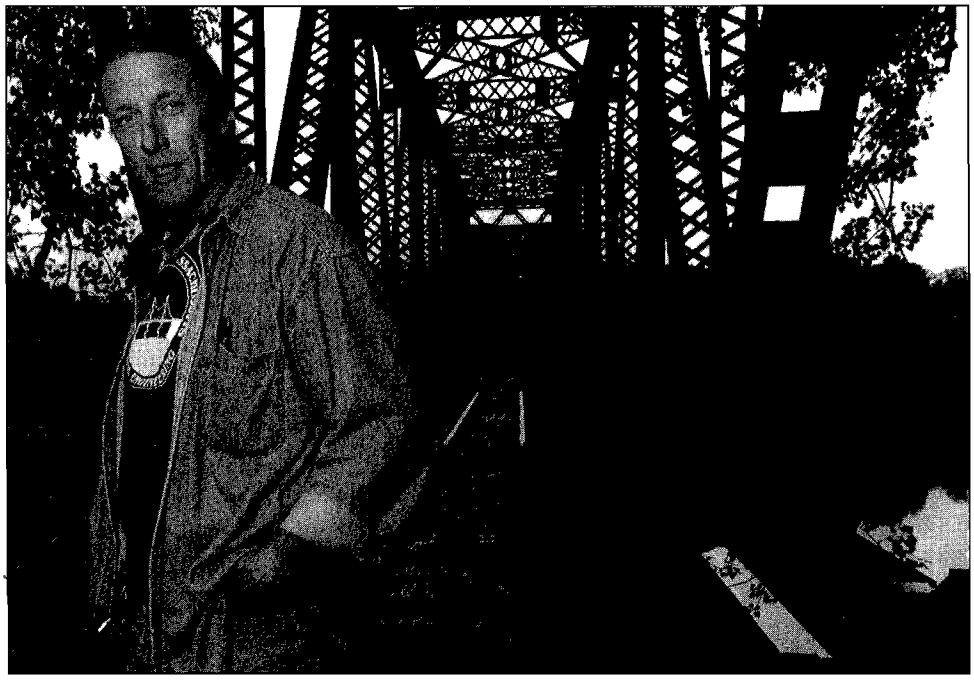
M A S S

INTERCHANGE

Volume 10, Number 4 Summer 1996

Intermodalism
Coming Soon to a Town Near You

Several years ago my wife and I moved out of the suburbs and into the City of Worcester. When we made the move we joked that we were going "From bad to Worcester." Since then we have found out just how wrong we were. We truly enjoy living in Worcester. Two of the biggest reasons are the tree lined streets and the sidewalks. We walk to restaurants. We walk to a coffee shop which has a sidewalk cafe. Neighbors walk past our house on the sidewalks and say hello. We are living in a walkable community and it is fun.



We are not alone. Intermodalism is gaining public support and government backing. The Interstate Transportation Efficiency Act of 1993 (ISTEA) and recent passage of the Massachusetts "Bicycle and Pedestrian Access" bill both promote intermodalism in a strong way.

For this issue of the *Mass Interchange* our roving reporter (Karen) visited with three people in the Massachusetts transportation community and talked with them about how they are using an intermodal approach to improve the quality of life in their communities. These are far from the only examples, however, we hope that they provide a representative sample of efforts across the commonwealth and that they will inspire you to try new and different methods in your communities. It is time we destroyed the paradigm of transportation meaning automobiles only.

Chris Ahmadjian

Edward Evans
Keeps Bikeway Projects Rolling

The 8.5-mile Norwottuck Rail Trail, which links Northampton, Hadley, and Amherst, was officially opened on July 31, 1993. According to Roger Ward, DEM Supervisor for the Connecticut River Greenway State Park, "the Norwottuck Rail Trail has become popular beyond anyone's expectations, with over 1,000 people a day using the facility during the summer." As recognition of the benefits of bicycle transportation grows, so too have trail expansion opportunities. An application has been

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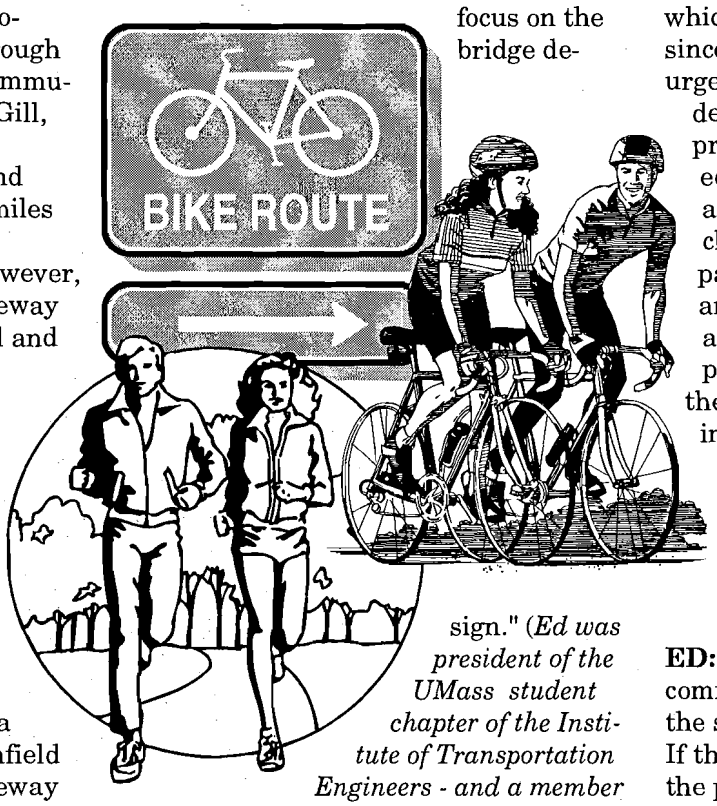
filed requesting planning and design funding to tie-in the trail with the UMass Amherst campus and expansion plans are underway to connect the Amherst end to Belchertown and the Northampton end to Leeds.

Norwottuck Rail Trail's popularity has helped bolster other area projects, such as the Franklin County Bikeway. This proposed bikeway travels through seven Franklin County communities: Deerfield, Erving, Gill, Greenfield, Montague, Northfield, and Sunderland and is approximately 33 miles in length. Unlike the Norwottuck Rail Trail, however, the Franklin County Bikeway will consist of both shared and off-road sections. In 1994 the Franklin County Commission established the Franklin County Regional Bikeway Committee. The Committee meets monthly to guide activities related to developing the bikeway.



Edward Evans is a member of both the Greenfield and Franklin County Bikeway Committees and the Franklin County Planning Commission's Transportation Subcommittee. He was recently appointed Mass Highway Department resident engineer for the Amherst to Belchertown extension of the Norwottuck Rail Trail and spoke to the Baystate Roads Program about his involvement in the Greenfield portion of the Franklin County Bikeway:

BRP: How did you become involved with the Greenfield Bikeway project?

ED: "I started with the Greenfield Bikeway Committee two years ago. I was working on my master's degree in transportation engineering and started using various elements of the bikeway plan as a practical application for a number of UMass course projects. What I tried to do was to plug the expertise of UMass into someplace other than the Amherst area. We had a geotechnical graduate student analyze soil samples for a bridge foundation over the Green River (with the assistance of Dr. William Highter), and my engineering background enabled me to focus on the bridge design." (*Ed was president of the UMass student chapter of the Institute of Transportation Engineers - and a member of the team which won the regional steel bridge competition in 1995*).

BRP: Tell us about the role of the Greenfield Bikeway Committee?

ED: "Part of the job of the Greenfield Bikeway Committee was to determine possible bikeway routes. We basically used a process where we broke the route up into logical segments and determined what our development priorities would be. We were trying to start with areas that would be easier to develop. For example, one section of the Greenfield Bikeway is along a sewer interceptor that the town owns. This means that you already have a good base and good grades, so the marriage of the two works well. I feel strongly that by carving things up into pieces that can be developed individually, that once you've got one piece completed it's going to increase your chances of getting others done."

"Another important role of any town bikeway committee is to establish a dialogue with the local DPW and encourage the inclusion of bicycle amenities, not just on a bikeway but everywhere in town. For example, there's a slated reconstruction on Mill Street in Greenfield which we have been involved with since the planning stage. We have urged the DPW to make the shoulders more consistent and to properly backfill to smooth the edge, and they have been cooperating fully. I think that the changes for bicycling, for the most part, are a relatively small part of any plan. If the DPW folks have an open mind, then, there are plenty of ways of incorporating these alterations, if identified early in the process. This is really a good idea that doesn't require a huge change in attitude."

BRP: What has the community response been to this project?

ED: "We've received excellent community support, all the way from the selectmen to the Planning Board. If the community isn't behind you the project won't succeed."

"The Franklin County Bikeway Committee sponsored a Bike Day recently, which included a Kiwanis bike roadeo, stunt riding demonstrations and some fund raising. It was pretty successful. Fundraising has two purposes really, publicity and raising money; although I think the publicity can actually be more important. I think the key to success, and what we are continuing to focus on is getting the various towns involved (in the Franklin County Bikeway) to get active. We want to get a Bikeway Committee within each town, comprised of influential people who will lobby the selectmen."

BRP: Why do you think these projects are important to undertake?

ED: "I feel we need to develop as

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BAYSTATE ROADS WORKSHOP ATTENDANCE IS GROWING BUT WE ARE CONCERNED ABOUT NO-SHOWS AND NON-PAYMENT.

Recently we used our computer to compile workshop attendance for the last three years and were thrilled to find that attendance at our workshops has grown substantially. We hope this growth has been for two reasons. First because we are offering workshops on subjects in which you are interested and second because the cost is low. We work very hard to find interesting subjects and keep our workshop fee at its current level of $25.00. Historically we have only increased this fee once (from $20 to $25 for municipal employees and $20 to $50 for the private sector) in nine years.

We are, however, growing concerned because as the number of people signing up for workshops has grown so have the number of no-shows and the level of non-payment. In addition, no-shows have forced registrants to be turned away when a space limitation has been reached. Please notify Baystate Roads ASAP if you cannot fulfill your reservation to allow others to attend.

We understand that as transportation and construction professionals you, probably more than other people, have emergencies and other priorities which sometimes make it difficult to attend workshops you have signed up for. We do not want you to neglect your responsibilities, however, we must insist that you pay even if you did not attend because our food and room costs are set three days beforehand and are always $24 to $26 per person. The workshop facilities require that we pay for the number of people we guarantee.

If you cancel up to three days before the workshop there is no fee or problem.

Your workshop fees cover our site costs. There is no other money. The speakers are paid for by the program funding, however, site fees are paid out of a separate workshop account. If this account cannot cover our costs we must raise fees or move to lower cost locations.

We do send letters and make reminder phone calls to people who have not paid, however, this requires a great deal of time and effort from Sue in the office and she would much rather spend the time doing constructive things for all of you.

So, please be diligent with your payments; it is only $25. If you miss a workshop you will definitely miss out on some good information, but will only have lost a little money.

We appreciate your help and hope to see everyone at the next workshop.

in this issue

many alternatives as possible, and because I've been bicycling for many years I feel this is an area I would like to promote. It is important that we further bicycling not only as recreation but as a transportation alternative. Certainly a lot of other countries have placed more emphasis on this than we have."

Sandwich
The Return of the Walkable Community

Sandwich DPW Superintendent, Patrick Ellis, is a man with a mission. For the past 6 years he has been working on a new community transportation network -- sidewalks. By no means a new idea, sidewalks once played an integral role connecting community members to schools, recreation, employment, and shopping areas. Long overlooked in this automobile age, the community of Sandwich has been slowly reclaiming it's roadway right-of-ways to create sidewalks and paths suitable for pedestrians as well as young bicyclists. Initiating this change was the construction of two new elementary schools. With existing subdivisions adjacent to both building sites, initial sidewalk construction was funded through the school construction bonding authorization; with following sections made possible by using Chapter 90 funds. So far, approximately 7 miles of sidewalks have been developed. Pat took time from his vacation schedule to speak with our BRP roving reporter about this ongoing project:

Polly Ellis out for a ride with her father, Patrick Ellis, accompanied by Tim May and Addam Shrewcov.

BRP: How did this project begin?

PAT: "We were fortunate at the time (*1990*) to have a town administrator, Christopher Whelan, now the town manager for Concord, who was pretty progressive. He and I were both big advocates for pedestrian access to roadways. At the time, we were in the position as a community where we had these enormous busing costs and we were building two new schools. Sidewalks are relatively small investments, well, probably large investments if the town isn't spending anything, but the contracts for busing just go on and on and are then adjusted for inflation. With busing costs currently at $30,000 per bus per year, you can realize the pay back very quickly (*sidewalk projects have varied from $56,000 to $100,000 per mile for construction*)."

BRP: And you plow all the sidewalks during the winter?

PAT: "Yes. On a piece of sidewalk that's a mile long, if a small bobcat can plow that sidewalk in an hour or two you might spend $80. If there are ten storms that's $800. The bus is $30,000/year, so it's absolutely an inconsequential amount."

BRP: What design limitations have you had to contend with?

PAT: "Our right-of-way is <u>really</u> tight in some areas, but you have to come up with something other than nothing. Wherever we had the possibility of separating it (*the sidewalk from the roadway*) we would. A lot of designers don't like that inconsistency because they feel it breaks it up. I like it better. I would much rather that if you come to a tree and you need to go behind it, then go behind it." (*Pat Ellis was the Sandwich Tree Warden prior to becoming DPW Superintendent in 1986*).

BRP: What kind of response have you gotten from sidewalk construction?

PAT: "Residents (*who abut the new sidewalks*) have been very supportive. They like the idea of being able to walk from their houses, and they like the idea of that physical separation from the road. A lot of people thought that the curbing was going to offend people, but people like that physical separation from cars - walking or just going to their mailboxes. Feedback from other residents has also been predominantly good. The only problem we've had has been the proposal to build sidewalks on Route 6A, which is an older highway, well established, and a very scenic route."

"I participated in a Career Day at school and spoke to a group of 7th and 8th graders. All they wanted to know was when we were going to extend the sidewalks further. So, from the point of view of children that was a vitally important issue. Something that I think is vastly misunderstood about sidewalks (*and bicycles*); it seems that everyone in America knows this obscure law that says that kids can't ride bikes on sidewalks. That's one

of the things that I think holds back a lot of sidewalk construction. People don't really relate to the fact that, yes - it would be totally inappropriate for someone to ride a ten-speed bike 25 mph down a 5' sidewalk - however, is it totally inappropriate for a nine year old child to ride a bike down a sidewalk - no. So that opens up a whole other realm of possibilities for sidewalks on streets - that they can be used for bicyclists. Not the hard core cyclists, but for kids who are getting to school." (*The sidewalks were not designed for bikes, specifically, but once they reach school property they become conventional bike paths*).

BRP: Would you encourage other DPW's and highway departments to broaden their perspective to include sidewalk construction?

PAT: "I can understand that there are limitations on dollars and that you can't always extend yourself beyond the roadway network. But I also think that you can grasp a lot of support (*for sidewalk construction*). For example, these people had to give up portions of their front lawn, we had to relocate their mailboxes to the other side of the street, and we had to loam and seed close to the edge and feather the sidewalk into their lawn, but I never received one single complaint. In the mornings you see people jogging and walking on it and kids going to school on it, and in the evening people are out walking on it."

"I think you have to look at the bigger picture; what the transportation network is doing to your whole community. That's the way we have tried to look at it in Sandwich. Our ultimate goal is to connect as many of the residences to businesses, to stores, to schools, and to recreational areas."

BRP: What advice would you like to share with other towns?

PAT: "I think you have to allay people's fears because you are invading their space. People's front lawns are very close to their hearts. We are fortunate in that when people think of our public works department I would say they probably think "green" first. If you want to remove trees in a town to create a sidewalk you better have a great, upscale, aggressive tree planting program in place, so that people don't get the impression that all you do is cut down trees. Now we're fortunate, because we try to do the jobs in a way that we don't cut down trees. It might mean that you have curbing right against that roadway which might make snow removal difficult. The trade-off is that it only snows (*here*) 15-20 days per year, but the trees that you would have removed are gone forever. Snow storms are quickly forgotten, not tree removal. You also have to keep on your contractors and have them limit their work areas; that there shall be no damage beyond what is absolutely necessary and not to pull the front-end loader into Mrs. O'Leary's lawn at lunch time."

"I would also advise people to plan as well as you can, but be prepared to make a lot of field decisions. There will always be a forgotten fire hydrant or something else that isn't on the plan. Or you'll plan on taking down a tree and be met with opposition and you might have to swerve around it."

"If you can do 10' wide bike paths I would highly recommend it wherever you go because the cost of construction per foot can actually be less than for a 5' walk. Being able to use larger equipment, the works done faster and the mix goes down at half the price. Hand work paving is very expensive. In our case, it was $62/ton for hand work and $23/ton for machine laid."

"Finally, take advantage of other opportunities to put in sidewalks while you are doing other jobs (e.g. intersection reconstruction). Even if some pieces don't go anywhere initially, if you don't start you'll never connect to anything."

On bicycling, AMA has come a long way

Time was that doctors weren't so bullish on exercise, which just goes to show how culture-bound medical advice is.

A century ago, the *Journal of the American Medical Association* soberly advised those taking up the new sport of bicycling to undergo a doctor's examination first, lest their hearts collapse under the strain. Once cleared they should take care not to "give way to the 'delirium of swiftness'" restricting their speed to no more than 7 1/2 miles an hour.

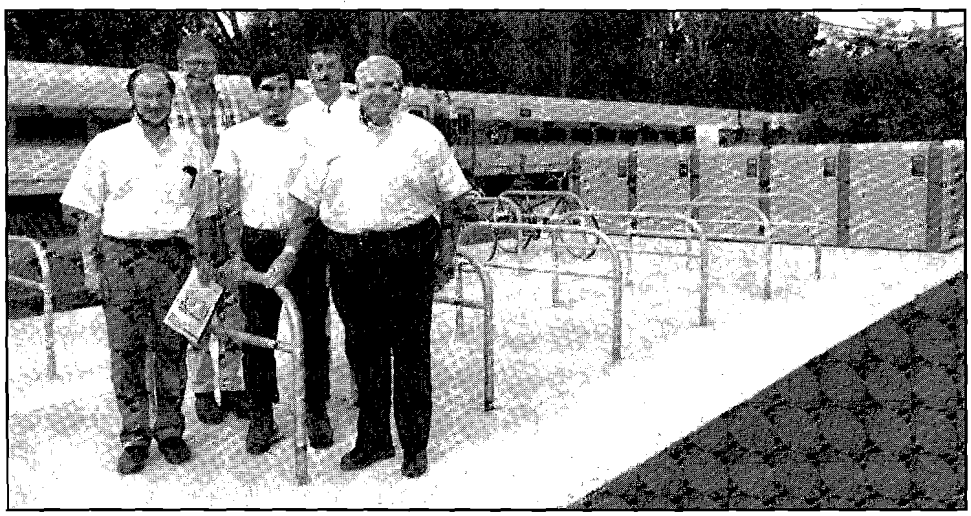
The AMA journal also warned against an emergency disorder it called "bicycle face", an ashen, haggard visage reportedly not found among tricyclists. The presumed cause: The constant mental strain of "keeping the machine upright".

Reprinted from *The Boston Globe*

Park Your Bicycle in Acton

The Town of Acton recently took advantage of a parking lot expansion project to include installation of 20 bicycle lockers and 40 parking rack spaces at the South Acton Commuter Rail Station. The facility is also part of the proposed Assabet River Rail Trail connecting Acton with Hudson and Marlborough which further expands regional bicycle transportation opportunities. Within a month of their installation, all twenty lockers had been rented for the year. While free of charge this first year, the real test of rider committment will be shown in the following years when a fee will be assessed to assure the availability of maintenance and replacement funds. Federal ISTEA Congestion Mitigation/Air Quality grants paid for the lockers and racks, with the town contributing labor and equipment to design and install the facility. Involved in the project were town planner Rolland Bartel, town engineer David Abbt and engineering assistants Dennis Ring and Cory York, and Acton Highway Department superintendent Dick Howe and assistant superintendent Dave Brown. A Baystate Roads Program roving correspondent caught up with this group to find out their various roles and impression of this; Acton's first bicycle facilities project.

Town planner Rolland Bartel was quick to share his thoughts on the process. "The ISTEA process takes longer than you think, so it is important to have a good working relationship with your regional planning agency and the Mass Highway Department. Support by the town selectmen is also key, as is cooperation with town engineering and highway departments who were responsible for designing and installing the facility."



Rolland Bartel, David Abbt, Cory York, Dennis Ring and Richard Howe pose next to the new bike racks and lockers at the Acton train station.

Engineering department employees were also responsible for assembling the twenty Cycle-Safe lockers. Assistants Dennis Ring and Cory York worked for approximately three-days to construct the one-hundred pieces of lockers, which arrived with only locks and door hinges pre-assembled. Meanwhile, town Highway Department personnel spent a couple of weeks pouring the slab (in four sections), constructing adjacent sidewalks, and loaming and seeding around the area. Workers installed the bicycle racks directly into the slab giving them additional strength and a permanent appearance to bolster user confidence.

Bartel notes that he sees thousands of bicycles in his hometown of Heidelberg, Germany, and that they could play a much larger role here if facilities such as this were provided. He encourages the MBTA and other towns to get involved, and is quite willing to share information about the process and types of bike lockers and racks currently on the market.

1996 Snow Plow Rally News

On Thursday, June 27th, the City of Worcester held its second annual Snow Plow Rally. Eight teams participated from four divisions: Streets Department, Water Department, Sewer Department, and the Central Garage. Overall winners, for the second year in a row, were Central Garage employees Kenneth Rouix and Matthew Campaniello. Congratulations to all event winners and participants!

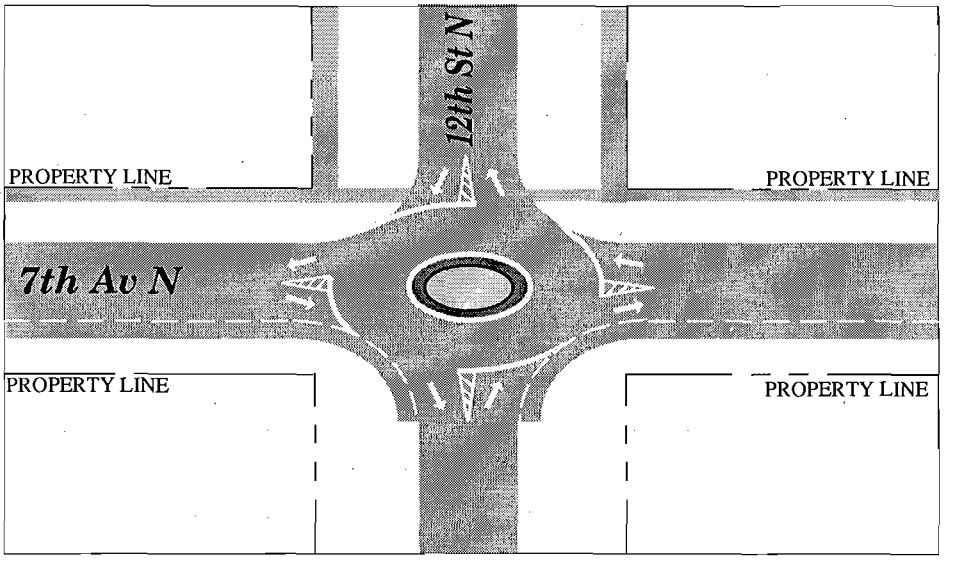
NAPLES, FLORIDA "FINDS A WAY" TO SLOW AND REDUCE RESIDENTIAL TRAFFIC USING ROUNDABOUTS

As population and tourism continue to grow in Florida, major roadways and intersections become more congested. When this occurs, frustrated motorists often resort to the use of local streets to bypass congested roadways or overloaded intersections. Motorists cutting-though local residential neighborhoods often ignore residential speed limits, particularly when the original street design accommodates higher speeds. The result is an ever increasing number of residents expressing concerns about the "safety" and "livability" of their neighborhoods. Other fears include a danger to children playing, social interaction, pedestrians and bicyclists, increasing auto exhaust pollution and road noise. These concerns have led neighborhoods to organize in an effort to take action to alleviate these situations.

In response, the City of Naples developed the Neighborhood Traffic Management Program (NTMP) developed by the Naples (Collier County) Metropolitan Planning Organization (MPO) staff and the Traffic Calming Task Force.

Through intensive research efforts, many traffic calming techniques were evaluated in addition to procedures that are in practice around the world. In order to correct traffic problems, it often involves strategic changes to streets to reduce vehicle speeds and to decrease the cars' dominance on the neighborhood. These changes aim to control traffic over an area, such as an entire residential neighborhood, not just at an isolated site, and are compatible with street activities and adjacent land uses.

Traffic calming techniques generally fall into two categories: physical and psychological. Techniques such as neck downs, medians and roundabouts will decrease road width. Different surface types, vertical landscaping or narrowed lanes create the appropriate space for a relaxed, pedestrian friendly atmosphere, an environment shared with people, which is no longer a major roadway, by changing the psychological feel of the street. The traffic control devices such as roundabouts also provide an alternative type of control, as opposed to stop sign, yield control and signalized control, which eventually help to result in traffic calming.



The City of Naples selected roundabouts for several reasons, namely to slow traffic down to 20 mph and discourage traffic. Wider roads encourage higher automobile speeds. The roundabout is a traffic calming technique that is designed to physically change the width of the street. If a motorist can see far into the distance, their speed increases. The interruption of sight lines with changes in the road direction using the roundabouts and other techniques, break up the road into smaller visual units by changing the surface of the pavements, causing the driver to slow down. These changes also cause the driver to widen their vision field, making them more aware of pedestrians and bicyclists, thus forcing traffic to travel at a slower more even pace.

Naples found that with the use of roundabouts, traffic did slow down and its volume decreased. Studies were done before, during and after the roundabouts construction. Speed detectors were put up and speeds were measured for five days before and five days after construction. An interesting correlation is that the average speed dropped from 28.2 to 20 mph (a drop of 8.2 mph) which is the speed that coincides with the 20 mph design speed of the roundabout. The maximum speed average dropped from 52 mph to 41 mph, a drop of 11 mph.

It can be concluded, both from speed analyses and a number of visual observations, that the traffic slowed down considerably, thereby meeting the objective of the roundabouts, and other traffic calming devices. Although traffic counts are down at present, a traffic recount will be taken on a periodic basis to see if the downtrend is permanent.

Reprinted fron T²echnology Transfer Quarterly, November 1995 from the Florida Technology Transfer Center. Original article developed by Eve Workman from information supplied by the City of Naples. For further information please contact the Florida T² Center at (352) 392-0378 Extension 245.

calendar

Partnering Concepts

August 20-21, 1996
Worcester

Pedestrian & Bicyclist Safety and Accommodation: A "Three E" approach to Intermodalism

September 11 - 13, 1996
Boston

Early 1997
Western Massachusetts

Recycled Pavements

October 15, 16 & 17, 1996

publications

DRA-26	Drainage and Erosion Control Chapter 10 of the MHD Highway Design Manual
CMP-04	Planting and Maintaining Sustainable Landscapes

videos

MO-200	Sign Maintenance and Installation 27 Minutes, APWA
MO-201	Asphalt Roadway Rehabilitation 6 Minutes, APWA
MO-202	Problems with Gravel Roads 55 Mintues, APWA
MO-203	Chip Seals Application 40 Minutes, APWA
MO-204	Asphalt Paving Inspection 60 Minutes, APWA

The Baystate Roads Program, which publishes *Mass Interchange* each quarter, is a Technology Transfer (T2) Center created under the Federal Highway Administration's (FHWA) Local Technical Assistance Program (LTAP). FHWA is joined by the Massachusetts Highway Department, the Department of Civil and Environmental Engineering at the University of Massachusetts/Amherst, and local public works departments in an effort to share and apply the best in transportation technologies.

In addition to publishing *Mass Interchange*, the Baystate Roads Program facilitates information exchange by conducting workshops, providing reports and publications and videotapes on request, and offering one-to-one technical assistance on specific roadway issues. Because the program relies on input from many sources, inquiries, articles, and ideas are encouraged.

Local Technical Assistance/Technology Transfer Center

To contact the Baystate Roads Program, call (800) 374-ROAD (in state) or (413) 545-2604.

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MASS HIGHWAY

Massachusetts Highway Department
Federal Highway Administration
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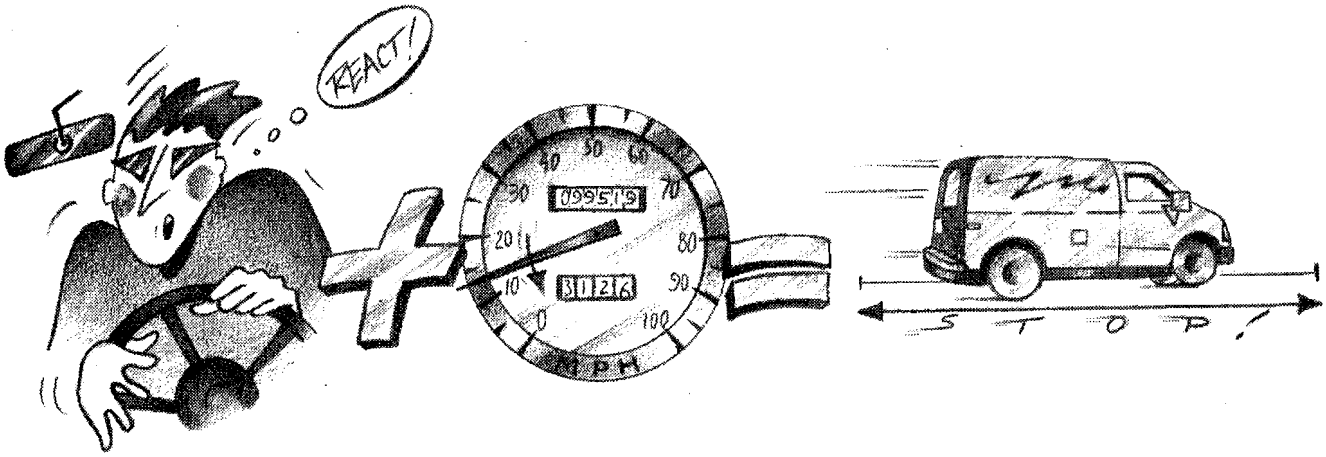
Stopping Distance Formula



Reaction Distance + Braking Distance = Stopping Distance

All drivers take a fraction of a second to react before putting on the brakes. This time translates into reaction distance—the distance your vehicle will travel in the time it takes you to move your foot from the accelerator to the brake pedal. To figure your reaction distance in feet, take the first digit of your speed and add it to the total speed.

Speed	+	First Digit	=	Reaction Distance
20 mph	+	2	=	22 feet

In other words, at 20 miles per hour, your vehicle will travel 22 feet in the time it takes you to move your foot from the accelerator to the brake pedal.

The faster you're going, the further your vehicle will travel before you can hit the brakes.

Speed	+	First Digit	=	Reaction Distance
55 mph	+	5	=	60 feet
65 mph	+	6	=	71 feet

Braking distance is also determined by speed. Here are braking distances for some speeds:

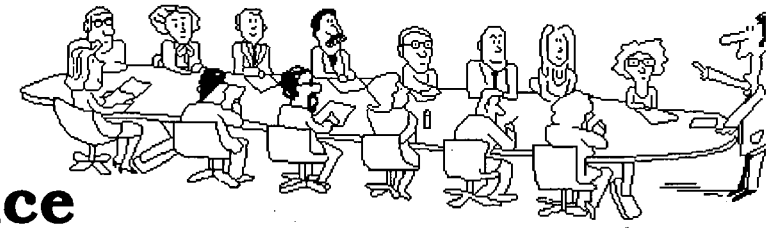
At...	Braking distance is...
20 mph	18 to 22 feet
55 mph	192 to 224 feet
65 mph	267 to 316 feet

Now we can calculate the stopping distance for these speeds:

At...	Reaction Distance	+	Braking Distance	=	Stopping Distance
20 mph	22 feet	+	18 to 22 feet	=	40 to 44 feet
55 mph	60 feet	+	192 to 224 feet	=	252 to 284 feet
65 mph	71 feet	+	267 to 316 feet	=	338 to 387 feet

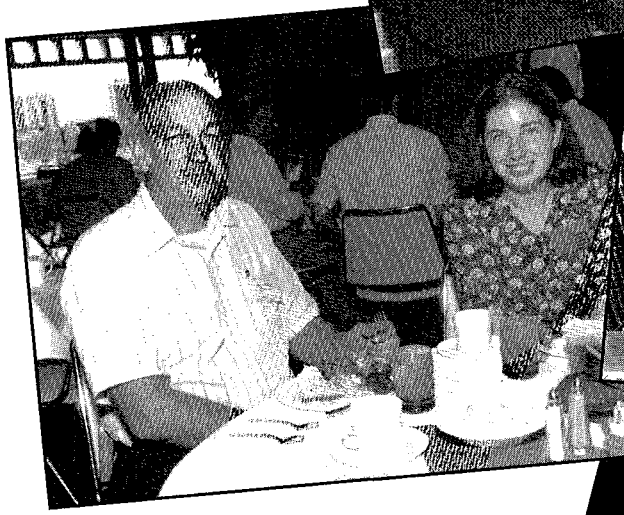
It's easy to see that stopping distance is very much greater at high speeds than at low speeds. The faster you are going, the greater the distance you must allow between you and the car in front of you for safety.

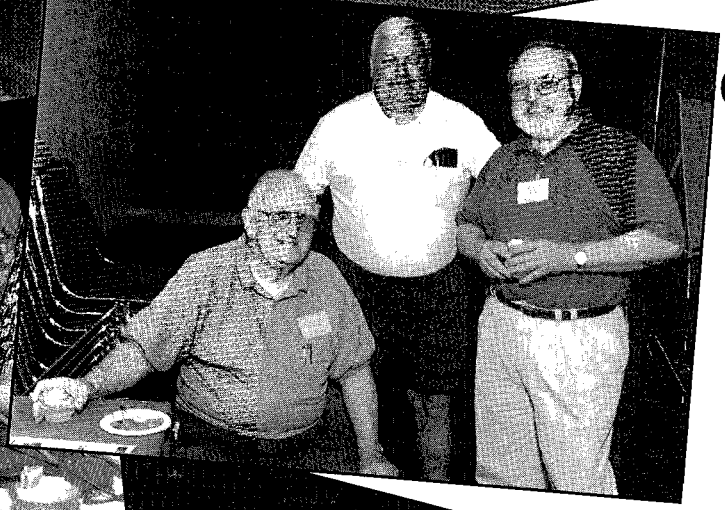
Massachusetts Public Works Education Conference

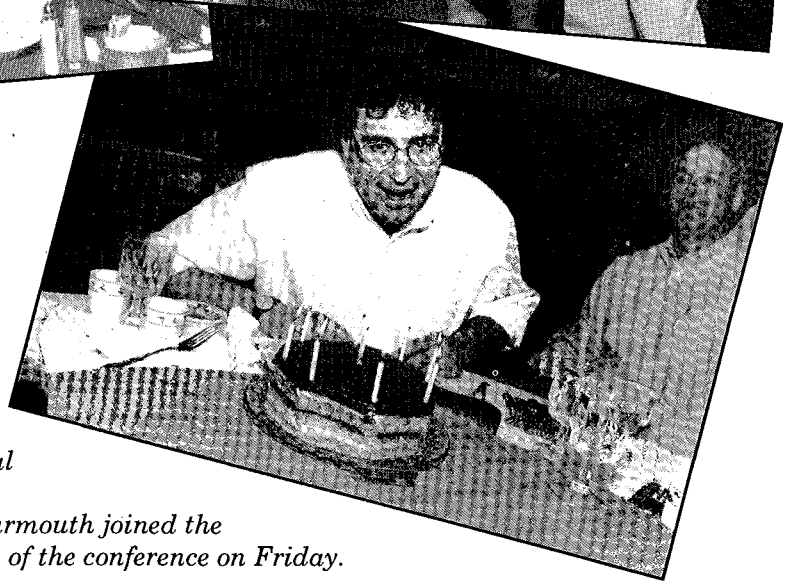


On June 6-7 the Mass Public Works Education Conference went off without a hitch. Baystate Roads Program director Paul W. Shuldiner and Mass Highway Association president William Elovirta opened the conference, followed by a presentation on the award winning University of Massachusetts Recycling Center by R. Marc Fournier, Deputy Assistant Director for Grounds. Nine panel discussions ensued over the day and a half-long conference, the first of its kind in nearly fifteen years. While evaluation forms are not in yet, a good time appeared to be had by all.

The Baystate Roads Program and Massachusetts Highway Association would like to thank all panel organizers, panelists, and conference attendees for their valuable participation. We hope to see you all next year.







Captions:

Top: Recycled Products panel (left to right): Gordon Martin, John Green, John Schuler, George Camaugis and Greg Cooper.

Right: Gerry Daigle and Gary Berkley of the OTH group with Jack Henebury of the Somerville DPW at the social hour.

Left: Highway superintendent Roger Bisbee of Williamsburg with Baystate Roads clerical assistant (and daughter) Amy Bisbee.

Bottom: Happy Birthday Chris! George Calise of Yarmouth joined the BRP staff for a birthday celebration after the close of the conference on Friday.