in collision rates tends to get lost in the random variation from year to year. This limits our confidence in drawing inferences about safety impacts of traffic calming.[12]

When traffic-calming devices do reduce accidents, it is at considerable cost in time, money and emergency response. Table 2 shows costs and benefits of various traffic-calming measures, some of which create problems and costs for municipalities with little effect on pedestrian and motorist safety.

Two of the measures the City of Raleigh will use — narrowings and chokers — have no measurable effect on accidents but reduce capacity considerably and cost $7,000 to $10,000 apiece.

RALEIGH'S ROUNDABOUTS AND TWO-WAY STREET CONVERSIONS

Two other city programs are designed to slow traffic and increase traffic congestion, but they do not meet the city's narrow definition of traffic calming. The construction of roundabouts on Hillsborough Street near the campus of North Carolina State University and the conversion of downtown streets from one-way to two-way near the state capitol will aggravate the city's traffic-congestion problem and slow emergency vehicles, posing a threat to human life.

The city plans a return to two-way operation for several sets of one-way streets in downtown as part of Raleigh's "Livable Streets" plan. Martin and Hargett Streets, main corridors that cross through the city's new Fayetteville Street, have already been converted. As Raleigh converts one-way pairs to two-way travel, each will be re-designed "emphasizing the com-

fort and convenience of the pedestrian."[13]

With this conversion from one-way to two-way streets, Raleigh residents can expect more congestion, higher drive times through downtown and a higher frequency of accidents. Studies show that two-way streets with the same number of lanes as one-way streets move 20 to 50 percent fewer cars because of increased turn delays. According to the Center for the American Dream, seven lanes of a two-way street are needed to move as many vehicles as four lanes on a one-way grid because people turning left or right impose fewer delays on people behind them.[14]

Secondly, returning Raleigh streets to two-way operation will increase commuting time. Traffic signals on a one-way grid can easily be coordinated so drivers can proceed at a continuous speed without stopping frequently for red lights. One study found that converting two-way streets to one-way led to a 19-percent increase in traffic at speeds that averaged 37-percent faster. This wasn't because the maximum speed limit on the one-way streets was any greater than on two-way streets, but because drivers experienced 60 percent fewer stops.[15]

Most importantly, one-way streets are safer for both drivers and pedestrians. One study in the *Transportation and Traffic Engineering Handbook* found that converting two-way streets to one-way caused a 38-percent decrease in accidents.[16] Pedestrians benefit particularly from one-way streets. Two-way streets produced 163 percent more pedestrian accidents in Sacramento, and 100 percent more pedestrian accidents in Portland, Ore., Hollywood, Fla., and Raleigh, N.C. A study by the Research Triangle Institute called one-way streets "the most effective urban counter-measure" to pedestrian accidents.[17]

Raleigh's Roundabout Craze

Raleigh's plan to construct up to seven roundabouts on Hillsborough Street between Oberlin Road and Gorman Street and four in the surrounding neighborhood will cost citizens at least $17 million and do little to relieve congestion. As part of the Hillsborough Street redesign, the first roundabout was built in 2002 on Pullen Road next to N.C. State's campus. Bonds approved in 2005 will pay for most of the second stage of the project; city planners are deciding between two roundabouts near North Hall or roundabouts and a roadway extension connecting Pullen Road to Oberlin Road. The first option would cost $3.7 million if the work includes burying utility lines. Alternate plans have the city spending up to $7 million to complete two to four roundabouts. The cost for the whole project is currently estimated at $17 million.

The Hillsborough project calls for seven roundabouts in only 1.2 miles, or a roundabout every 900 feet. Because of these changes, planners predict that 30 percent of the 19,000 cars a day currently traveling on Hillsborough (mostly through traffic) will redirect to Western Boulevard and Wade Avenue – streets that are already congested. Traffic on Hillsborough is already far less than the 26,000 vehicles per day at its peak.

Other cities in the triangle are calming their streets as well. Chapel Hill is calming streets in its Oaks neighborhood. As part of the effort, the town is conducting a study of effectiveness of its program; results should be released in mid-November. In Wake Forest, the town opened its first roundabout in May at the intersection of Highway 1A and Highway 98 at Southeastern Seminary, resulting in confusion and increased congestion.[18] Despite public reaction, the town plans to install three more roundabouts in the near future.

The Cost of Calming

According to Kimley-Horn and Associates, Inc., the group that provided a background report on the city's traffic-calming plans,

the costs of calming could be considerable. Based on "starter ideas" sketched by study consultants for one neighborhood in Raleigh, it is estimated that the cost of a "typical" neighborhood traffic-calming project may total $2 million.[19] This figure is likely to change (higher or lower) based on the type of measures selected and the number of locations identified. Additionally, there is no reasonable method for estimating the latent demand citywide for traffic calming; that is, how many additional neighborhoods will want to be added to the list once they hear about the program? The city has already identified 73 streets based on its 2004 survey.

Raleigh's traffic-calming plan would also include yearly maintenance costs. The cost to maintain landscaping is estimated at $4,000 per year per mile of traffic-calmed roadway, assuming ten measures per mile.[20] This includes watering (needed for the first two years until plants are established), pruning, mulching, fertilizing, weeding, and plant replacement.

Given the anticipated mixed results of Raleigh's traffic-calming plan, the city would be better off spending its money on proven solutions.

Smart Alternatives

The City of Raleigh should consider some less costly and more effective alternatives to protect pedestrians and drivers. The Canada Safety Council suggests "preventive traffic enforcement must become the number one priority .... Police must be visible and active in problem areas."[21] Effective speed enforcement is also possible via red-light cameras. The city could also consider using roadway striping and pavement marking, stop signs, signal coordination, yield signs, turning and parking restrictions, or better illumination to increase pedestrian and motorist safety.

In Raleigh's growing downtown, the City should create as many one-way paired streets as possible. One-way pairs are safer for drivers and pedestrians and minimize congestion for commuters.

Conclusion

Planning fads come and go, but planners are seldom held responsible for the harm they cause. Once again, city government falls victim to myth vs. reality. Planners and their supporters deluge the city council with information about what traffic calming is supposed to accomplish. Rarely do city council members receive information regarding the reality of traffic calming, even though studies of the unintended consequences and disastrous results from other cities are readily available.

Perhaps the city council should hire a person whose full-time job is to throw cold water on every fantastic fad that the city staff supports. Then and only then will the council be able to make truly informed judgments.

Jenna Ashley Robinson is program assistant at the John Locke Foundation.

Appendix: The City of Raleigh's 2004 Traffic Calming Priority List[22]

Ranking	*Street Name*	*From*	*To*	*Classification*	*Total Points (max.: 100)*
1	Ashe Ave.	Western Blvd.	Hillsborough St.	Collector	83.69
2	Eagle Trace Dr.	Grand Traverse Dr.	Southall Rd.	Collector	82.01
3	Plaza Place	Creedmoor Rd.	West Millbrook Rd.	Collector	77.90
4	Mourning Dove Rd.	Heathfield Dr.	Six Forks Rd.	Collector	73.80
5	Rainwater Rd.	Harps Mill Rd.	Spring Forest Rd.	Collector	72.70
6	Anderson Dr.	Glenwood Ave.	Six Forks Rd.	Collector	70.37
7	Lake Boone Trail	Cambridge Rd.	Dixie Trail	Collector	70.35
8	Shelley Rd.	North Hills Dr.	Six Forks Rd.	Collector	68.67
9	Harps Mill Rd.	Falls of Neuse Rd.	Gresham Lake Rd.	Collector	68.58
10	North Bend Dr.	Falls of Neuse Rd.	Spring Forest Rd.	Collector	66.29
11	Wimbleton Dr.	Dixon Dr.	Shelley Rd.	Residential / Local Access	62.23
12	Lord Berkeley Rd.	New Bern Ave.	Lord Ashley Rd.	Residential / Local Access	60.25
13	Hedingham Blvd.	Southall Rd.	New Bern Ave.	Collector	59.42
14	Nazareth St.	Centennial Parkway	Western Blvd.	Residential / Local Access	58.27
15	Johnsdale Rd.	Litchford Rd.	Litchford	Residential / Local Access	58.10
16	Grove Barton Rd.	Doie Cope Rd.	Pinecrest Rd.	Collector	56.55
17	Baugh St.	Buffaloe Rd.	Starmount Dr.	Collector	55.33
18	Delany Dr.	Milburnie Rd.	Glascock St.	Residential / Local Access	53.26
19	Dartmouth Rd.	Converse Dr.	Six Forks Rd.	Residential / Local Access	51.38
20	Lord Ashley Rd.	New Bern Ave.	Lord Berkeley Rd.	Residential / Local Access	50.25
21	Yadkin Dr.	Alleghany Dr.	Inglewood Dr.	Collector	48.75
22	Waterbury Rd.	Deana Lane	Green Rd.	Residential / Local Access	46.11
23	Deblyn Ave.	Glenwood Ave.	Pleasant Valley Rd.	Residential / Local Access	45.35
24	Brentwood Rd.	Capital Blvd.	New Hope Church Rd.	Collector	45.32
25	Huntleigh Dr.	Capital Blvd.	New Hope Church Rd.	Collector	45.02
26	Pineview Dr.	Swift Dr.	Avent Ferry Rd.	Residential / Local Access	44.62
27	Dennis Ave.	Bennett St.	Timber Dr.	Collector	43.85
28	Shelley Rd.	Forest Lawn Ct.	North Hills Dr.	Residential / Local Access	43.60
29	Hilburn Rd.	Lynn Rd.	Pike Rd.	Collector	43.12
30	King William Rd.	New Bern Ave.	Peartree Lane	Residential / Local Access	41.94
31	Dennis Ave.	Capital Blvd.	Bennett St.	Residential / Local Access	40.50
32	Fairview Rd.	Glenwood Ave.	Oberlin Rd.	Collector	38.78
33	Summerton Dr.	Falls River Ave.	Whittington Dr.	Residential / Local Access	38.69
34	Thorpshire Dr.	Colesbury Dr.	Falls of Neuse Rd.	Residential / Local Access	38.69
35	Jacqueline Lane	Archibald Way-City L	Capital Blvd.	Collector	35.10
36	Timber Ridge Dr.	Forest Oak Dr.	Spring Forest Rd.	Residential / Local Access	33.73
37	Winthrop Dr.	Ray Rd.	Rembert Dr.	Collector	32.69
38	Lord Ashley Rd.	Lord Berkeley Rd.	Bertie Dr.	Collector	32.20
39	Ingram Dr.	Atlantic Ave.	New Hope Church Rd.	Residential / Local Access	31.97
40	Pineview Dr.	Swift Dr.	Kaplan Dr.	Residential / Local Access	31.08
41	Sussex Rd.	Glen Eden Dr.	Lake Boone Trail	Residential / Local Access	30.95

Ranking	*Street Name*	*From*	*To*	*Classification*	*Total Points (max.: 100)*
42	Lake Forest Dr.	Van Thomas Dr.	Falls of Neuse Rd.	Residential / Local Access	29.65
43	Sutton Dr.	Cameron St.	Nichols Dr.	Collector	29.26
44	Dennis Ave.	Timber Dr.	Mossbank Rd.	Residential / Local Access	29.20
45	Nichols Dr.	Sutton Dr.	Washington St.	Collector	29.08
46	Tarboro Rd.	Edenton St.	Oakwood Ave.	Residential / Local Access	29.04
47	Deboy St.	I-440/US-1 Ramp	Western Blvd.	Collector	28.64
48	Cameron St.	Oberlin Rd.	Smallwood Dr.	Residential / Local Access	28.05
49	Coley Forest Dr.	Glen Eden Dr.	Yarmouth Rd.	Residential / Local Access	27.50
50	Cub Trail	Durant Rd.	Hiking Trail	Residential / Local Access	27.37
51	Cox Ave.	Hillsborough St.	Park Ave.	Residential / Local Access	27.05
52	Chaney Rd.-south	Western Blvd.	Onslow Rd.	Residential / Local Access	27.00
53	Sue Ellen Dr.	Meadow Ridge Dr.	New Hope Rd.	Residential / Local Access	26.85
54	Park Dr.	Oberlin Rd.	Saint Mary's St.	Residential / Local Access	26.20
55	Hill St.	New Bern Ave.	Milburnie Rd.	Collector	26.14
58	Wimbleton Dr.	Dixon Dr.	Manchester Dr.	Collector	25.00
59	Boyer St.	N. Tarboro St.	Hill St.	Residential / Local Access	24.08
60	Maple St.	Boyer St.	Oakwood Ave.	Residential / Local Access	24.00
61	Lewis Farm Rd.	Brooks Ave.	Ridge Rd.	Collector	24.00
62	Deanwood Dr.	Cub Trail	Wildercliff St.	Residential / Local Access	23.49
63	Aycock St.	Fairview Rd.	Reaves Dr.	Collector	23.47
64	Greywood Dr.	Capital Blvd.	Huntleigh Dr.	Residential / Local Access	23.31
65	Falls River Ave.	Southwalk Lane	Dunn Rd.	Collector	22.42
66	Sutton Dr.	Daniels St.	Nichols Dr.	Residential / Local Access	22.25
67	Kilcullen Dr.	Hoyle Dr.	New Hope Church Rd.	Residential / Local Access	22.00
68	Lord Berkeley Rd.	Lord Ashley Rd.	Traffic Circle	Collector	21.70
69	Chaney Rd.—North	Reavis Rd.	Western Blvd.	Residential / Local Access	21.04
70	Westbrook Dr.	Brookhollow Dr.	Six Forks Rd.	Residential / Local Access	20.38
75	Leslieshire Dr.	Durant Rd.	Hawksmoor Dr.	Residential / Local Access	20.00
76	Mills St.	Bellaire Ave.	Wiggs St.	Residential / Local Access	20.00
80	Harvey St.	Aycock St.	Saint Mary's St.	Collector	20.00
81	Sprague Rd.	Hilburn Rd.	Leesville Rd.	Residential / Local Access	18.51
82	Hillandale Dr.	Stonehaven Dr.	Spring Valley Dr.	Residential / Local Access	17.00
84	Lewis Farm Rd.	Brooks Ave.	Canterbury Rd.	Residential / Local Access	16.18
85	Old Deer Trail	Mourning Dove Rd.	Strickland Rd.	Collector	16.00
86	Thoreau Dr.	Quail Hollow Dr.	Wingate Dr.	Residential / Local Access	15.00
87	Hilburn Rd.	Pike Rd.	Mayapple Place	Collector	13.64
88	Aaron Dr.	Dandridge Dr.	Keith Dr.	Residential / Local Access	10.00
91	Chatmoss Dr.	Barwell Rd.	Continental Way	Residential / Local Access	5.00

Notes

1. Institute of Transportation Engineers.

2. Traffic Calming Residential Area Presentation, www.raleigh-nc.org/portal/server.pt?space=Dir&spaceID=0&in_hi_userid=2&control=OpenSubFolder&subfolderID=2539&DirMode=1#.

3. Raleigh Traffic Calming, Prepared for the City of Raleigh, North Carolina, by Kimley-Horn and Associates Inc., April 2003 Draft Report — Raleigh Traffic Calming Study April, www.raleighnc.gov/portal/server.pt?space=Dir&spaceID=0&in_hi_userid=2&control=OpenSubFolder&subfolderID=2539&DirMode=1.

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6. Bowman, Ray, "Deaths Expected from Delays to Emergency Response Due to Neighborhood Traffic Mitigation," submitted to the City Council of Boulder, Colorado, April 3, 1997, members.aol.com/raybowman/risk97/eval1.html.

7. Bunte, Les, "Traffic Calming Programs and Emergency Response: A Competition of Two Public Goods," May 2000, home.cfl.rr.com/gidusko/texts/tfc_calm.pdf.

8. "Traffic Calming: The State of the Practice," Institute of Transportation Engineers/FHWA, 1999.

9. *Op. cit.* at note 7.

10. See www.ite.org/traffic.

11. Ewing, Reid, *Traffic Calming: State of the Practice*, 1999.

12. *Ibid.*, p. 123

13. See www.raleighnc.org/portal/server.pt/gateway/PTARGS_0_2_306_203_0_43/http%3B/pt03/DIG_Web _Content/project/public/livable_streets/Pedestrian.htm.

14. Michael Cunneen and Randal O'Toole, "No Two Ways About It: One-Way Streets Are Better Than Two-Way," *Issue Paper* 2-2005, Center for the American Dream, February 2005, www.independenceinstitute.org/articles/2-2005.pdf.

15. W. S. Homburger, *Transportation and Traffic Engineering Handbook 2nd Edition* (Englewood Cliffs, NJ: Prentice Hall, 1982).

16. *Ibid.*

17. Research Triangle Institute, *National Highway Safety Needs Study* (Chapel Hill, NC: RTI, 1976).

18. See "New Wake Forest Roundabout Causes Traffic Confusion," WRAL News online, May 5, 2006, www.wral.com/news/9170019/detail.html.

19. *Op. cit.* at note 3.

20. *Ibid.*

21. See www.safety-council.org/info/traffic/trafcalm.htm.

22. City of Raleigh, "2004 Traffic Calming Priority List.doc, www.raleigh-nc.org/portal/server.pt?space=Dir&spaceID=0&in_hi_userid=2&control=OpenSubFolder&subfolderID=2539&DirMode=1#.