Pedestrian and Bicycle Information Center

Pedestrian and Bicycle Information Center
CASE STUDY COMPENDIUM

January, 2009

Foreword

This PBIC Case Study Compendium contains a collection of brief, original case studies developed by the Pedestrian and Bicycle Information Center and the Association of Pedestrian and Bicycle Professionals (APBP). The case studies, or success stories, cover pedestrian and bicycle projects and programs from across the US and abroad, including engineering, education, enforcement, encouragement, planning, health promotion, and comprehensive safety initiatives. They are intended to provide ideas and spur thinking about potential activities communities can undertake to further support bicycling and walking. Each case study provides a context in which the program or project takes place, a description of the pedestrian and/or bicycle issues faced, as well as how the community sought to address their concerns through various measures. Finally, a results section describes the successes and lessons learned from the planning or implementation of the activity. When available, data are provided to support results.

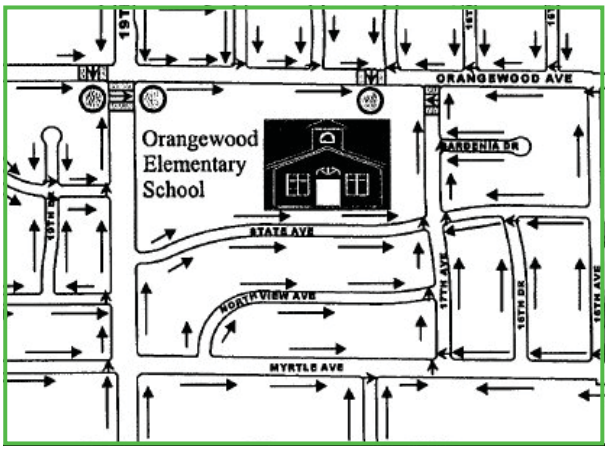
The case studies in the compendium are categorized into different sections depending on the main activity that the community initiative involved:

1. **Comprehensive**
2. **Education**
3. **Engineering**
4. **Encouragement**
5. **Planning**
6. **Other**

Many case studies involve multiple components and could be categorized in several sections at once. To explore specific issues or browse overlapping topics, we recommend using the Advanced Search in the PBIC Library to find individual case studies.

This compendium is a dynamic document that is updated regularly, so please check the PBIC web sites for the latest version: http://www.walkinginfo.org/case_studies and http://www.bicyclinginfo.org/case_studies. Additionally, we invite you to share your pedestrian or bicycle program's activities and successes with us. To submit a case study or share an idea, please email Laura Sandt at sandt@hsrc.unc.edu.

COMPREHENSIVE



Anthem Park Development

Pedestrian and Bicycle Information Center

Problem

The Vancouver Housing Authority (VHA) wanted to connect an apartment complex with the neighboring community by redeveloping a brownfield property next to the complex.

Background

Since its construction, Columbia House Apartments was separated from Main Street by the empty site of the old Vancouver High School. Senior citizens living in the apartments had to navigate a 6 percent grade in front of the building and were confronted with abandoned school buildings.

In addition, in 2002 the majority of Clark County residents were overweight or obese. As a result, the city wanted to encourage residents to incorporate walking and other physical activity into their daily lives.

Solution

The VHA partnered with a private development firm to create a new project called Anthem Park to redevelop a 1.5 acre portion of neighboring property. This mixed-use, mixed income property would include 58 units of affordable housing, 22 owner-occupied townhomes, two retail spaces, and underground parking. The objectives of the project were to "remove barriers to pedestrian activity for the elderly and disabled residents of Columbia House" and to "create a comfortable transition between the west side of the block and the Main Street frontage to invite more pedestrian activity among residents." Anthem Park was designed to enhance the outdoor environment and encourage residents to get outside and be more active in their daily lives.

Results

The Anthem Park development was able to use the existing topography by converting what was the old high school football stadium into an underground parking garage. The project is an excellent example of thoughtfully designing a new property to incorporate the pedestrian needs of existing elderly and disabled neighbors. Anthem Park was able to successfully remove barriers to pedestrian activity for the residents of Columbia House through a number of changes including:

- Connecting a landscaped public plaza to Columbia House by a skybridge that enters the second floor of the building creating a flat approach
- Constructing new sidewalks with curb ramps on both sides of the property
- Retrofitting a wheelchair ramp to meet ADA standards
- Designing the plaza to be fully accessible for residents who use wheelchairs and scooters

The costs of the project totaled $16,182,700, approximately $10 million of which was paid for by the VHA, with the remainder paid by the developer. Of the VHA's portion of the costs, construction costs were $7.3 million, and insurance, developer fees, funding fees, reserves, and administration were $2.1 million. The predevelopment costs were $600,000.

Contact

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Bicycle and Pedestrian Safety Campaign

Pedestrian and Bicycle Information Center

Problem

The city felt driven to improve pedestrian and bicycle safety in their town in order to make a more livable community.

Background

The Burlington Department of Public Works is one partner in a long-term effort to institutionalize pedestrian safety in the community. In 2006, they launched an annual pedestrian safety campaign based on materials in the Federal Highway Administration's Pedestrian Safety Toolkit.

Solution

The campaign included education, engineering, and enforcement components.

For the engineering component, the town worked to:

- Develop a multimodal transportation improvement plan
- Plan, develop, and construct an intermodal transit facility in downtown Burlington to improve pedestrian access to transit
- Improve circulation and access around the waterfront for all modes, with particular emphasis on enhancing the safety and clarity of pedestrian travel
- Facilitate the development of pedestrian improvements to Cliff Street and other locations

A poster with a message for drivers to yield to pedestrians.

On the enforcement side, the department worked with the Mayor and the Police Department to distribute educational materials to violators, with specific information targeted at motorists, cyclists, and pedestrians. Extra enforcement in the downtown area focused on bicycle and pedestrian-related violations.

For the education component, public service announcements were broadcast over radio and television and displayed on safety slides at the downtown cinema. The Department of Public Works collaborated with the Mayor, Police Department, and local advocacy organizations to develop press releases and hold press conferences highlighting safety initiatives, using the media to spread the message. Additionally, safety coupons were designed and distributed for discounts on reflective clothing and other safety products.

Results

The city hosted a Pedestrian Summit to involve all stakeholders in a city-wide dialogue. The campaign is now an annual tradition.

Contact

http://www.dpw.ci.burlington.vt.us/transportation/bikewalk/safety/

Image Source:
Burlington Department of Public Works.
http://www.dpw.ci.burlington.vt.us/transportation/bikewalk/safety/

City of Richmond Pedestrian Strategy

Pedestrian and Bicycle Information Center

Problem

The city needed an improved pedestrian environment.

A sign for pedestrians used in Richmond.

Background

One of Richmond City Council's top five priorities for the 2003–2005 term was to improve community mobility and reduce reliance on personal vehicles. In order to meet this goal, the City developed a multifaceted, comprehensive strategy to improve the pedestrian environment and reach the vision of being the "most appealing, livable and well-managed community in Canada."

Solution

Richmond's strategy consisted of five main objectives: 1) Enhance pedestrian facilities, 2) Improve accessibility, 3) Educate on safety, 4) Develop a network of trails, and 5) Foster partnerships. The facility improvements were focused on improving pedestrian visibility. Crosswalks in 4-lane and 3-lane roads were upgraded with internally lit overhead signage featuring downward lighting and pedestrian-actuated amber flashers. The downward lighting created a well lit crossing area 24 hours per day and the amber flashers notified drivers when pedestrians were present in the crosswalk. In addition, signage at each special crosswalk illustrated the proper procedure for pedestrians to follow when crossing the street. Funding came through the Arterial Crosswalk Programme, which is identified in the City's annual capital Programme. The $157,000 (Canadian Dollars) allocated per year covers the cost of upgrading about 5 crosswalks. It was expected that upgrades would continue through the year 2010.

Richmond's second objective was to improve the mobility-impaired community's access to transit services. A new "community shuttle" bus service was implemented in 2004, making it the first 100% accessible transit route in Richmond. Wheelchair access at bus stops was improved through the installation of landing pads, connected sidewalks, and where necessary due to topography, railings or extruded curbs. Additionally, audible crosswalk signals were installed in a number of locations for the visually-impaired. An "accessible" signal was still being tested in spring 2007. It included a pole locator sound, pushbutton depress acknowledgement sound, and a tactile component, such as an arrow that vibrates when the walk light is on. Pedestrian signs had a yellow background, as opposed to the national standard of white, due to the color's greater visibility, particularly for the visually impaired. Monies for bus stop upgrades were identified in the Infrastructure Programme, and were all eligible for 50–50 cost sharing with the region's transportation authority (TransLink). Funding for accessible pedestrian signals came out of the general city fund for Traffic Signal Installation.

On the education front, the City developed several safety brochures for motorists and pedestrians, including "Important Safety Tips for Scooter Users," "Traffic Safety Around Schools and Playgrounds," "Slips, Trips, and Falls," and "What to do at Special Crosswalks." All brochures were distributed through the community via city facilities, partner agencies like schools and shopping mall information kiosks, and safety related conferences. Additionally, the city operated a 24-hour phone line for the public to report uneven walking surfaces and other facilities needing attention. The publication of brochures was funded through the Neighborhood Traffic Safety Programme, which receives an average of $165,000 (Canadian Dollars) every two years. This fund also supports traffic calming measures and pathway construction.

City of Richmond Pedestrian Strategy — Richmond, Canada

At the end of 2003, the Richmond City Council approved the 2010 Richmond Trail Strategy to guide the long-term development of an interconnected network of trails, greenways, blueways, and cycling routes. The goal was to have a city-wide trail of designated cycling route within one kilometer of every resident. Not only did the document contain goals for construction, but also for promoting community use. As a part of the plan, wheelchair ramp design standard was changed to specify two separate ramps at corners. The Trails Capital Programme runs on an annual budget of $250,000 (Canadian Dollars).

Two separate programs fostered partnerships between the city, the Richmond School District, and the Richmond Health Services. The Walkable Richmond Accord provides an overall City policy to encourage a safe and walkable city. Planned events and publications include an annual walk week, neighborhood walking maps, wellness and falls prevention clinics, and walkability checklists for public comment. The Traffic Safety Awareness Week is an annual event hosted by the city School Board, the City, the local auto insurance agency, and auto insurance brokers. The campaign educates students about traffic safety, and encourages walking to school through the "Walking Yellow Wednesday" interschool challenge. The program is funded as a part of the City's on-going traffic safety education strategies.

Results

The crosswalk enhancements seem to have made an improvement, as the upgraded crosswalks were found to have the lowest number of pedestrian-related incidents per location when compared to other types of crosswalks in the city.

As of 2003, the City of Richmond had a higher percentage of accessible bus stops and accessible pedestrian signals than any other municipality in the Greater Vancouver region. Education brochures sent out in 2004 were well-received by the public, and a survey of the general public indicated that 72% of respondents used the Richmond trails either daily or weekly.

The "Walking Yellow Wednesday" challenge has shown consistent success, with more and more schools participating each year: 30 out of 40 schools as of 2004.

Contact

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Images Source: *Institute of Transportation Engineers Pedestrian Project Award Application. City of Richmond. http://www.ite.org/awards/pedproject/RichmondCanada.pdf*

Info 2 Share

Pedestrian and Bicycle Information Center

Problem

From 1998 to 2004 the Hamilton Township experienced 23 pedestrian crashes and 6 deaths along the same corridor.

Background

At the end of 2004 the Township began a concerted safety campaign involving education, engineering and enforcement solutions. The Police Department reviewed all the crashes and found several common characteristics; crashes occurred at dusk or nighttime; crashes usually involved young, old, or otherwise impaired citizens; crashes involved pedestrians crossing at unauthorized areas.

Solution

Several low cost measures were taken immediately, including fencing along highway medians, temporary message signs to pedestrians and drivers, improved intersection markings, countdown signals, and revised intersection timing. Longer-term solutions were also planned including median barriers, sidewalks, and overpasses.

An education program was implemented in the form of public flyers distributed at intersections and to jaywalkers, presentations given at schools and community centers, and radio and television messages.

After six months without much improvement in the jaywalking rate, the city undertook an aggressive enforcement effort. The Police Department increased traffic enforcement along the route by 600 percent and established a traffic safety coordinator. The New Jersey Division of Highway Safety helped establish funds for the creation of a Traffic Safety Unit dedicated to this and similar problems. The department also began issuing summonses to jaywalkers rather than mere warnings.

Results

Efforts were apparently successful, with only two pedestrian crashes in 2005 and 2006 (and no fatalities) compared to 10 in 2004 alone.

Contact

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Missoula Pedestrian Safety Campaign

Pedestrian and Bicycle Information Center

Problem

The city had a chronic problem of motorists not stopping for pedestrians in crosswalks. The crash data showed that on average there were around 35 pedestrian-motorist accidents each year, of which 80 percent were the driver's fault.

Background

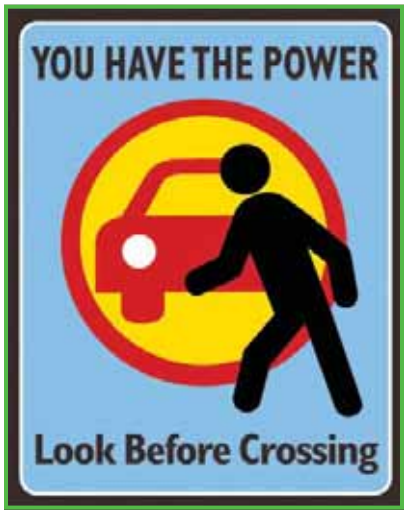
The Missoula Bicycle and Pedestrian Program pursued a Congestion Mitigation and Air Quality (CMAQ) grant, funding the creation of a pedestrian safety campaign that began in 2004, and has been operating since.

Solution

The campaign educates the public through street signs, a media campaign, and police "stings." The program leaders recognized through the process that there were three key elements necessary to make the project have a lasting effect: 1) It must be multi-pronged, 2) It must be sustained over a long period of time, and 3) It must be relevant and appropriate to the local environment. Though the city was selected as one of three communities to pilot a pedestrian package developed by National Highway Traffic Safety Administration (NHTSA), the board determined that the dramatic message would cause a backlash of anger in the community, and they opted to develop their own program instead with the help of a local consultant.

One of the signs used in the Missoula campaign.

The signs bear the motto, "You Have the Power, Stop for Pedestrians," and are of nonstandard form and colors, in order to stand out to drivers. Almost 300 large and small posters were placed around town on signal poles and at in highly visible, yet unexpected, locations. The same logo and words were used in the radio and television spots to maintain a consistent message. Eighty percent of the messages were targeted at motorists and 20 percent towards pedestrians. Though over 2,700 radio spots were paid for, the department was able to air over 7,000 free spots. Any pedestrian facility improvements that are made are also announced to the press to garner additional attention to the subject of pedestrian safety. In addition, the board compiled a list of organizations maintaining membership newsletters, and sent out very short pedestrian safety messages every 6 months, requesting that they be included in the paper.



Another sign used in the Missoula campaign.

The Police Department also contributes to the efforts by conducting Pedestrian Safety Operations, or "stings," with great media coverage. Modeled after a program started in Redmond, Washington , one officer in plain clothes plays the role of a pedestrian, stepping off of the curb once the driver has reached a distance from the crosswalk which gives them plenty of time to stop. If the driver does not stop, the officers in motorcycles then pull them over to issues tickets. The typical fine was $140, and the board spoke with Judges asking them to not be lenient, in order to send the message that the law was serious.

The efforts are funded through a combination of local funds and a large CMAQ grant. Spread over the past 3 years, the total costs have come to roughly $90,000.

Results

Though the city lacks the resources to carry out any statistically valid evaluation, anecdotal evidence shows that locations notorious for drivers not stopping have seen a remarkable change. The same people who previously would report frequent "close calls" now say that drivers almost always stop for them.

Contact

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Image Source
Phil Smitth, Missoula Department of Transportation.

Phoenix School Safety Program

Pedestrian and Bicycle Information Center

Problem

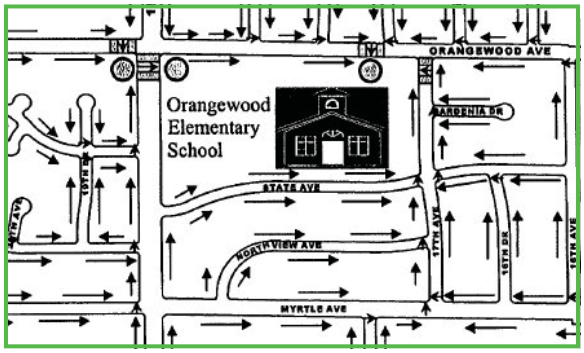
School crossings needed improved safety measures.

Background

The Phoenix School Safety Program was developed by a task force created following a tragic collision involving a young student who ran into a busy street against a traffic signal. The task force included a local parent and individuals from the local police, transportation, highway safety, and law departments, as well as representatives from local schools.

Solution

The task force recommendations yielded eleven major changes. The solution was a combination of education, enforcement, and facilities improvement. Education measures included a new School Crossing Guard training video, which was produced in English and Spanish to be used in all subsequent training programs. A new training handbook (English and Spanish version) was developed and distributed, in addition to a "Safest Route to School" walking plan to encourage parents and students to safely walk to school. In addition, a School Safety Summit brought together the state's school and traffic officials to work together to implement the recommendations.



Sample walking map for Orangewood Elementary School.

For enforcement measures, a school crossing safety audit was developed to help identify those areas of a school most in need of improvement. Phoenix also equipped schools with radar-controlled cameras mounted to vans to enforce the speed limit during school start and dismissal times.

Other improvements included the installation of "SCHOOL" pavement stencils on roads approaching the school area, fluorescent yellow-green school warning signs, safety vests for guards, staggered crosswalks, and two trial active speed monitors that flash when a driver's speed exceeds the speed limit during school operating hours. An experimental in-pavement flashing crosswalk was installed at a local high school. Once activated by a pushbutton, the device issues verbal warnings to pedestrians that cars may not stop. Additionally, school staff developed a set of guidelines for drop-off and pick-up times to reduce congestion and spillover onto the street in front.

Funding of $500,000 per year was provided by the City of Phoenix.

Results

The program resulted in the most significant advance in safety at Arizona schools since the inception of the 15 mph school zone in 1950. The program reached 400 schools statewide, 6,872 speed citations were given, 11 Safest Route to School walking plans were completed, and 173 crossing safety audits were conducted.

Contact

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Phoenix, AZ 85003
(602) 262-6136 or (602) 262-7597

Image Source

Institute of Transportation Engineers Pedestrian Project Award Application. City of Phoenix. http://www.ite.org/awards/pedproject/ppa070.pdf

TrailNet

Pedestrian and Bicycle Information Center

Problem

The St. Louis area was in need of a better trail system to make the city more pedestrian and bicycle friendly.

Background

Trailnet was founded in 1988 to promote the St. Louis Riverfront trail, still one of the longest multiuse trails in the region. Since then it has either led or partnered to lead development on more than 8 different bi-state trails, including the "MetroBikeLink" — a cycling path that follows the MetroLink commuter rail line and is connected to a park-and-ride so that commuters may choose to bicycle part of their commute.

Solution

The organization is an exceptionally active non-profit that sponsors a variety of activities to promote active living. In 2005, they began a family oriented "Pedal in Our Parks" bicycle ride series, which incorporated bicycle safety training and returned to one of five partnering cultural destinations at the end of the ride. The Bicycle Fun Ride program sponsors 20 different rides annually for varying skill levels, and brings out about 500 participants on average. Trailnet is also active in the schools, and has worked to expand the Safe Routes to School program into a greater number of school districts.

One of the rides organized by Bicycle Fun Ride.

The group is not only education and promotion driven, and maintains a competent staff. They receive funding from the East-West Gateway Council of Governments to develop bicycle and pedestrian plans for local communities. They completed 10 such plans in 2006. In 2005, they worked with the regional transportation planning agency to help develop the Marketing and Education section of the plan, which emphasizes the benefits of walking and bicycling to all people, not just those who choose to use those modes. The organization currently is also the lead non-profit partner in the development of The Confluence Project, which is a 200 square mile recreation corridor going through downtown and following two separate rivers.

Trailnet receives a majority of its funding through grants and contracts, however a large portion (35 percent) comes from member contributions, and another 12 percent comes from consulting work, investments, and other earned income.

Contact

Grant's Trail Office
(314) 416-9930
www.trailnet.org

Image Source
Trailnet. www.trailnet.org.

EDUCATION

THE
SMARTS
Bicycling
Ambassador
21621

1
All these people are in crosswalks
3
Motorists must yield the right of way even if the cross-walk isn't marked with paint
2

IF YOU SEE KIDS
SLOW TO 25
STOP
Street Smarts
www.GetStreetSmarts.org
City of San José

Bicycle and Pedestrian Safety and Education Program

Pedestrian and Bicycle Information Center

Problem

This project was developed to improve safety for pedestrians and bicyclists, the most vulnerable users of our transportation system. According to the National Highway Traffic Safety Administration (NHTSA), pedestrians in Arizona have the second highest traffic fatality rate based on population in the U.S.; bicyclists have the highest fatality rate. The Federal Highway Administration (FHWA) indicates that Arizona is 47th in the nation in terms of the amount of federal funding spent on addressing causes of traffic fatalities on Arizona roadways. Moreover, less than 0.5 percent of federal funds that Arizona receives are spent on safety projects and programs for pedestrians and bicyclists, yet pedestrian and bicycle fatalities average nearly 13 percent of total traffic fatalities. The FHWA estimates that less than $1.00 per year per student is currently spent teaching children safe traffic skills, and virtually no federal funds are spent on adult pedestrian and bicycle safety classes.

Background

In 2004 Pima County developed a proposal in partnership with the City of Tucson for federal transportation enhancement funds to improve safety for pedestrians and cyclists using public outreach techniques, safety training, and minor infrastructure improvements. The proposal was funded through the Arizona Department of Transportation and includes substantial local matching funds. The program officially got underway in 2005 and complements another safety outreach effort funded through local funds and transportation enhancements, the Pima County-Tucson Safe Routes to School Program.

Solution

The goals of the Pima County-Tucson Bicycle and Pedestrian Safety and Education Program are to reduce roadway crashes and injuries among pedestrians and bicyclists, increase awareness of the responsibilities of pedestrians, bicyclists and motorists, and promote tolerance among all roadway users.

Bus shelter safety signs and HAWK pedestrian crossing lights are only two of the many bicycle/pedestrian safety improvements included in the Pima County-Tucson Program.

This program includes television and radio public service announcements (PSAs) promoting pedestrian and bicyclist safety, educational videos for police training and for student safety classes, traffic safety guides and maps, posters, helmets, front and rear bicycle light kits, and free cycling safety classes for the public. The program also entails close coordination with police and safety educators. Safety messages address motorist failure to yield to bicyclists and pedestrians, wrong-way bicycle riding, helmet use, use of bike lights at night, running stop signs and red lights by motorists and bicyclists, speeding, and other issues. The intent is to promote an overall "share the road" ethic within the community.

Partners in the education effort include area police departments, youth driver training schools, Arizona Motor Vehicle Division offices, the City of Tucson Safe Kids Program, AAA, the Governor's Office of Highway Safety, the National Traffic Safety Institute, bicycle clubs, area bike shops and libraries, and other groups and agencies. A demonstration project for bike lane stencils and signage that addresses wrong-way bicycle riding is incorporated into the project.

Results

PUBLIC OUTREACH

Approximately 180 4-by-6-foot signs with messages promoting bicycle and pedestrian safety have been installed at bus shelters and 40 Share the Streets bus bench signs have been posted at bus stops around the region. Safety signs and posters have been put up in over 40 regional libraries and bike shops. The program has also distributed 50,000 regional bike maps with safety information and 40,000 Share the Road motorist/bicyclist pocket guides, including Spanish-language guides. The program also publishes a monthly safety newsletter.

Public service announcements promoting safety for bicyclists and pedestrians are periodically run on local radio stations and on TV. Additional PSAs are run with a major emphasis on school safety. The program is developing a police training video on bicycle and pedestrian legal issues and safety, to be implemented within area police departments in fall 2008.

SAFETY TRAINING

A Bicycle Ambassadors program has teens and adults assisting with the Safe Routes to Schools program, bicyclist safety outreach events, bike safety classes, and other activities including safety outreach to students at the University of Arizona. The program has trained over 1,500 adults and children in the past two years in nine-hour bicycle safety training classes. (The classes are divided into two parts: a three-hour classroom segment and a 6-hour riding segment that includes safety drills.) Three separate train-the-trainers courses have been held for bicycle safety instructors, and the region now has the largest number of League of American Bicyclists League Certified Instructors in the nation.

A celebrity endorsement: Tucson Mayor Bob Walkup (fourth from left) takes the Pima County-Tucson bicycle safety class.

The program is developing a bicycle driver diversion class to offer safety classes to bicyclists who receive citations for traffic infractions. The classes will be implemented working with the Bike Ambassadors and League of American Bicyclists safety instructors in fall 2008.
Infrastructure improvements

Over 400 bike stencils have been installed in bike lanes; in the future "Wrong Way" bicycle signs will be installed on select roadways where wrong-way riding is a concern. The program has also coordinated with traffic engineering staff on the prioritization and location of HAWK (high intensity activated crosswalk) pedestrian crossing signals Over 70 of these signals have been installed in the Tucson-Pima County region.

EVALUATION

Evaluation is currently underway to determine the effects of the safety outreach efforts and identify additional safety countermeasures and sources of funding to continue and expand the program. The Pima County Department of Transportation (DOT) is collecting data on the number of crashes, type and severity, to compare with an analysis done in 2005. A report will be available in late 2008.

Costs

The program is funded through a $454,000 federal Transportation Enhancement grant, $105,000 in Pima County funds, and $29,000 in City of Tucson funds. The original grants were one-time awards of funding but spread out over several years; they will be complete at the end of 2008. The Pima County DOT has secured funding to extend the program for at least another three years and plans to seek further funding to continue the program beyond that time.

Web links and resources

Visit www.bikeped.pima.gov to view the Motorist/Pedestrian Share the Road Guide and public service videos on pedestrian and bicycle safety.

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Image sources
Matt Zoll and Ignacio Rivera, Pima County DOT

Bringing Bicycle Education to Spanish-Speaking Communities

Pedestrian and Bicycle Information Center

Problem

Language can be a barrier to bicycle use and safety. Bicycle safety programs need to reach non-English speaking individuals.

Unsafe bicycling behavior includes riding on the left side of the road facing traffic (instead of on the right with traffic as required by Texas law), and not wearing a helmet. Safety information to counteract these behaviors is usually offered in English, and may not be understood or accepted by non-English speaking people. Family customs of various ethnic groups can influence behavior and willingness to accept information. For instance, English-speaking children in Hispanic families may look to their parents for permission before accepting new information. If parents do not understand bicycle safety information written in English, it may be difficult for them to help their children learn to ride a bicycle safely.

Background

A significant number of Spanish-speaking individuals with limited English comprehension live in Amarillo, Texas (see table below). To serve this population, the Texas Bicycle Coalition (TBC) needed to provide bicycle safety instruction in Spanish.

OVERVIEW OF ETHNIC AND LANGUAGE CHARACTERISTICS OF GENERAL AND SCHOOL POPULATIONS IN TEXAS AND AMARILLO, TEXAS (2003)

CATEGORY	TEXAS	AMARILLO
Total Population	22 million	180,000
Percent Hispanic or Latino Origin	32 percent	22 percent
Number Hispanic or Latino Origin	7.0 million	39,600
Percent Language at Home other than English (5+ yrs. age)	31 percent	19 percent
Number Language at Home other than English (5+ yrs. age)	6.8 million	34,000
School Population	4.6 million	30,000
Percent Hispanic at School	46 percent	40 percent
Number Hispanic at School	2.1 million	12,000

Sources: U.S. Census Bureau "Quick Facts" website on 11/1/07 and Texas Education Agency "ASK Ted" website on 11/1/07. Numbers rounded to two reported digits.

Bringing Bicycle Education to Spanish-Speaking Communities — Armarillo, TX

Solution

TBC arranged for the translation into Spanish of the materials for two of its education programs, Texas SuperCyclist and BikeTexas Safe Routes to School (SRTS).

The Texas SuperCyclist curriculum is a comprehensive bicycle safety education course for 4th and 5th grade elementary school teachers and their students. Field instructors train and certify teachers in school districts across Texas so that they may, in turn, train their students in bicycle and pedestrian safety education. Curriculum materials include "Master Pages" — homework and safety information that teachers photocopy for students to take home and share with family members. In 2001, TBC arranged for the Master Pages to be translated into Spanish by a native speaker with many years of experience organizing bicycle education and Safe Routes to School activities. The translations were then certified by faculty at the Universidad Autónoma de Mexico (UNAM) in Mexico City. These translations bring the Texas SuperCyclist program to Spanish-speaking households across Texas.

In 2004, TBC initiated the BikeTexas Safe Routes to School "Education, Encouragement and Evaluation" pilot program, and used the Texas SuperCyclist curriculum for the education component of this program. TBC received funding to introduce this program to school districts across Texas, including the Amarillo Independent School District (AISD). TBC produced the BikeTexas SRTS program materials in both English and Spanish to better serve children and their parents. These materials were approved by the Amarillo Independent School District. TBC staff and schools distributed them to students and parents via "back-pack express," regular mail, poster placement, and other means. Texas Bicycle Coalition also initiated an aggressive outreach program to build relationships with local Spanish language media.

SuperCyclist safety information in Spanish.
Photo: Texas Bicycle Coalition

The language in which TBC presents its educational material varies depending on the audience. At school sites, English predominates; at after-school programs or other events, Spanish is used alongside, or simultaneously, with English. At some events, only Spanish is used so that parents can easily understand. For example, a utility bill insert on bike lane safety was produced in both English and Spanish versions and distributed to 60,000 Amarillo residents through a mailing cycle and at TBC events.

Results

TBC used the translated materials to communicate bicycle safety messages to Spanish-speaking households. As a result of translating bicycle safety and education materials into Spanish, staff observed improved collaboration between local residents, schools, neighborhood associations, local businesses, law enforcement, traffic engineers, and transportation departments.

For instance, TBC witnessed encouraging results at Amarillo's KidsFest, a fair that helps prepare children for the coming school year. In 2005, approximately 5,000 people attended KidsFest. Soon thereafter, TBC staff began to develop contacts with Spanish media organizations such as Telemundo and Univision, which resulted in interviews promoting BikeTexas

SRTS and KidsFest. By 2007, KidsFest attendance increased to over 12,000 children and parents. Community leaders attributed the jump in attendance to the coverage by the media.

At KidsFest, TBC distributed BikeTexas SRTS brochures, SuperCyclist Master Pages, business cards, training and safety flyers, and A-Z by Bike, a comprehensive guide to safe bicycling for kids and adults. TBC also offered helmet clinics, a bike skills course where kids could practice riding, and a safety class that taught kids how to check their bikes and Texas bike laws and hand signals.

Making a point about helmets at KidsFest: better hope the egg nestled inside the Styrofoam head doesn't break.

Spanish-speaking staff members who understand the challenges faced by the non-English speaking community helped TBC's programs earn credibility and trust. TBC's efforts prompted other community organizations and individuals to understand the need to develop Spanish teaching materials in order to reach more children and parents on an ongoing basis.

Cost

Costs for this outreach program were included in TBC's BikeTexas SRTS and SuperCyclist programs. Funding came from private donors, the U.S. Department of Education, a Carol M. White Physical Education Program Grant, the Texas Department of Transportation, and the National Highway Traffic Safety Administration.

WEB SITES FOR MORE INFORMATION

Information about the Texas SuperCyclist Program: https://www.biketexas.org/content/view/420/71/

The Pedestrian and Bicyclist Highway Safety Problem as it Relates to the Hispanic Population in the United States is available at
http://drusilla.hsrc.unc.edu/cms/downloads/PedBike_HighwaySafety_HispanicPopulation1.pdf

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Image sources
Texas Bicycle Coalition

Comprehensive School-Age Pedestrian Safety Program

Pedestrian and Bicycle Information Center

Problem

Orange County, Florida's safety team formed a comprehensive K-12 curriculum to address pedestrian safety following a rash of school-age crashes.

Background

The safety team, like others in the state, is sponsored by the Florida DOT. However, its members are all volunteers from local agencies, using their own agencies' funds. In Orange County, the team was composed of the Sheriff's Office safety specialist, staff from the Police and Fire departments, engineering specialists, the local school board, and various advocacy organizations. The large presence of government officials can give the group a stronger voice than sometimes politicized or marginalized advocacy groups, and often outside groups come to the team for help organizing a project. One agency or volunteer is elected to lead the effort based on the topic of focus at the time.

These children attract attention to the pedestrian safety program.

Solution

The school-age pedestrian safety program was led by the local School Board to ensure the curriculum developed was age-appropriate and fit within the school structure. At the elementary school level, a pedestrian component was added to the safety villages already in place, where the Sheriff's office safety specialist guides the children through marked and unmarked crosswalks, signaled intersections, and more. Walk Your Child to School Day is emphasized in presentations and curriculum materials. At the middle school and high school level, the safety message was spread through books, in-class curriculum presented by the teacher, posters, videos, and presentations given by safety officials on the team.

Results

Started in 2004, the curriculum development and implementation process took about a year and a half all together. The team works from the four discipline approach, finding that the different perspectives given by specialists in education, enforcement, engineering, and emergency services all blend to make a truly comprehensive program. The group worked to balance the safety message with an accurate message about what the law states, as the state pedestrian laws can be rather vague (e.g. "What constitutes jaywalking?").

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http://www.orgsites.com/fl/orangecountyctst/index.html

Image Source: *Orange County Community Traffic Safety Team. http://www.orgsites.com/fl/orangecountyctst/_pgg7.php3*

Cross Safely Drive Safely

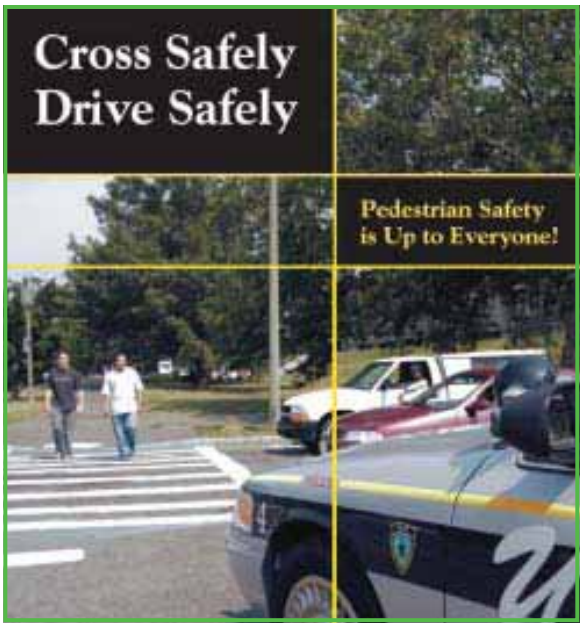
Pedestrian and Bicycle Information Center

Problem

People walk and drive on college campuses — sometimes with unexpected results. In the late 1990s, two pedestrians at UMass died when cars struck them in crosswalks. Each academic year at Amherst since 2000, car drivers seriously injured four pedestrians on average. Police sought ways to prevent future pedestrian fatalities and injuries.

Background

The University of Massachusetts at Amherst is the flagship campus of the UMass system. During the academic year over 32,000 people — students, faculty, staff and guests — are on campus every day. Many of them commute and park away from the center of campus, becoming pedestrians after they park their cars. Others walk to academic buildings from their residential living areas. When the Mullins Center (11,000 seats) or Warren McQuirk Stadium (about 20,000 seats) hosts an event, the pedestrian population is even larger.



This poster was widely distributed around the UMass-Amherst campus.

The UMass Police Department consists of 63 officers. When they received complaints from pedestrians, the police reacted by sending a cruiser to patrol a crosswalk area for a few days. This provided general deterrence for a short time, but didn't solve the problem.

UMassSAFE is a partnership between the Governor's Highway Safety Bureau (GHSB) and the UMass College of Engineering Transportation Center. A transportation research program, its mission is to reduce crashes and crash injuries through research and applied practice. UMassSAFE knew about the campus' pedestrian safety issue and approached the UMass Police about collaborating to solve the problem.

Solution

In 2005, with funding from the National Highway Traffic Safety Administration (NHTSA), the UMass Police and UMassSAFE worked together to develop and implement the "Cross Safely Drive Safely" program, which included education, enforcement, and evaluation.

The education component included both a public awareness campaign and judicial education. In an important preliminary step, police met with a local judge to discuss the program's parameters, ensuring that later enforcement efforts would likely stand up in court. The public awareness campaign targeted both pedestrians and motorists. Messages on posters and bus cards, reinforced by media coverage, reminded pedestrians to walk safely. Patrols of two officers spent four hours at a time monitoring motorist behavior at crosswalks. (The patrols concentrated on uncontrolled crosswalks that were the subjects of previous complaints.) A plainclothes decoy at the crosswalk radioed ahead to a partner in a cruiser when the decoy saw a violation. During the first month, officers stopped violators and advised them that they had committed an offense. Instead of a citation, violators received a handout with operator and pedestrian safety tips.

During the second month of the program, motorists were ticketed and assessed a fine (fines ranged from $35 to $200 depending on the violation). This was publicized in the local media and on bus cards on UMass transit vehicles. News of the enforcement campaign spread quickly throughout Amherst by word-of-mouth.

The education/enforcement campaign took place early in the 2005-06 academic year. The NHTSA grant provided enough money to repeat the program in the fall of 2006. To evaluate the program, UMassSAFE researchers observed before and after pedestrian crossing behavior and driver compliance at the patrolled crosswalks and at two off-campus control sites.

Large-scale cards on the side of UMass transit buses reiterated the "Cross Safely Drive Safely" idea and included crossing safety tips for pedestrians.

Results

Pedestrian/car crashes still occurred at UMass after the 2005 program cycle; however, evaluation showed that more drivers were yielding to pedestrians at the targeted crosswalks during and after the education/enforcement period. After the next cycle, there were no pedestrian/motor vehicle crashes or injuries from September 2006 to June 2007. In addition, the campaign made patrol officers more aware of crosswalk violations resulting in a higher level of routine enforcement since the start of the effort. The police plan to continue the campaign because of the UMass community's cyclical nature (new students arrive every fall) even though no more grant funds are available. UMass SAFE is developing a curriculum that can be used to train law enforcement officers on other large university campuses.

Costs

The NHTSA grant totaled $75,000, divided between the police and UMassSAFE. The police used their share mainly to pay for the patrol officers' overtime and for printing materials. The police also contributed an officer's time spent as program supervisor and his travel to Rochester, Boston and Madison to present the program in other locations. (A PowerPoint presentation can be viewed at http://www.bikewalk.net/presentations/davidblack.ppt)

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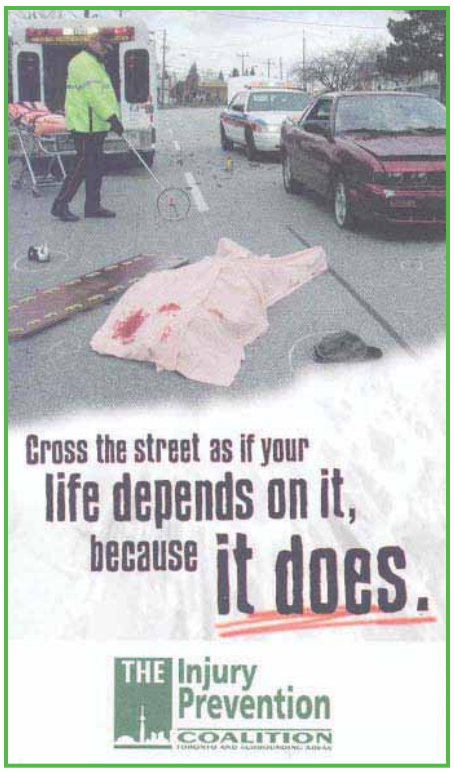
Image sources
Poster, UMass Creative Services; photo, Heather Rothenberg.

Cross the Street As If Your Life Depends On It

Pedestrian and Bicycle Information Center

Background

In 2002, Toronto experienced one of the worst years ever for pedestrian fatalities with fifty in total, which accounted for over half of all traffic fatalities that year. The Injury Prevention Coalition worked to increase citizen awareness and reduce pedestrian deaths and injuries in the Greater Toronto Area.



A dramatic poster created by the Injury Prevention Coalition.

Solution

The group came up with some innovative ways to spread their message. Ads were developed with the slogan, "Cross The Street As If Your Life Depends On It, Because It Does." Posters and safety brochures were sent to 900 different community agencies, all with the dramatic photo of a staged pedestrian fatality scene. Organizations included health services, police and fire stations, parks and recreations centers, senior centers, licensing centers and more. Additionally, ads were placed in 30 bus shelters at key intersections, and a short slide show was developed to be shown in local movie theatres, which directed viewers to a website with further information.

Costs totaled $21,520, with $7,400 going towards the ad placements in movie theatres, about $3,500 for the print costs of the transit shelter ads, and about $9000 for other print costs and various other small costs. Funding came through four main sponsors: the Ministry of Transportation, Famous Players Theatres Media, Sunnybrook & Women's College Health Sciences Centre, and the Toronto Transportation Services.

Results

The media launch for the event was covered by several city newspapers. Over 867,000 people viewed the pedestrian safety ad showed in movie theatres. The media images and brochures were evaluated for the effectiveness of the message, and both were found to educate readers and viewers, and to remind viewers of previous information regarding pedestrian safety that they had seen. There have been additional requests for brochures and posters and several hits to the project website.

Contact

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www.tipc.ca

Image Source

Institute of Transportation Engineers Pedestrian Project Award. Toronto Injury Prevention Coalition.

Let the Bus Go, Then You Go

Pedestrian and Bicycle Information Center

Problem

In two back to back incidents in 1997, a young student exiting a TARTA bus was struck by oncoming traffic. Though they were old enough to know, they did not follow the proper procedure for safety around buses.

Background

The Toledo Area Regional Transit Authority (TARTA) provides the majority of trips for the Toledo school system, carrying around 11,000 children per day.

Solution

TARTA partnered with Toledo Public Schools, the Toledo Police Department, and the private Catholic schools to ensure that every school child gets educated about the proper safety measure to be taken around buses. Now an annual tradition, at the beginning of the year, every 4th and 5th grader sees a 15 minute video made by TARTA and narrated by a peer, which is geared towards middle school age persons. They also receive brochures, handouts, and buttons bearing the same message, "Let the Bus Go, Then You Go." Additionally, interior advertising in buses display a consistent message.

One of the exciting signs used in the TARTA program.

The Authority contracted with a marketing consultant to produce the video, giving a lot of attention to make sure that the materials were energetic and youthful to fit the target audience. Since the first year, costs are nominal as they consist only of reprinting.

Results

Though there have been no formal evaluations, the videos are well received each year, and there have been very few incidents since the program began.

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Images Source:
Jim Gee, Toledo Area Regional Transit Authority.

Look Out For Each Other, Share the Responsibility

Pedestrian and Bicycle Information Center

Problem

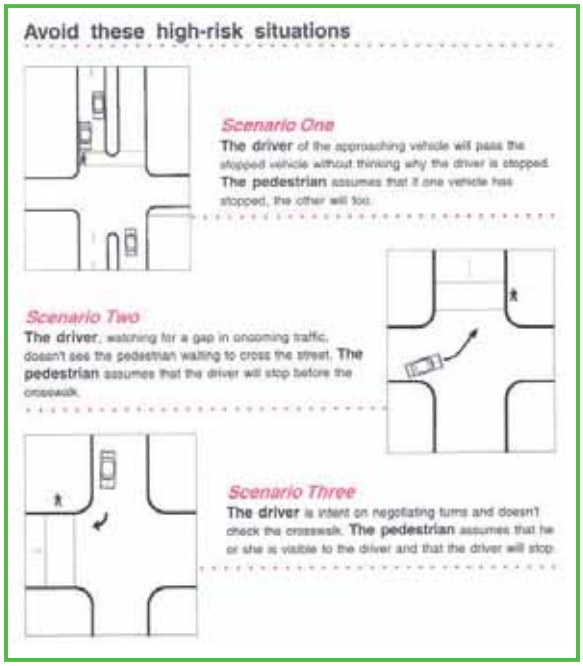
The number of pedestrian collisions per year averaged 325, with approximately 8 of those resulting in fatalities. The cause of collisions were attributed almost equally to both pedestrians and motorists. The City of Edmonton needed to strengthen its safety education program.

Background

In 2000, the City of Edmonton became a member of the Capital Region Intersection Safety Partnership (CRISP) in order to share resources and expertise from a variety of disciplines. The partnership includes local municipalities, police service, the Royal Canadian Mounted Police (RCMP), health services organizations, and motor associations.

Solution

Modeled after the regional campaign "Red Means Stop!" initiated by the CRISP, the "Look Out For Each Other, Share the Responsibility" campaign was launched by the City of Edmonton, the City of St. Albert and Strathcona County in 2002. The media component kicked off with a press conference that included representatives from all the major partners in CRISP. Radio, newspaper, billboards, bridge banners, and bus tails were all used to get the message across. To motorists, the message was to slow down and be courteous to crossing pedestrians. In turn, pedestrians must take due care, pay attention, and use the "point, pause and proceed" method when crossing the road.



The campaign was also supported by an enforcement component. The Edmonton Police Service targeted pedestrians and motorists who ignored the rules of the road; 359 tickets were handed out for pedestrian-related traffic violations in one month alone.

For the first year of the 8-week campaign, the total costs came to $215,000. The following year cost only $25,000 using the same campaign template. The campaign is expected to continue in future years.

Results

Following the inaugural campaign, a public opinion survey of 601 respondents was conducted. Approximately 40 percent of respondents recollected the "Look Out For Each Other — Share the Responsibility" message. Of those, 43% recalled the campaign's billboard advertising while other respondents noted radio (13 percent), transit buses (7 percent), newspaper (6 percent) and smaller community signs (5 percent). Although 74 percent of respondents stated that they

were aware of the "point, pause, and proceed" method of safely crossing the road, only 26 percent of them said they always or almost always use this method. The survey showed, therefore, that the campaign has effectively reached the public, but that also there is a need for ongoing effort by CRISP stakeholders to ensure that pedestrians and motorists continue to learn about pedestrian safety.

Contact

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Image Source

Institute of Transportation Engineers Pedestrian Project Award Application.
http://www.ite.org/awards/pedproject/Edmonton.pdf

Mayor Daley's Bicycling Ambassadors

Pedestrian and Bicycle Information Center

Problem

The Chicagoland Bicycle Federation (CBF) has produced bicycle safety publications for Chicago and Illinois since 1994. These materials were effective at delivering a message to those who read them, but CBF suspected that many in the target audience (motorists, adult and child bike riders, and infrequent and non-cyclists) were not reading them.

Background

In delivering education programs in Northeast Illinois since the mid-1990s, CBF observed that the region's cycling population could be divided into three categories of knowledge and confidence related to bicycling in an urban traffic environment:

- **Confident bicyclists** — These people have little fear of bicycling in traffic. However, many still lack the skills needed to avoid the most common car/bicycle crashes.
- **Ready-to-learn bicyclists** — These are adults and children who want to bike on the streets and trails of their city or town. With education, they can become safe and confident cyclists in traffic.
- **Fearful bicyclists** — Members of this group do not see bicycling on Chicagoland roads as safe or even possible in existing traffic conditions.

All of these cyclists could benefit from safety education. Motorists are also part of the target audience for bicycle safety information: even attentive drivers may endanger cyclists if they don't understand how to share the road correctly. However, CBF had concluded that many people in this audience didn't think the need for safety education applied to them and therefore didn't read CBF's publications.

CBF believed that a personal, hands-on approach to educating Chicago area bicyclists and motorists was needed, and knew of Toronto's Cycling Ambassador program. CBF already worked closely with the City of Chicago's bike program staff; together, they proposed that the Chicago Department of Transportation (CDOT) apply to the Illinois Department of Transportation (IDOT) for Section 402 (federal) funds to support a bicycling ambassador program in Chicago.

Solution

CBF has educated motorists and bicyclists in the City of Chicago through a group of community outreach specialists called Mayor Daley's Bicycling Ambassadors (MDBA) since 2001. (CBF works as a contractor to CDOT.) The educational campaigns target bicycle riders of all ages and competencies, non-bicyclists, and motorists. The Ambassadors deliver bicycle safety and road-sharing information in a variety of languages at public venues such as festivals and community events. MDBA employs up to eight full-time staff each year.

In the **Bicyclist** campaign, Ambassadors deliver specific information about ways that bicyclists can avoid car/bicycle crashes, including how to watch for the traffic situations that cause crashes, use bike lanes safely, and communicate effectively with other road users. Ambassadors don't just stand behind a literature table — they deliver their expertise personally in demonstrations, conversations, and in television, radio, and newspaper interviews.

In the **Motorist** campaign, Ambassadors share information on the purpose and use of bike lanes and teach drivers to maneuver safely alongside bicycle riders using one-on-one conversations and targeted literature distribution at public

events. They also work with motorists on streets with bike lanes. This campaign focuses on three messages: don't cut off bicyclists when turning, avoid dooring bicyclists, don't park or drive in bike lanes.

In MDBA's first three years of operation, the annual Road-Share Fair put members of the car-driving public in pedal cars to drive alongside cyclists in a simulated traffic environment. The five-minute course gave motorists hands-on, critiqued experience about right and left hooks, sideswipes, and dooring. The Road-Share Fair educated hundreds of motorists using a three-quarter-scale traffic intersection with working traffic signals, parked cars, and simulated storefronts. Details can be found on page 20 of the 2002 annual report at http://www.bicyclingambassadors.org/annual.html

In the **Child Safety** campaign, MDBA teach children ages 12 and under how to check their bikes for safety, how to choose and wear helmets and why they should, bike-handling and communication skills, where to ride on sidewalks and streets, and how to look for obstacles and dangers. The Ambassadors educate children at venues such as summer camps, carnivals, library reading groups, police safety events, and block parties. At these events Ambassadors give presentations and lead hands-on exercises. They also check children's bikes for safety and fit bike helmets. Mayor Daley's Bicycling Ambassadors have reached a steadily increasing number of children and youth — from about 3,000 in 2001 to over 21,000 in 2006.

Bicycle Ambassadors reached more than 15,000 children in Chicago in 2006.

An annual 16-week program with training by MDBA and CBF teaches 50 young people Bicycling Ambassador skills (including bicycle maintenance and safety) and employment and presentation skills. The training is sponsored by After School Matters, a local non-profit. The program works cooperatively with the Chicago Park District, which hires 10–16 of the graduates to work during the summer as Junior Ambassadors, teaching bicycle safety in the city's day camps.

The Ambassadors distribute any of a dozen booklets, flyers, and pamphlets in several languages tailored to each of the campaigns. All publications are on the program's website.

Results

During the five-month season in 2006, Bicycling Ambassadors attended 377 events, spoke to 41,800 people face-to-face, and reached another 2 million through local broadcast media appearances. Forty-six percent of the face-to-face contacts were with children. Junior Ambassadors teaching at 159 Chicago Park District day camps helped educate more than 15,800 children and 3,600 adults in just six weeks. Recently MDBA has also begun to evaluate performance by tracking the results of pre- and post-contact quizzes.

Costs

A traffic-safety grant from IDOT (federal Section 402 funds) pays for forty to fifty percent of the program's approximately $250,000 annual budget. CDOT applies for the grant; the City of Chicago funds the balance of budget. The amount of local funds required by IDOT has varied from year to year; in some years the grant has

covered 100 percent of the MDBA budget. Because the Ambassador program continues to be successful, the grant has been renewed each year; the city plans to apply for these funds indefinitely. The budget covers staff salaries and the cost of producing brochures. Program sponsors provide in-kind donations of equipment and support.

Web site

http://www.bicyclingambassadors.org

Contact

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Pedestrian Safety Education in a San Diego County School

Pedestrian and Bicycle Information Center

Problem

There was need for greater pedestrian safety training targeted specifically for English as a second language (ESL) students and recent immigrants, as studies showed that first-generation low income school children are at a much higher risk of pedestrian injuries and fatalities (Sarkar, 3).

One of the images used in program to depict bad pedestrian behavior.

Background

Developers of a child pedestrian safety training program in San Diego County targeted a bilingual low-income school where the majority of the children walked to school.

Solution

The presentations were bilingual and used still images and video footage from their own neighborhood to make the lessons more relevant and concrete. Students were asked to identify the unsafe behaviors depicted and to suggest safer alternatives. For example, they were shown an image of children in dark clothing walking across an intersection a car had already begun to turn into. Were the children very visible to the car? Should the children have walked into the street then?

Other topics covered included stopping distances of vehicles in the rain, at different speeds, and for large trucks; mid-block crossings; facing traffic while walking; running; turning vehicles; and more.

Results

In a survey conducted two weeks later, the children largely retained the information presented earlier. However, a large minority of students responded that either their parents, the Safety Patrol, or their siblings were responsible for their safety, and that "Cars will always stop for kids." Thus, it was determined that there was a need to better emphasize to the children that they were the ones responsible for their own safety in future training materials.

Sarkar, S., Andreas, M. et al. Effectiveness of a Low Cost Video-based Training Program to Reduce Child Pedestrians injuries in Low-Income Neighborhoods. Call for Papers TRB Committee on Environmental Justice (ADD50). pp. 1–20.

Contact

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Images Source
Sheila Sarkar

Pedestrian Safety Enforcement DVDs

Pedestrian and Bicycle Information Center

Problem

The state needed better pedestrian safety training for police officers and the public that would engage viewers and not inconvenience instructors.

Background

Many traffic officers have never been trained in pedestrian and bicycle issues and could therefore not be prepared to enforce laws and educate the public themselves. Nor did drivers education courses for teenagers include anything on pedestrian and bicycle issues. A new law enacted the year before allowed motorcyclists and cyclists to run a red light if they'd been stopped for 45 seconds or longer, given that they do not have sufficient weight to trigger the light change. It was important to share the finer details of the law with traffic officers and the public alike. However, instructors were often resistant to change a curriculum they'd been using for years.

A still image from one of the DVDs.

Solution

Stacy Vilas, a young member on the traffic enforcement safety team at the Madison Police Department, took the initiative to create a pedestrian safety training DVD for the other officers at the Department in 2006. She worked with the Pedestrian and Bicycle Program at the Madison DOT to secure funding through the National Highway Traffic Safety Administration (NHTSA). A local television station agreed to produce the film for a reasonable price. The DOT and Police Department collaborated to write the script. The Madison Police Chief gave a 20-second intro to the film, lending a sense of authority and importance to the project which caught viewers' attention. Officers' and community members' comments were shown at the end.

The Madison Department of Transportation then modified the DVD to make it suitable for the public, removing parts specific to officers, and creating a Spanish language track as well. A bicycle-focused training video was obtained from the Illinois DOT, hosted by an American participant in the Tour de France. Working with the local DMV, the two DVDs were distributed to local high schools, drivers education classes, private driver's education instructors, and the American Automobile Association (AAA). Pre-made tests were also sent so that the content could be easily fit into the curriculum without any work on the part of the instructors. The police department also sent members of the enforcement safety team to present the videos to companies like Madison Gas and Electric, where employees spend a lot of time on the road.

Results

The video proved successful everywhere it was shown. Groups initially reluctant to take the time out of their day for pedestrian safety training were engaged and asking questions by the end. It is planned to modify the video to suit each community by having their local police chief give the introduction. A training book is nearing publication, and presentations will then extend to train local community officers to become pedestrian safety trainers themselves.

Contact

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Images Source
Larry Corsi, Wisconsin Department of Transportation

Perils for Pedestrians

Pedestrian and Bicycle Information Center

Background

Started in 1996, Perils for Pedestrians is a public access television series designed to educate the public on issues affecting pedestrians including barriers to safety as well as solutions.

Solution

A new 28-minute episode is produced each month detailing either a case study or a specific issue. People interviewed include advocates, planners, engineers, and local and international public officials. Issues have included hazards confronting pedestrians, good pedestrian infrastructure, bicycles and transit, and more.

Funding is provided from personal funds and all work in done in-house. Total production costs, including the maintenance of the website, totals nearly $7,000 a year. The show is aired for free on local public access channels and hosted by advocates around the country. The program is now archived on Google Video at: http://video.google.com/videosearch?q=%22Perils+For+Pedestrians%22

Results

Interviews have been conducted in all 50 states, 5 Canadian provinces, the United Kingdom, Ireland, Australia, New Zealand, Denmark, Sweden, Switzerland, and Austria. The series is shown on over 120 public access cable stations across the United States. In addition, the series is shown on The Universityhouse Channel on DISH Network channel 9411 Tuesdays at 9:30 PM Eastern Time. The program helps raise public awareness and knowledge of issues affecting pedestrians. Regular viewers include city council members and planners who gain ideas from the program. The web site has 100,000 visitors per year.

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Pedestrian Safety Enforcement DVDs — Madison, WI

Share the Road for a Healthy Maine

Pedestrian and Bicycle Information Center

Problem

Barriers to bicycling in Maine included concerns about real and perceived safety issues, limited roadway space, and inadequate funding for improving roadways and building more trails. The Bicycle Coalition of Maine wanted to use public education and awareness to change behavior to make the existing infrastructure safer immediately. Although a multifaceted statewide "Share the Road" campaign existed in Maine, the public had limited exposure to this information through popular media.

Background

Beginning in 1996 the Bicycle Coalition of Maine (BCM) began a statewide Share the Road campaign that through the years has included popular bumper stickers, drivers education instructor training, additions to the Maine Motorist Handbook and Maine Driver's Exam, and general education at various venues. In 2000 an independent videographer helped the BCM produce four different Share the Road television public safety announcements, but these aired only intermittently.

In 2005 the National Highway Traffic Safety Administration (NHTSA) selected the Bicycle Coalition of Maine to research, produce, and broadcast Share the Road messages in the greater Portland region. (This project was one of four Share the Road pilot projects; the others were headed by the Utah Department of Public Safety/Highway Safety Office, the City of Clearwater [FL] Parks and Recreation, and the Marin County Bicycle Coalition. Information on Marin County's project can be found at http://www.marinbike.org/Campaigns/ShareTheRoad/Index.shtml).

Solution

The "Share the Road for a Healthy Maine" project was built on a three-piece framework:

1. data collection to identify what motorists and bicyclists already knew about sharing the road, and how and when they got their information
2. using the data to design targeted, compelling messages and deliver them efficiently
3. evaluation to determine changes in awareness and behavior.

The BCM collaborated with several partners to develop each piece of the framework. The Center for Research and Evaluation (CRE) at the University of Maine helped to design surveys and analyze the resulting data. The New England School of Communication (NESCom) assisted with message design, media consultation, and voiceover work in the TV and radio ads. The Maine Bureau of Motor Vehicles (BMV) allowed the BCM to distribute surveys in two Greater Portland BMV offices. Other entities also helped with survey distribution (AAA, the Bureau of Highway Safety, colleges, universities, senior and community centers, and Portland Public Schools' Office of Multicultural and Multilingual Programs).

Survey data showed no significant difference in existing knowledge between specific target groups (drivers ages 15-25, drivers over 65, immigrant groups) and the general population before the campaign was launched. The research helped the BCM decide on several key educational messages; NESCom and the local NBC affiliate developed radio, print and TV spots around these. The BCM and its partners planned a two-week blitz of consistent messages deployed through the media — television, radio, print and the Web — that the survey had shown to be most important to the target groups.

The messages focused on these main points:

- "Same Roads, Same Rules, Same Rights"
- etiquette for motorists (yield when turning, slow down and allow three feet of clearance, no honking, no dooring)
- etiquette for bicyclists (obey all traffic laws and signals, ride on the right, signal turns, use lights at night)

The Bicycle Coalition of Maine used bold graphics and concise wording to publish its Share the Road message.

Results

Over a span of two weeks in May 2006, a targeted media blitz of the Greater Portland area rolled out 115 television ads, 276 radio spots, 10 newspaper ads and 300,000 Web impressions. Positive anecdotal evidence suggested that the campaign made a big impression and helped motorists and bicyclists in Maine share the road. The reliability of post-campaign surveys showing inconclusive results was called into question because of significant delays, changes in post-surveying methodology, and personnel changes at the survey evaluator. Even without clear-cut evaluation results, the BCM gleaned valuable information regarding the message content and partnerships needed to expand the program state-wide. There are no plans for future evaluation.

The campaign was updated and expanded statewide in 2007 with help from a celebrity spokesperson Eric Weinrich (one of the National Hockey League's best known players, an avid cyclist, and new BCM board member) and funding from the Bureau of Highway Safety and the MaineDOT.

Costs

The BCM received $50,000 from NHTSA and an additional $20,000 from the MaineDOT over the two-year project. The bulk of the grant was spent on media buys. The BCM's partners contributed in-kind to the project with discounts on their fees, costs, and labor.

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Image source
Bicycle Coalition of Maine

Street Smarts

Pedestrian and Bicycle Information Center

Problem

Between the years 1996 and 2000, motor vehicle traffic crashes accounted for 50 percent of unintentional deaths for children between 0 and 19 years old in Santa Clara County. The county needed to address growing safety issues.

Background

Recognizing that the root causes of accidents begin with unsafe driver, pedestrian, and cyclist behavior, the City of San José Department of Transportation undertook an expansive education campaign in November 2002. A campaign to change citizens' behavior regardless of whether there were speed bumps, police officers, or other engineering and enforcement measures in place.

Solution

Their program attempts to bring about a fundamental change in traffic culture. The program operates on a grassroots level in schools and neighborhoods, and also has an extensive media component. The program is multi-lingual, with materials offered in English, Spanish, and Vietnamese.

Crash and citation data was reviewed to determine the top causes of accidents and to identify the most important behaviors to be targeted. The top five chosen were red-light running, stop sign violations, speeding, school zone violations, and crosswalk safety and compliance. In addition, though the target audience included all drivers, pedestrians, and cyclists, particular focus was placed on male drivers aged 18 to 25.

For work in the schools, the Street Smarts Back-to-School Traffic Safety Committee partnered with various City departments, school districts and partners such as the American Automobile Association (AAA). On the first day of school, the Police Department began enforcement in school zones. Over 120,000 school safety flyers were distributed in the three languages to all San José students, and parents were notified about the new enforcement measures. The Triple A funded 5,000 pedestrian safety posters for classrooms and 182 school safety fence banners were distributed to all elementary and middle schools. In addition, eight "Pedestrian and Bike Rodeos" were held at schools to teach safe practices, and parent education seminars were ongoing. More than 180schools have participated to date.

Neighborhoods that adopt the Street Smarts program receive about three hours of driver, pedestrian, and bicycle behavior education and a Neighborhood Kit. The education consists of a humorous presentation by City staff, small group viewings of the Discovery channel's documentary entitled "Deadly Crossings: American Intersection," and group discussion. The kit contains lawn signs, safety tips, driving quizzes, bumper stickers, and other educational materials. Eleven neighborhoods adopted the program by 2004.

The media campaign included radio messages at peak drive times, print articles in several magazines including publications in Spanish and Vietnamese. Transit shelter and bus back displays were used, and the San Jose Sharks (the local ice-hockey team) helped sponsor the efforts, displaying messages at events and even having one player

pose for a media image with the caption, "Attitude is for the ice, keep it off the roads." It is estimated that each four-week program reached 90 percent of residents within the city.

The total budget came to about $845,000 for the first year, and $250,000 for the second. For the first year, about $316,000 went towards consultation services including program development, design, translation and materials printing. The other $529,000 went towards media purchases in the three separate languages. As a service to other municipalities, the Street Smarts program was designed to be easily rebranded by other public agencies, and they may therefore purchase a rebranded format, ready-for-use, for a small fee of $2500 paid to the design consultant. This represents a value of $250,000 in design, market-testing, and strategy. AAA contributed a $10,000 grant, as well as an in-kind donation of 5,000 full-color classroom safety posters.

Results

Performance measures were established for the five target behaviors. Baseline data for each behavior was gathered by observation at specific locations citywide, and comparison data will be gathered for three years in order to record behavior change over time.

A survey conducted six months after the start of the program found that 62 percent of respondents felt raising awareness about behavior problems on roadways will encourage positive change, 32 percent had heard or seen Street Smart messages, and that 42 percent of those who had seen messages felt they had positively influenced their own behavior. The program is being integrated as a long term tool for traffic calming and school and neighborhood education.

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Image Source
Street Smarts Program. http://www.getstreetsmarts.org/pr_121702.htm

Walk Safe Program

Pedestrian and Bicycle Information Center

Problem

Miami-Dade County needed a better pedestrian and driver education program that reached out to its diverse population. The county has the highest incidence of pedestrian injuries and fatalities in the State and is third in the U.S. Its rate of pediatric pedestrian injuries is also particularly high.

Background

Recognizing the safety problem they were experiencing and the costs associated with it, the Florida Department of Transportation partnered with the Ryder Trauma Center at University of Miami -- Miller School of Medicine to find the causes, effects, and possible solutions to the high pediatric pedestrian injury rate. Additional funding was provided by FedEx and The Children's Trust, a tax-payer funded county trust.

Solution

The first phase consisted of a 4-month retrospective data review of hospital records, crash scene visits, patients, families, and police interviews. Among other findings, it was learned that the majority of children hurt were boys, and 60 percent were African American. Many sites had problems including obstruction of view and long intervals between marked intersections, allowing for high vehicle acceleration. In 2001, there were a total of 293 injuries among pedestrians under the age of 14 in the county. The group used the results of the study to shape the educational injury prevention program.

Children help with a driver education program.

Between 2002 and 2005, the injury prevention program was implemented in 184 elementary schools in the county. Training was given to assistant principles and physical education teachers, who then were responsible for training the rest of the teachers in the school. The program included videos, workbooks, outside simulation activities, and two tests tailored to grades K-3 and 4-5 respectively. The program was conducted over a 4 week period, with one half-hour session per week. In the future, it will be conducted over a three day period each year.

Results

An evaluation in four pilot schools found that post-course scores were significantly higher than pre-test scores, and that these gains were maintained in a follow up test 3 months later.

Following the initial countywide implementation of the WalkSafe program several years ago, there has been a decrease in the number of pedestrian injuries of children seen/admitted to the two Level 1 trauma centers in Miami-Dade County and in the county overall. The total dropped from 93 in 2002-03 to only 52 in 2005-06.

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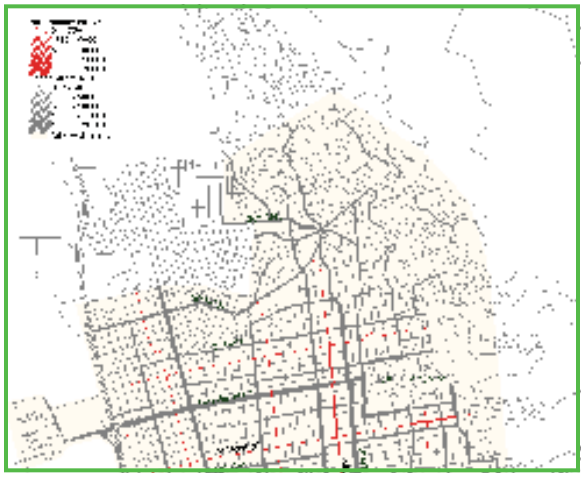
Image Source

WalkSafe Program. http://www.walksafe.us/

ENGINEERING



28th Street Multi-Modal Improvements

Pedestrian and Bicycle Information Center

Problem

28th Street is a major roadway in Boulder, Colorado that provides a regional connection to Rocky Mountain National Park and Denver. It also functions as the major gateway to central Boulder and the main campus of the University of Colorado. Everyday 30,000 to 50,000 vehicles traveled along 28th Street on up to seven travel lanes. The traffic volumes and speeds combined with a lack of infrastructure left no convenient way for pedestrians, bicyclists and bus transit users to move along or across the street.

Background

Boulder is widely known as a pedestrian and bicycle friendly city and transforming the automobile dominated 28th Street into a "Complete Street" quickly became a priority. A Complete Street is a street that is designed and operated to enable safe access for all users including pedestrians, bicyclists, motorists, and bus riders.

Solution

A new bus stop along 28th Street with functional art.

To begin redesigning 28th Street, a multi-level community involvement process was used. A design advisory committee was organized with representatives from organizations such as adjacent businesses, transit riders, college students, motorists, and bicycle commuter groups. Once design alternatives were identified, a citywide, 3-day design workshop was assembled to bring all interested citizens together to review the issues, envision the options for enhancements, and develop concept master plans for all the 28th Street's transportation and adjacent land uses. Improvements of 28th Street was divided into three sections, the southern most section known as the "Hello Boulder" section is the first to begin construction. This section will be completed in four phases to provide new regional bus stops, sidewalks, multi-use paths, bike lanes, landscaping and roadway improvements. 28th Street uses functional art, water-wise landscaping and improved signage and landmarks to draw pedestrians, transit users and bicyclists to use the corridor to move between work, school, shops, and home.

Results

Since the completion of the first two phases of the "Hello Boulder" section of 28th Street pedestrian activity has increased and more bicyclists use the on-street bicycle lanes and multi-use paths that connect University of Colorado with the regional shopping district. The most positive result of the multi-modal improvements along 28th Street is the change of land use and residential density adjacent to the corridor. Five new multi-family housing developments featuring housing for seniors and students are under construction next to 28th Street. The proximity of regional transit and improvements to pedestrian and bicycle mobility, the city planning board and city council approved new zoning that allows increases to housing density.

28th Street Multi-Modal Improvements — Boulder, CO

Cost

The cost for the project is $10,800,000 with 37% of it coming from federal funds.

A new pedestrian and bicycle tunnel along 28th Street.

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A Partnership for Pedestrian Safety

Pedestrian and Bicycle Information Center

Problem

The intersection of State Highway 6 and the Edwards Spur Road in Edwards, Colorado, had a significant problem with safety as traffic volumes there reached around 25,000 vehicles per day along Highway 6. Pedestrians wishing to navigate the area had to walk along the roadway and cross the busy intersection. Compounding the problem was the fact that both roads were state highways, and any changes would require approval from Colorado DOT.

The intersection before the improvements.

Background

Edwards, Colorado, is located in Eagle County, one of fastest-growing areas of the country. As both pedestrian and vehicle numbers increased, the conflicts between the two groups became more significant. Many in the area felt that a pedestrian fatality was inevitable with the issues facing the current configuration, including:

- Vehicular right turns were not controlled by signals so motorists rolled through the intersection
- Four raised traffic islands were placed in an asymmetric pattern making them awkward as refuge islands for pedestrians attempting to cross the street
- Intersection lighting was insufficient
- Pedestrian markings were confusing
- Traffic light poles were mounted on the traffic islands and acted as an obstruction to the motorists' line of sight

Solution

Eagle County planners and CDOT officials decided that the best way to improve pedestrian safety and mobility required several steps, including:

The intersection after the improvements.

- Removal of the four refuge islands
- Replacement of the traffic mast arms with span wire poles located on the corners of the intersection
- Relocation of an existing electric line and pole to make room for the new signal poles
- Installation of pedestrian operated signals and countdown clocks on each corner
- Installation of new asphalt landings to provide refuge outside the intersection and to accommodate handicapped pedestrians
- Restriction of right turns with "No Turn on Red When Pedestrians Present" signs
- Installation of thermoplastic pedestrian markings and turn arrows
- Addition of overhead luminaries to light the intersection at night

Eagle County created a partnership with CDOT to share resources, manpower, and funding. One of the main objectives throughout the process was to minimize the impact of construction on traffic flow and pedestrian movement. To meet this goal construction was performed after the morning rush and before the afternoon rush.

Results

Pedestrian use more than doubled after the improvements were made to the intersection. The new design provides an adequate pedestrian crossing for the first time. Removal of the refuge islands allowed the design to provide a shorter crossing distance and made the crossings more accessible for handicapped pedestrians.

The improvements have had a positive impact on motorists as well. Removal of the islands makes the intersection less constricted. Winter plowing is easier, and there is more space for semi trucks to safely turn. Also, the traffic light poles that had been located on the islands no longer create a visual obstruction to motorists. Finally, visibility is better with the addition of overhead luminaries.

One added benefit of the project is the creation of a cooperative relationship between Eagle County and CDOT. The successful partnership helped the project wrap up two weeks ahead of schedule.

The total cost of the improvement was approximately $340,000, paid for mostly by CDOT. The cost to Eagle County was $29,000, including $8,000 for traffic control, $15,000 for vacuuming the boreholes, $5,000 for asphalt patching, and $1,000 for temporary signs. From early design to final construction, the project took less than five months to complete.

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Bicycle Boulevards

Pedestrian and Bicycle Information Center

Problem

Significant traffic growth accompanied Emeryville's rapid redevelopment from industrial to mixed use urban forms in the late 1990s. As other city streets developed into high-speed arterials, only one, a new street, carried the potential to become a north-south bicycling route without an existing base of heavy traffic. The city council supported cycling accommodations on this street, but the cycling community was divided over the best treatment.

Background

The 1998-2010 Emeryville Bicycle and Pedestrian Plan anticipated that a series of disjointed streets (Horton, Overland, and Landregan) would be connected as a condition of new development. Bike lanes were specified along much of the roadway (though the streets were too narrow for a consistent treatment). The roadway serves a variety of land uses, including light industry, artist studios, offices, street-level retail, a shopping mall, an Amtrak station, a biotechnology facility, a post office, the blank back wall of a new residential development, and the site of an abandoned paint factory — all in just 1.3 miles.

Emeryville's appointed Bicycle and Pedestrian Advisory Subcommittee includes representatives from the city council and the city's planning, public works, and police departments, as well as residents, commuters, and bike/ped advocates. Some members of this group were concerned about the bike lane plan. Traffic speed and volume could rise dramatically on a through road with bike lanes at the curb, rendering the street an automobile-dominated space unfriendly to less experienced cyclists — the very people all parties hoped would bicycle more places, more often.

Solution

The advisory committee recommended a bicycle boulevard with a shared street design rather than bike lanes along the entire length. The route became known as the "Horton/Overland Bicycle Boulevard". Preexisting bike lanes on part of the route were removed and replaced with parallel parking. Car-sized bicycle stencils were placed in the middle of each travel lane. Distinctive street and directional signage helped identify and brand the route. However, reaching a consensus on this design was not easy.

A distinctive way-finding sign directs cyclists along the Horton/Overland Bicycle Boulevard.

WHAT IS A BICYCLE BOULEVARD?

In some ways "bicycle boulevard" is simply a fancy name for a signed bike route. A typical bicycle boulevard is a residential street with a history of low-volume and low-speed motorized traffic that has been optimized for through-travel by cyclists. Typical optimizations include overcoming connectivity gaps with bridges or cut-through paths, controlling motor traffic volume, removing stops signs from the bicycle boulevard, and adding way-finding signs. In all cases a bicycle boulevard is open to motor traffic: open streets allow cyclists to maintain high average speeds without interference from lower speed users, and to approach intersections

confident that they will be seen in the normal lane positioning expected by other road users. Boulevards can be created in the center of existing built-up areas, offering direct access to destinations that no dedicated pathway can approach.

Controlling the growth of motor traffic volume is a significant design challenge. A pleasant, direct route may attract many motorists. Bicycle boulevards limit traffic by diverting motor vehicles from the street through forced right turns or restricting access with signs indicating "do not enter / except bikes."

In neighboring Berkeley, Calif., the seed of the bicycle boulevard network was a 1969 traffic plan to divert cars away from residential neighborhoods. Physical vehicle barriers and forced turns preserved low traffic volume residential streets which, when linked together in 1999, formed Berkeley's bicycle boulevard network. Figure 1 shows the city's street grid. On this map, the width of the lines is proportional to the traffic volume on each street segment. The bicycle boulevard network (shown in red) approximates the spacing of the high-volume arterials to provide a similar city-wide reach. A cyclist can traverse most of the city while avoiding streets with an Average Daily Traffic (ADT) count of 5,000 or greater. Berkeley's bicycle boulevards are pleasant, reasonably direct routes without much heavy motor traffic.

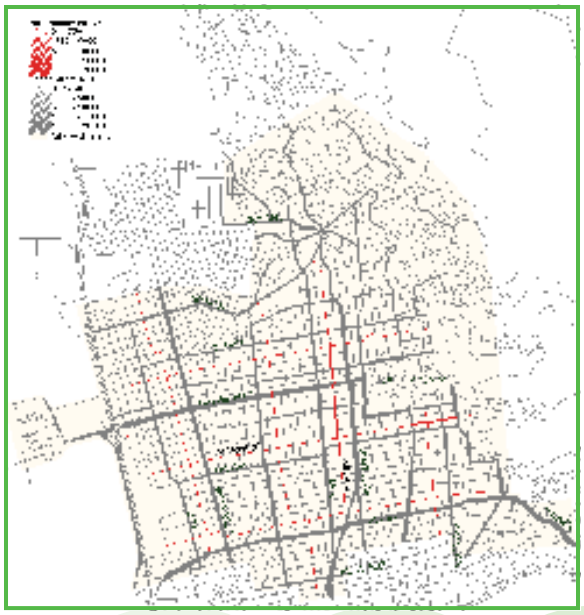
Placement of bicycle boulevards depends on the available road network. In a newly built suburban development, bicycle boulevards may cut through the center of super-blocks, creating routes on long blocks that would otherwise hinder cyclists. For existing street grids where direct routes already have high traffic volumes, planners may create new links with bridges or easements, or may redirect some motorized traffic away from the bicycle boulevard. To view a video of bicycle boulevards visit http://www.streetfilms.org/archives/berkeley-bike-boulevards/ or http://www.streetfilms.org/archives/portland-or-bicycle-boulevards/

THE DEBATE AMONG ADVOCATES

Although the Emeryville City Council readily agreed to create a bicycle boulevard on the new route, the design details were settled only after thorough debate among cycling advocates. At issue were two competing visions of the street. In the first, cyclists used bike lanes to "own" the space; in the second, cyclists shared a designated bicycle boulevard with the rest of the community. Engineering changes would divert or calm traffic on a bicycle boulevard.

The debate focused on a handful of questions and concerns:

How will design affect traffic volume? The city council would not promise to limit future traffic growth, which forced advocates to consider how design would contribute to traffic volume. If ADT edged above 5,000 cars a day or speeds increased to 30 mph, advocates preferred bike lanes. But if speeds and volumes could be moderated, the advocates favored a shared street. They believed that bike lanes and center stripes would facilitate a fast through street for motorists, whereas a shared street would reduce the route's arterial nature and lead motorists to choose the next street over.



Traffic volume map, Berkeley, Calif. Red lines are bicycle boulevards; wider lines show more traffic.

Who will use the route? This point recurred often in the discussion. Skilled cyclists seek the quickest and most direct route and can handle mixed traffic. Some cyclists prefer bike lanes, even when traffic passes them at 35 mph or more. Others, including novice or young cyclists, don't want to ride on any road with high traffic volumes or speeds. It helped to recognize and discuss distinct cycling preferences and skill levels, identifying specific "design cyclists" and imagining how they would make complete trips within the city.

Route consistency is important. No one will be satisfied if the route switches character every few blocks.

Vehicle parking affects bicyclists. The location and style of parking influences how people use an area and how it feels to be a cyclist or pedestrian. Certain parking styles can moderate speeds, encourage a lively pedestrian community, and support street-level retail. Parking is a key to community character and deemed integral to economic vitality.

Cycling advocates can lose sight of the big picture. Even as the shared street approach gained favor, some advocates had trouble relinquishing the bike lanes they'd gained previously; this felt like a concession to vehicular interests.

Results

A large thermoplastic stencil with BLVD above a bicycle icon reminds motorists that they share this street with cyclists.

In the end, Emeryville's bicycle boulevard was designed as a shared street for adult cyclists who don't like heavy traffic or will trade some directness for a more pleasant route. Horton and Overland Streets are fully connected, marked, and operating as a bicycle boulevard. Parallel parking and the street's moderate congestion help to limit traffic speed and volume. (Indeed, moderate congestion can itself be a form of traffic calming.) The presence of cyclists — and the need to shift into the opposing lane to pass them — also slows traffic. The posted speed limit is 25 mph. Actual speed varies between 20 mph in narrower, more congested stretches to 30 mph on a wider section (where the original bike lanes remain and no parking is allowed due to homeland security concerns). Cyclists and motorists looking for a faster route have an alternative one block over: a four-lane arterial with 35 to 40 mph traffic and bike lanes. Motor traffic volume and speeds on the bike boulevard have increased, but only moderately. There are no diverters or barriers yet.

Not everything works smoothly. Cyclists often complain about delivery trucks parking in curbside bike lanes near the Amtrak Station. (The solution will be to provide adequate loading zones and replace the bike lanes with parallel parking.) Traffic volume will probably grow when several residential towers open; if it grows too much, the street may no longer be a pleasant place to ride without bike lanes. The city council has proposed a one-way choker which would channel traffic at certain points by creating a barrier on either side of the street. This traffic calming device is intended to reduce traffic speed and noise and may reduce volume. Finally, the Emeryville bicycle boulevard does not connect to other bicycle boulevards. The next milestone will be a link to Berkeley's network.

Other cities wanting to build bicycle boulevards may face challenges similar to Emeryville's. It may be difficult to build a complete network without compromising on some non-ideal sections. A potential core network may already exist and can be identified by polling the community to learn which low traffic volume streets cyclists presently

prefer. Agencies can look for opportunities to link previously unconnected side streets and piggyback on efforts to keep pass-through motor traffic out of residential neighborhoods. Planners should be aware that fire and police departments will be concerned about plans to limit vehicle connectivity, and work to keep all stakeholders informed and involved from the beginning.

Costs

The cost to convert 1.3 miles of roadway into a bicycle boulevard totaled $30,000: $11,000 for markings, $11,000 for signage, and the balance for inspections. Design development costs were minimal because City of Berkeley design guidelines were adopted. A traffic signal, primarily to benefit motorists, cost about $250,000, plus an additional $1 million for an interlock with the railroad signaling.

Web links and resources

http://en.wikipedia.org/wiki/Bicycle_Boulevards
http://www.ci.berkeley.ca.us/transportation/Bicycling/BB/BicycleBoulevard.html
http://www.obviously.com/berkeley/bicycle_boulevard_planning.html
http://www.streetfilms.org/archives/berkeley-bike-boulevards/
City of Berkeley CA, *Bicycle Boulevard Signage Program Standards Guide V2.0*, June 2003.
John Ciccarelli, UC Berkeley Institute of Transportation Studies, *Bicycle Boulevards*, Tech Transfer Newsletter, Fall 1999.
Oregon Department of Transportation, *Bicycle Pedestrian Plan*, Section II.1.E.1.
City of Napa California, Policy Guidelines: *"Bicycle Boulevard"*, May 2005.
Joel Fajans and Melanie Curry, *Why Bicyclists Hate Stop Signs*, ACCESS, Spring 2001, pp. 28-31.
Bryce Nesbitt, *Bicycle Boulevards: Arterial Bypass Surgery for your City?*, APBP Newsletter, Summer 2005.

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Image sources
Bryce Nesbitt, Figure 1 was created using City of Berkeley traffic count data.

Bringing Life to Transportation

Pedestrian and Bicycle Information Center

Problem

Arizona ranks as the second worst state in the nation for pedestrian fatalities, and in 1998 the City of Tucson had a pedestrian fatality rate of 3.26 per 100,000 citizens.

Solution

Tucson pursued two main avenues: engineering and education. On the engineering side, the city adopted several traffic control measures used in Europe and fitted them to the Manual on Uniform Traffic Control Devices guidelines. The first of these was the PELICAN (PEdestrian LIght ActivatioN) crossing. This midblock crossing signal has the pedestrian cross the street in two stages. The first signal changes to yellow upon activation by the pedestrian, then to red and the WALK light is shown. The pedestrian then activates a second signal at the median island, following the same pattern. The two crossings only delay the pedestrian minimally and allow the signal operation to fit into the arterial synchronization, thus reducing the potential for stops and accidents. This mid-block crossing was installed along the city's busiest arterial street at a cost of $200,000.

The second system, the TOCAN (TwO CAN) was installed at an intersection frequented by both pedestrians and bicyclists. The "smart" traffic signal lengthens the crossing time when cameras detect bicycles and pedestrians in the same crossing. The ease of activation — just riding up to the stop bar — is a convenience for bicyclists. The signal was implemented on a budget of $175,000.

A third system installed was the HAWK (High intensity Activated crossWalK). When the unit is activated by a pedestrian, the signal begins to flash yellow followed by an indication advising motorists to stop. The signal then is changed to a solid red, indicated by the WALK signal for pedestrians. The beacon then converts to a flashing red, allowing drivers to proceed when safe after stopping at the crosswalk. The HAWK was installed on a budget of $65,000.

A fourth signal, the "baby" PUFFIN (Pedestrian User Friendly Intelligent Crossing), was primarily for school crossings. School crossing guards use this version of the device to control the WALK signal remotely, allowing them to freeze the red light and hold the traffic until the children have adequate time to finish crossing. The device cost only $100 per unit.

The final engineering measure taken by the City of Tucson was the implementation of lagging left turn signals. In this system, the left turn arrow comes after the main street traffic is stopped, separating pedestrians and turning traffic.

Tucson's education program focused on school age children through the "Traffic Safe Kids Program." Their innovative 25 minute presentation to 2nd graders incorporated humor, magic, video clips, and a coloring and activity book featuring Zack Rabbit and Lenny Lizard acting out various risky situations and the proper behavior. At the end of the presentation, students are given safety reflective wrist bands and blinking safety lights to wear when out after dark in addition to coupons for rides and food.

Results

The HAWK signal was evaluated for its effectiveness and found to make a dramatic difference in the number of compliant motorists, raising the percentage of yielding motorists from 31 percent before to 93 percent afterwards. The lagging turn signals were also found to save time, reduce accidents, and lower insurance rates. Tucson's pedestrian fatality rate fell each of the four years after implementation, dropping from 3.26 per 100,000 citizens in 1998 to 2.76 in 2002.

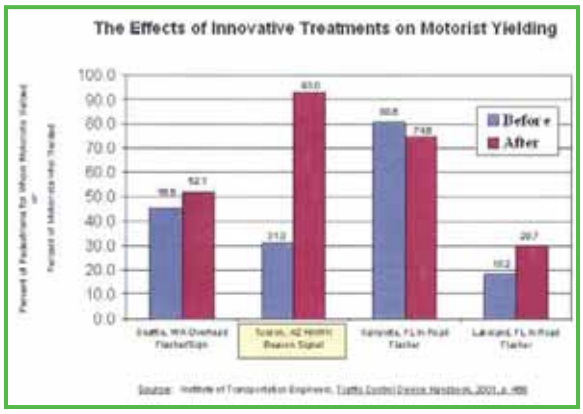

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Image Sources:

Institute of Transportation Engineers Pedestrian Project Awards Application. Tucson Traffic Engineering. http://www.ite.org/awards/pedproject/Tucson.pdf

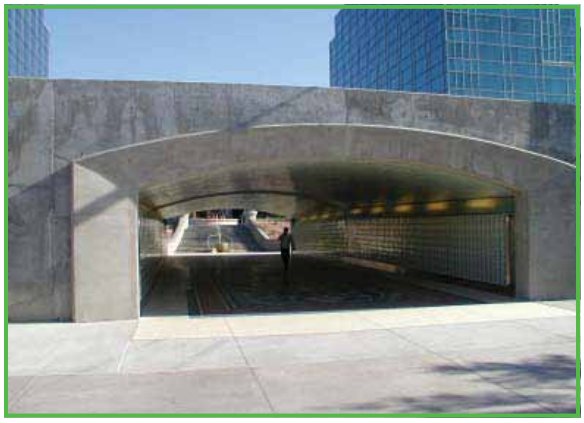
Institute of Transportation Engineers, Traffic Control Device Handbook, 2001, p. 468

Camelback Pedestrian Underpass

Pedestrian and Bicycle Information Center

Problem

A busy 6-lane street between a park and a commerical district in East Phoenix needed better pedestrian access to connect the two centers and to promote foot traffic to the east side.



The underpass stretches under a six-lane road.

Background

As far back as 1990, the idea to improve the pedestrian environment in East Village Core was proposed in the city plan. After design assistance was awarded to futher research the proposal, the Camelback East Primary Core Pedestrian Corridor Study was completed in 1998. The study recommended a pedestrian overpass.

Two separate Public Open House meetings were held, along with consultation with technical and citizen advisories. It was determined that an underpass, compared to a foot bridge, would be the most user-friendly and safe alternative. It would also provide an unobstructed scenic view of the mountains.

Solution

The Phoenix Department of Street Transportation began design and construction of a pedestrian underpass in 2006 to enhance the area's access on foot. Not only did the underpass provide safe passage for pedestrians, it also incorporated decorative pavement, landscaping, rubberized asphalt integrated into the pavement to minimize noise and vibration, and ventilation to ensure proper air circulation., Improvements at the surrounding intersections included enlarged pedestrian and bike refuge areas, new ADA area directional ramps at corners, canopy shade structures, wayfinding markers at intersections, pedestrian countdown indicators on traffic signals, increased crossing time, and planted buffers.

Safety was addressed in several ways. The underpass featured security lighting, a skylight, and a wide, unobstructed environment to provide an atmosphere for personal security. Other ideas discussed included security cameras and patrols by security personnel from nearby properties, or merchandise carts to provide a constant people presence. In addition, wrought iron fencing was installed in the median to the west of the underpass to discourage crossings at locations other than the adjacent signals or the underpass.

Public input was an important component of this project. Four public meetings provided an opportunity for the public to discuss proposed plans for the pedestrian underpass with the project team. In addition, the City and consultant team worked closely with a citizen advisory committee that was formed specifically for the project. The advisory committee was composed of representatives from key stakeholder groups within the project area, including adjacent businesses, business associations, citizen associations, city council, and more.

One challenge encountered during the process was resistance to the project from large adjacent land owners who felt that the additional pedestrian connection would allow their neighbor's business to "steal" foot traffic or parking revenue. Sadly, during the review process a tragedy occurred when a 13 year old girl was struck and killed while

crossing the street at night 300 feet from the nearest traffic signal. This tragedy, in addition to two other deaths over the last decade, produced enough media coverage and community support to overcome property owner's opposition.

Funding was provided through the Arizona Highway Users Revenue, Federal Street Transportation Aid, Water Civic Improvement Corporation Funds, and Transit Funds. Funding was approved by the city council to not exceed $6 million. Total costs were estimated at $6,005,500 with $1,650,000 in Federal aid for construction.

The underpass also incorporates art to improve the pedestrian environment.

Results

Tthe underpass was only recently completed in May 2007. While some finishing touches remain, the overpass is being well used and received by pedestrians.

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Image Source:
Mike Cynecki, Interim Deputy Street Transportation Director for the Phoenix Street Transportation Department.

City of Boulder Crosswalk Compliance Studies & Treatment Implementation

Pedestrian and Bicycle Information Center

Problem

Poor driver compliance with crosswalk yield laws reduced pedestrian safety and in turn deterred people from walking.

Background

In 1996, the City of Boulder developed a comprehensive Pedestrian Crossing Treatment Warrants document to guide the installation of pedestrian improvements. A year later, the city hired a consultant to study compliance at crosswalks and test the effectiveness of alternative treatments.

Solution

The treatments selected for testing were designed to either bring attention to the crosswalk from the motorists' perspective or educate them of State Law. The treatments studied were: 1) rumble strips, 2) in-pavement lights, 3) sign-mounted lights, 4) "State Law" signing, and 5) raised pedestrian crossings.

"State Law" signage.

The study methodology involved noting the number of "yields" and "non-yields" for each instance where a pedestrian legally had the right-of-way. Data was collected on "typical" weekdays during AM, mid-day, and PM peak hours at each study location. "Before" studies were conducted at each location prior to the installation of alternative crosswalk treatments. The before condition most often included a marked crosswalk with standard MUTCD crosswalk signing. "After studies were performed six months after the treatments were installed. Studies were performed on a variety of roadway sizes, and pedestrian volumes in order to provide comparison.

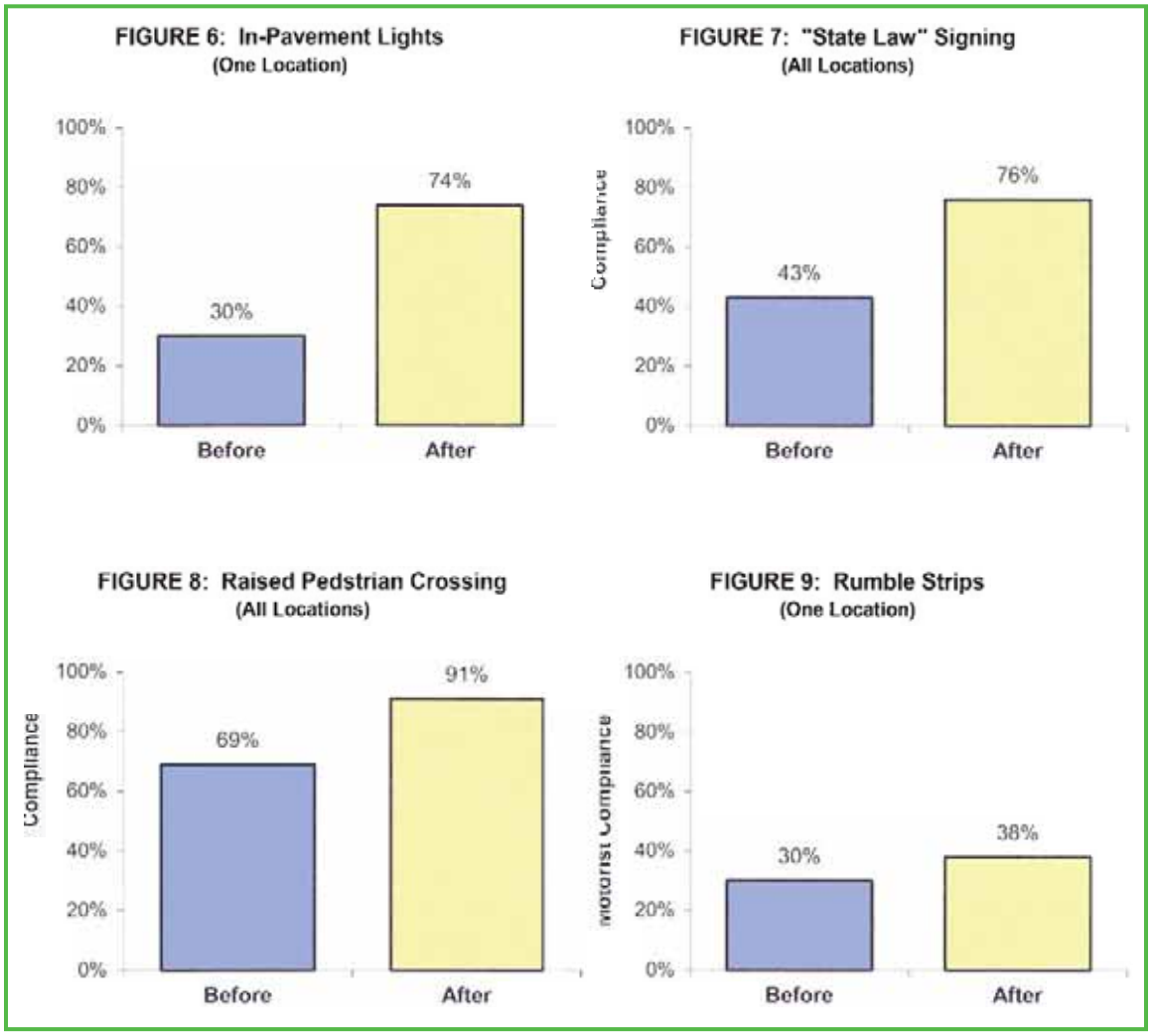
A raised crosswalk at a right-turn bypass lane crossing.

Results

Before and after studies began in 1997 and continued through 2003. Treatments were implemented at a total of 39 crosswalk locations, and at 19 of these before and after conditions were evaluated.

Overall average motorist compliance increased from 34% to 77% for all locations with treatments installed. As would be expected, multi-lane roadways had lower compliance than single-lane roadways; however, they also experienced the highest percentage increase in motorist compliance, jumping from 21% to 63%. Pedestrian activated sign-mounted lights were found to have the largest impact among the treatments, raising compliance from 19% to 66%. This solution was less costly and more effective than in-pavement lights. "State Law" signing also proved effective, however the advance rumble strips were not nearly as effective as the other treatments. The raised pedestrian crossings were only installed at right-turn bypass islands (which had much higher compliance percentages to begin with), however they were found effective

in increasing compliance from 69% to 91%. In accordance with these results, the City of Boulder continued using pedestrian-activated, sign-mounted flashing lights, "State Law" signing, and raised crossings at right-turn bypass islands. The rumble strips and in-pavement lights were discontinued. The Pedestrian Crossing Treatment Warrants was also updated to include the effective devices as treatment options for qualifying pedestrian crossings.



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Complete Streets Laws and Ordinances

Pedestrian and Bicycle Information Center

Problem

Transportation planners and engineers often design the public right-of-way primarily for motor vehicle users, meaning many roads end up being unsafe, inconvenient, and even impassable for people on bicycles, walking, using wheelchairs, or taking transit. Bicycle and pedestrian planning remains marginalized in most departments, both in terms of planning and funding. Achieving goals other than movement of motor vehicles is extremely difficult in the transportation planning process.

Background

The National Complete Streets Coalition grew out of the America Bikes effort to require that federal transportation dollars support road projects that are designed as complete transportation corridors for all users. The coalition brought the national bicycle organizations together with a diverse set of interests, including AARP, the American Public Transportation Association, the Institute of Transportation Engineers, America Walks, and others. The coalition researched existing laws and policies that required complete streets, and agreed on key elements of successful policies. Jurisdictions across the country are now adopting and implementing a new wave of complete streets policies.

A complete street is designed to be a transportation corridor for all users: pedestrians, cyclists, transit users, and motorists.

Solution

Commitments to complete the streets have been adopted via state law, local ordinances and resolutions, agency policies, comprehensive plans, tax measures, and design manual re-writes. Regardless of the format, the best complete streets policies apply to all road projects and require high-level approval of any exceptions (more on elements of a good policy can be found at http://www.completestreets.org/policies.html). Once a policy is adopted, full integration of all modes requires revamping decision-making procedures, providing additional training for engineers and planners, rewriting design manuals, and establishing new performance measures.

In Massachusetts, a state law passed in 1996 required the State Highway Department to accommodate bicyclists and pedestrians in projects. Initially, the law was poorly implemented. However, it ultimately helped spark a citizen-led planning process that tossed out the old highway manual that had focused on reducing automotive traffic congestion. The new Project Development and Design Guidebook, adopted in January 2006, established an eight-step decision-making procedure that sets multi-modal accommodation as a guiding principle. The guide does not have separate chapters for different modes; instead, the needs of bicyclists, pedestrians, transit users, and disabled people are integrated into every aspect of design, with many new tools to help planners balance the needs of all users.

The city of Seattle recently adopted a comprehensive complete streets ordinance, shortly after including a complete streets provision in a transportation bond measure. The ordinance directs the city to integrate complete streets practices into all Seattle Department of Transportation (SDOT) plans, manuals, rules, regulations, and programs as appropriate. And it specifies that "all sources of transportation funding be drawn upon to implement Complete Streets." This is an important provision — rather than creating a new funding pot, complete streets policies can

leverage existing, mainstream transportation dollars, minimizing the cost of new bicycle, pedestrian, and transit facilities and reducing the need for costly retrofits. The Seattle ordinance specifically includes maintenance and operations in the policy; this is valuable as many minor but crucial improvements for biking and walking can and should be made during routine maintenance and operations projects.
Many more examples of good policies can be found in this summary:
http://www.completestreets.org/completestreets/Tab1-%20Early%20Success%20Stories/Complete_Streets_Policies.pdf

Results

Complete streets policies have resulted in systematic retraining of engineers (South Carolina), comprehensive new decision-making procedures (Charlotte, NC), increased funding for multi-modal projects (Oregon), and added leverage for including multi-modal facilities on specific projects (Sacramento, Colorado Springs). Complete streets policies help provide the complete network that research shows is needed to encourage people to walk, bicycle, and take transit. For example, Boulder, CO has been building complete streets longer than most; this commitment has helped the city increase bicycle commuting (from 10.6 percent of work trips in 1990 to 20.5 percent in 2006). Studies show that cities with more miles of bike lanes per capita have higher bicycle commuting rates. Complete streets also improve safety, reduce the need for paratransit service, improve mobility for disabled people, seniors, and children, help people get more daily physical activity, and encourage economic revitalization. Fact sheets with more information on each of these benefits can be found here: http://www.completestreets.org/benefits.html

Web sites

Massachusetts Highway Department Project Development and Design Guide:
http://www.vhb.com/mhdGuide/mhd_GuideBook.asp

Seattle's Complete Streets ordinance:
http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?d=CBOR&s1=115861.cbn.&Sect6=HITOFF&l=20&p=1&u=/~public/cbor2.htm&r=1&f=G

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Image source
Dan Burden

Destination Doylestown Bike & Hike Path

Pedestrian and Bicycle Information Center

Problem

A path was needed to connect the Delaware Valley College to the central business district of Doylestown. Delaware Valley College was geographically separated from the commercial, recreational, and cultural attractions of Doylestown by the SR 611 Bypass, a major divided highway.

Background

Doylestown is among many communities in the area promoting pedestrian and bicycle paths to increase the livability of communities. Over the past 12 years, private citizens, business owners, and government representatives worked together through the Doylestown Community Bike and Hike Committee to develop over 10 miles of walking and biking trails throughout the community.

Solution

A 1.2 mile pedestrian and bicycle friendly connection through Delaware Valley College and the historic central business and cultural districts of Doylestown was completed in 2003. The construction of 0.25 miles of concrete sidewalk improved access to the bike path and increased usage. This increased pedestrian and bicycle traffic in the area enabled people to walk or bicycle rather than drive to their destination.

The city of Doylestown also implemented several traffic calming features in the area to decrease traffic speeds. A gateway island was created at New Britain Road, where SR 202 transitions from two lanes to four. The island increased safety by allowing pedestrians and bicyclists to cross one direction of traffic at a time and wait on the island for a safe time to cross. Another safety feature included in the plan was the reduction of the lane width from 12ft to 11ft on the off ramp of SR 611. The main challenges of this project were safe crossing options across the SR 611 Bypass, dealing with the high speed interchanges ramps from US 202 to SR 600, and limiting costs to $500,000.

Other design features that were included in the plan to increase pedestrian and bicycle safety included signs along the highway to warn motorists of the presence of trail users, and highly visible pedestrian crossings to make motorists aware of pedestrians in the area. These visible pavement markings are known to decrease speeds, which improves safety for pedestrians and bicyclists.

Results

Preliminary pedestrian count results showed that an average of 10 people are using various parts of the bike and hike path each day. These numbers result in about 3,000 trips per year, and it was estimated that usage of the bike and hike path eliminates over 1,000 vehicle trips per year. The project enhanced overall pedestrian mobility in the area and linked many destinations including a YMCA, a high school, athletic fields, and tennis courts. The creation of the bike and hike path also increased pedestrian and bicycle safety with the addition of a concrete barrier to the bridge over SR 611, the addition of push buttons and continental crosswalks at the traffic signal, and the creation of traffic calming areas. The traffic calming features included in this plan were estimated to have reduced the average vehicle speeds by 1 to 5 mph. The overall cost for the construction of this bike and hike path was $457,889, which was less than the allotted amount for the project.

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Image Source

ITE Pedestrian Project Award submittal. Destination Doylstown Bike & Jike Path. http://www.ite.org/awards/pedproject/Doylestown.pdf

El Cajon's Road Diet

Pedestrian and Bicycle Information Center

Problem

Suburban development and increased traffic diminished Main Street's appeal to pedestrians, leading to empty storefronts and a failing historic downtown.

Background

Downtown El Cajon is the historic heart of east San Diego County. It blends unique architecture and character, yet it struggles with a problem afflicting the urban core of many American cities: competition from suburban shopping areas. By the 1980s Main Street was lackluster and quiet. When shoppers came, they found many empty storefronts and few reasons to return. El Cajon also lacked a pedestrian-oriented district where people could stroll, shop, and dine. Traffic had increased on the four-lane main street, making the area more of a pass-through place than a destination. Main Street's decline meant lost sales tax revenue for the city.

Solution

In 1971 the Redevelopment Agency was formed. In 1999 El Cajon passed a new implementation plan for a downtown revitalization effort, and has been actively pursuing new projects since. The city approached revitalization with a variety of strategies. One of these has been a "road diet" of East Main Street for a four-block area. This section previously had four travel lanes and on-street parking. The city reduced the street to two travel lanes and added angled parking. This reconfiguration slowed traffic and widened sidewalks to make walking safe and inviting and create public space for outdoor dining, landscaping, street furniture, and bulb-outs at intersections.

Thanks to the East Main Street road diet, wider sidewalks and the amenities they make possible have created an inviting pedestrian environment in historic El Cajon.

Along with East Main Street's road diet, the city adopted a land use plan to add significant new housing units, offices, and retail. Development guidelines for downtown ensure that new development occurs with an urban form that supports walking. The city also enhanced nearby pedestrian walkways to connect to East Main Street. The Community Development Corporation sponsors events to attract people. These events and the new pedestrian-friendly streetscape bring more life to the street.

Downtown El Cajon is in the midst of its revitalization effort. The city has allocated $32,915,000 for capital improvement projects in downtown over the next five years. Higher-density housing is under construction and other new development will come soon. As the city's new development guidelines bring denser housing and mixed land uses, El Cajon will have more people within walking distance of retail, civic, and office uses. These new uses attract more shoppers to support the growing retail establishments on East Main Street.

Results

Times are better in downtown El Cajon. The road diet is one factor that has contributed to the economic vitality demonstrated in the following statistics.

- Since 1996,
  - o property values have increased by 181 percent compared to 75 percent in the city at large
  - o taxable sales in downtown have increased by 66 percent compared to 45 percent in the city at large
  - o revenue from the Transient Occupancy Tax (hotel tax) has increased by 36 percent
  - o lease rates have increased by 56 percent
  - o crime has decreased by 16 percent.
- Since 1998, the private sector has invested $43,175,000 in downtown.
- Since 2001, 179 new businesses have opened and 746 new jobs have been created.
- Today, 91 percent more customers shop and dine in downtown than did in 2002.

As the downtown revitalization effort continues, El Cajon looks forward to a cycle of more investment, more business openings, and more tax revenue. All this will continue to transform downtown El Cajon into a lively pedestrian environment where people work, shop, dine, entertain, and attend cultural events.

Web sites and resources

A fact sheet on "The Economic Benefits of Walkable Communities" is available here:
http://www.lgc.org/freepub/land_use/factsheets/walk_to_money.html
El Cajon Redevelopment Agency's Web site:
http://www.ci.el-cajon.ca.us/dept/redev

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Image sources
Ryan Snyder

Elementary School Crosswalk Enhancement Project

Pedestrian and Bicycle Information Center

Background

Speeding on residential streets is cited as one of the most often expressed concerns by local citizens. Additionally, vehicles were parking too close to the crossing areas at schools, creating reduced visibility and an unsafe situation for young pedestrians. The City partnered with citizens and community groups to incorporate school pedestrian measures into a two-year Neighborhood Traffic Calming Program. The first year focused on driver behavior, education and enforcement programs, and in the second year infrastructure improvements were used if necessary. For this project, five different school locations were selected for facilities improvements on the basis of the high number of students living within walking distance.

Solution

Raised crosswalks were installed to reduce vehicle speeds at the same time as improving pedestrian visibility through preventing vehicles from parking too near the crosswalk. Curb extensions were also added where feasible to decrease the distance necessary to cross the road and to improve line of sight distance. To keep pedestrians themselves from reducing visibility of oncoming traffic, bollards were installed in the curb extensions to prevent children from huddling near the curb. In several locations additional measures were also taken, such as a traffic circle for additional traffic calming, improved street lighting, and additional sidewalk to bridge gaps.

The improvements also included an educational component. Plaques were installed on the bollards depicting safety tips and the City of Bellevue's pedestrian mascot, PedBee. Brochures on safe walking practices were distributed to parents and students, and some schools participated in joint Transportation and Police staff presentations on safe walking practices.

The cost of the improvements at each school was about $15,000, though budgets reached $35,000 for schools that required additional sidewalk. The Washington Traffic Safety Commission provided $7,500 in grant funding, and the remaining funding came from a combined effort of the City of Bellevue Transportation Department and the Bellevue Parent Teacher Student Association.

Results

At the three locations for which data are available, the average vehicle speed reduced by 3 mi/h. The curb extensions have effectively prevented parking next to the crosswalk, physically keeping them at least 30 feet away. Comments from parents and residents are extremely positive and the city plans to continue these improvements in future projects. The only disadvantage found was that in the case of curb extensions, the narrowed lane may limit bicycle lanes.

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Engineering Solutions to Pedestrian Safety

Pedestrian and Bicycle Information Center

Problem

Cambridge lacked a comprehensive plan to improve the pedestrian environment.

Background

Cambridge unveiled its Pedestrian Plan in 2002 in an effort to remove themselves from the list of metropolitan areas not meeting the Federal Clean Air Act requirements. The city recognized the automobile as a major source of air, water, and land pollution and that the majority of trips in Cambridge were short trips most easily replaced by walking. So the city undertook a plan that would improve the walking environment and reduce automobile trips.

Solution

In addition to many innovative education campaigns, the city took on roadway redesigns, sidewalk improvements and repair, crosswalk markings, signal improvements, traffic calming projects, and the installation of lighting and street furniture in priority spots.

Additionally, Cambridge developed a questionnaire to elicit residents' opinions of traffic-calming projects after their completion. Responses were used to improve future projects.

Start Point Marker for Heritage Trail and directional Markers for 14th street and Holland Trails.

Results

An evaluation of ongoing changes has not occurred, although circumstantial evidence shows that sidewalk maintenance has improved in the city, largely due to greater enforcement of local ordinances. For instance, the city requires property owners to keep sidewalks clear of snow and ice and to trim vegetation; such preventative measures reduce repair costs in the long run.

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Image Source

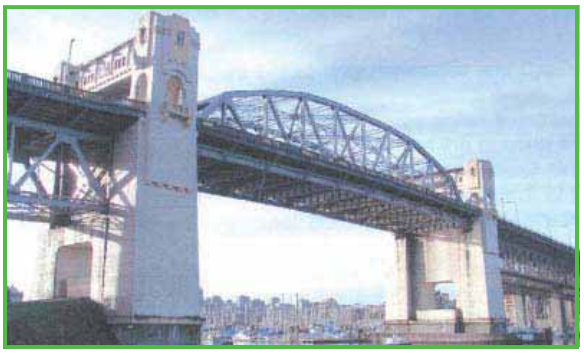
Parenti, Jeff. "Cambridge Plans A Livable Community." Turner-Fairbank Highway Research Center. www.tfhrc.gov/pubrds/06nov/03.htm

False Creek Pedestrian and Cyclist Crossings Study

Pedestrian and Bicycle Information Center

Problem

An already high rate of nonmotorized morning peak traffic—11 percent was expected to grow. However, the existing nonmotorized capacity on bridges crossing False Creek would not be able to keep up.



One of the bridge targeted for pedestrian improvements.

Background

Home to over two million people, Greater Vancouver has consistently been rated as one of the most livable cities in the world. Presently, nonmotorized users are able to cross False Creek into downtown over three high-level bridges, or by private ferry systems. However, between 1996 and 2002 the total number of pedestrian and cyclist trips across False Creek grew by 30 percent, totaling over 8,000 per day. Additionally, the City's target for 2021 is to increase walking and cycling trips from 11 percent to 14 percent of total trips made during the peak period. To achieve this, the city is committed to improving nonmotorized travel capacity, comfort, and safety.

Current pedestrian conditions on a Vancouver bridege.

Solution

The City of Vancouver Engineering, Planning, and Park Board led a partnership of over 25 stakeholders in a feasibility and design study to evaluate the need and potential means for improved recreational and commuter crossings across False Creek. The study was to determine the existing and latent nonmotorized demand, develop conceptual designs and preliminary cost estimates, and assess the impacts of alternatives on existing transportation facilities, land use, and communities.

Latent demand was measured by taking traffic counts during a transit strike, which showed a 300 percent increase compared to base conditions. The relative proportions of trip purposes were also determined during the strike: 76 percent commuting to work, 11 percent recreational, and 12 percent for miscellaneous other reasons. Many geographical maps were created to illustrate origin and destination patterns, and to determine relative use of the three different bridges.

At the beginning of the conceptual stage, the public, staff and the consultant team generated over 35 pedestrian and cyclist improvement options that included upgrading existing facilities, creating new crossings, improving accessibility versus adding capacity, and providing recreational versus commuter oriented improvements. Options that were not short listed were kept as potential improvement options to be examined at a future date.

The final five options focused on two of the three bridges, with plans for the third being delayed for a later date. For the Burrard Bridge, options considered were an outward extension of the sidewalk, and inward widening of the

sidewalk, or a low level crossing beneath the bridge. For the Granville Bridge, both a mid level crossing beneath the bridge and a reduction in the number of lanes to provide separate bike lanes were considered.

It was determined that despite the higher cost of outward sidewalk extensions over inward sidewalk widening, the former solution would better serve the long term needs of the City by not hampering the capacity of the vehicle travel lanes expanding sidewalk capacity. Additionally, there would be room for a barrier between traffic and nonmotorists to provide greater safety. The low level crossing was determined to be impractical given the frequency with which it would have to be opened to allow boats to pass. Preliminarily, it was determined that the midlevel crossing on Granville Bridge would be the most direct connection between seawalls for recreational cyclists, and would also be the most aesthetically attractive.

The False Creek Pedestrian and Cyclist Crossings Study was completed in just over a year for approximately $100,000, not including staff time.

Results

The study findings were used to develop a short and long term strategy to improve the safety and convenience of pedestrian and cyclist crossings, which included a list of additional studies and capital funding that would need to be accomplished in the future.

Over the long term, it was concluded that it would be worthwhile to do a major crossing enhancement across False Creek in each bridge corridor. The design work completed has helped each corridor move closer towards implementation.

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Image Source

Institute of Transportation Engineers Pedestrian Project Award. City of Vancouver. http://www.ite.org/awards/pedproject/ppa085.pdf

Interstate Interchange Pedestrian Enhancement

Pedestrian and Bicycle Information Center

Problem

The interstate interchange was surrounded by a typical auto-dominated landscape filled by hotels, restaurants, and other similar uses that provided little or no accommodations for pedestrians.

The wide road and few facilities make for an unappealing pedestrian environment.

Background

The heavily traveled retail area contained over 500 hotel rooms and was experiencing demand for safe and comfortable pedestrian facilities.

Solution

The City of Englewood, Ohio, in cooperation with the Ohio Department of Transportation (ODOT) initiated a pedestrian enhancement project to not only improve pedestrian safety but also to create a gateway into their community. The project team planned to construct new walkways under the overpass and to provide safer access to the regional bus system stops. Truncated domes were installed at twelve different sidewalk corners and bus stops to increase safety for those with visual impairment. Wrought iron fencing was installed to separate the road from the walkways. Two new bus shelters were added and new bus turnouts were included as an added layer of safety.

The several thousand square feet of sidewalk constructed were also surrounded by decorative brick pavers. Further amenities installed aimed to use natural elements to lessen the visual impact of urbanization. These measures included antique lighting, landscaping with planned wild-flower patches, new painting under the overpass, and decorative fencing along both faces of the overpass.

The landscaping around the pedestrian facilities also creates a gateway for the community.

The project took just over a year to complete, lasting from the signing of the contract in April 2002 to the completion of construction in June 2003. The City of Englewood received a grant in the amount of $265,000 from the Ohio Department of Transportation, and another for $33,000 from the Miami Valley Regional Transit Authority. The total budget was $875,500.

Results

The project took a previously bland and unsafe interstate interchange and made it into a safe, welcoming entrance to the city. Comments from the community were overwhelmingly positive, and the popularity convinced the city to continue the project northward at the next major intersection.

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Images Source:
Institute of Transportation Engineers Pedestrian Project Award Application. City of Englewood. http://www.ite.org/awards/pedproject/Englewood.pdf

Iowa City Bike Library

Pedestrian and Bicycle Information Center

Problem

In Iowa City, a university town with a largely transient student population, many bicycles were abandoned or brought to the landfills. Some students, especially international students who were in Iowa City for a short time, were reluctant to purchase a bicycle because they knew they wouldn't be able to take it with them when they left the city. Although the local economy supported several bicycle shops, there were few opportunities to purchase a lower-cost, used bicycle in good repair.

Background

A local citizen recognized that the surplus bicycles could provide people with affordable transportation, and looked for a way to get the bicycles he collected and repaired to the public who needed them. He used a table at the farmers' market to distribute the bicycles he mended. Initially called the Iowa City Community Bike Project, the program quickly became popular, attracting both eager patrons and volunteers. Several other community members, also interested in bicycle repair, stepped up to help.

Solution

At first, the limiting factor was lack of space. Iowa City officials agreed to provide a location for repair work and a non-profit retail operation where the public could come and check out the bicycles. The city offered an abandoned building (a former sporting goods shop), charging $1 per year for rent. Another step in establishing the program on a more permanent level was having a full-time AmeriCorps volunteer to help organize and administer the project for one year. The program also gained support and stability by finding a sponsoring non-profit organization, Environmental Advocates.

The Iowa City Bike Library depends on the skill of its volunteer mechanics.

The Iowa City Bike Library (ICBL) has served the community from a convenient downtown location since 2004. Numerous used bicycles — in widely varying conditions — are donated each week. Skilled volunteer mechanics attend Repair Nights twice weekly to refurbish donated bicycles. Other volunteers attend a weekly Salvage Night to reclaim usable parts from bicycles that cannot be repaired. With about a dozen regularly active (and another dozen occasional) volunteers, the ICBL is able to provide four to eight repaired bicycles each week. This number includes bicycles that have been loaned out and returned. Upon return, bicycles are given a full safety and maintenance inspection before being loaned out again. The Bike Library is open to the public once a week for three hours on Saturday. During this time, bicycles can be checked out, returned or donated.

Patrons checking out bicycles must leave a deposit which ranges from $20 to $80, depending upon the quality of the bicycle. If the bicycle is returned within six months, the full deposit amount is refunded less any damage beyond normal wear and tear. Patrons may choose to keep their bicycles (and many do); deposits are automatically forfeited after six months. During the six-month check-out period, the Bike Library will provide repair service for bicycles with no charge for labor. The Bike Library purchases helmets, which are provided with bicycle check-out for no additional charge.

Iowa City Bike Library—Iowa City, IA

Results

More than 650 bicycles have been donated and repaired during the Bike Library's four years of operation. The number of bicycles repaired and checked out has increased dramatically each year. As of May 2008, the Bike Library provides an average of six repaired bicycles each week. During the busy season (April through October), the demand for bicycles is steady; regularly all of the Bike Library's prepared bicycles are checked out within half an hour. In addition to recycling bicycles, the Bike Library has diverted 7,000 pounds of scrap metal from the landfill. The majority of that metal was transported to the scrap yard by bicycle and trailer.

A patron checks out a bicycle on a busy Saturday at ICBL.

Cost

The start-up cost for tools, benches and bicycle stands was about $3,500. The income from forfeited deposits is enough to pay for the helmets that ICBL gives away, as well as replacement tools and equipment as needed. Some income is also generated by selling used parts, donated items such as car racks, panniers and pumps, and scrap metal. Because operating space is donated by the City of Iowa City, bicycles are donated by community members, and labor is donated by volunteers, the Bike Library is self-sustaining on a very small income.

Web sites

Iowa City Bike Library: www.bikelibrary.org and http://www.bikelibrary.blogspot.com

This article about ICBL features two videos: http://iowaindependent.com/showDiary.do?diaryId=2239

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Image Source
Jennifer Bedet

Irondequoit Lakeside Multi-Use Trail

Pedestrian and Bicycle Information Center

Problem

The sidewalk network in the Town of Irondequoit and the City of Rochester was not continuous and no sidewalk existed through a nearby park requiring pedestrians to walk on the shoulders of existing roadways.

Background

The Town of Irondequoit is located on the shore of Lake Ontario just north of Rochester, New York. Irondequoit rightfully means "where the land and waters meet," since it is bordered on three sides by the waters of Lake Ontario, the Genesse River, and the Irondequoit Bay. This unique geographical feature creates a scenic place for residents to enjoy the outdoors.

Solution

Monroe County and the Town of Irondequoit worked together to sponsor and complete the Irondequoit Lakeside Trail (ILT). This 4.7 mile paved trail connects three existing recreational activity centers and crosses over a wetland. In order to preserve the ecological value of the wetlands, a priority was placed on creating a path that minimized any adverse impacts. An elevated pedestrian boardwalk was used because it has the least overall impact on the wetland and allows the trail users to learn about the functions of wetlands without negatively impacting the area. The trail also includes signs and rest stops along the way to better accommodate users. The creation of the ILT was truly a community project with representatives from the Town of Irondequoit assisting in the construction of the trail.

A boardwalk on the Irondequoit Lakeside Trail that crosses over wetlands.

Results

The construction of the trail has increased recreational use of the area and has created a safer environment for pedestrians and bicyclists. It has also increased the area's residents' pride in their community and has the added benefits of providing new transportation alternatives as well as improving people's health. The trail also minimizes congestion at tourist sites thus better accommodating visitors to the area.

Costs

The trail cost $2.5 million to create, with $1.2 million coming from federal funds, $705,000 in county funds and $460,000 in cash and in-kind services from the town of Irondequoit.

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Ke Ala Hele Makalae Trail

Pedestrian and Bicycle Information Center

Problem

The Kauai County Government and a group of concerned citizens wanted to ensure that public access along Kauai's southeastern coast remained open to the public.

Background

Kauai is the most northwestern of the main islands of Hawaii and has a population of slightly less than 60,000. An economic transformation away from sugar plantations left vast amounts of barren agriculture land throughout Hawaii. A large portion of this land was being purchased by private land owners. In order to guarantee public access to the coast for current and future residents, private landowners and city officials worked together to develop a multi-use path along Kauai's southeastern shore.

Solution

Ke Ala Hele Makalae, which means "the path that goes by the coast" in Hawaiian, began in the 1990s with the Ke Ala Hele Makalae Committee. This committee was formed by a group of concerned citizens to assure community oversight of the pathways' development and culture. Their vision of the path was able to become a reality through the support of the community and elected officials, and a large land donation to the county from a pair of developers. The land donation, valued at $7.5 million, secured an area for the path to be built and qualified the county to request federal funding to match the land's value. The federally matched funds and the land donation allowed plans for the Ke Ala Hele Makalae Path to expand and flourish into the current 17 mile blueprint of a coastal trail from Nawiliwili to Anahola.

People enjoying the path on a sunny day.

The construction of the trail is divided into six phases: phases I and II are already complete, and the remaining four phases are at varying levels of completion. There currently is not a projected date when all six phases will be completed. Phase I is a 2.5 mile trail around Lydgate Park that opened in 2003. Phase II opened in February 2008 and is a 4.5 mile trail north of the park. Phase III is currently under construction and will be a 1.8 mile trail that connects the two already completed trail segments. Environmental assessments are being completed on each of the trail segments before construction begins.

To maximize safety, enjoyment, and functionality for users, the linear park designs will meet all mandatory and advisory standards as identified by the American Association of State Highway and Transportation Officials.

A group of mothers using the path for exercise.

Results

Since the opening of phase I in 2003, the Kauai Path has seen several positive results and continued support from the community. On the second Saturday of every month a "Second Saturday Sweep" is organized to clean up portions of the path. The clean up and potluck lunch afterwards show the communities' support and gratitude for the trail.

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Linear Shared Use Path

Pedestrian and Bicycle Information Center

Problem

Piqua was labeled "A City of Walkers" and wanted to increase the percentage of nonmotorized modes of transportation used in the city. It also wanted to increase the use of pedestrian and bike paths for exercise by city residents and visitors from outside the community.

Background

Piqua's idea for the Linear Park began in 2001 when the city converted an old railroad right-of-way that travels east-west through the center of town from into a bike path.

Solution

The Linear Park bike path plan was completed in five phases from 2001 and 2003 and included over 11 miles of paths for pedestrians and bicyclists. Phases I, II, and III of the project were in the form of the "Piqua Activity Trail for your Health" (PATH) competition; a 5.5 mile trail constructed from the former Conrail Railroad that extends across the city. Phase I was a 10-foot asphalt path surrounded by 10-feet of green space and includes a pedestrian bridge over U.S. Route 36. Phase I also included the construction of French Park, which included a park and ride facility and a picnic area. Phase II was an extension of Phase I that continued along an old railroad ballast and included a tunnel that crossed under Sunset Drive and a bridge that crossed over the Great Miami River on a refurbished railroad bridge. Phase III was the easternmost mile of the railroad right-of-way property that travels through rural farmland.

Phase IV of the project was the "Canal Run"; a 2.3 mile long path that travels along ponds and canals in Piqua. The path was constructed on top of the levee that runs along the canal and crosses over State Route 185, passing through residential districts and the city's oldest park. Canal Run began off of the PATH trail and continued north where it connected to the trail completed in Phase V. Phase V was the 3.5 mile "The River's Edge" path and the extension of the Canal Run southward to the PATH. The River's Edge path was constructed along the Great Miami River, which opened up viewing areas of the river and city that were not previously enjoyed by the public. The Phase V trail had several safety features that allow pedestrians and bicyclists to cross under three major highways using existing bridges without any vehicle conflicts.

Linear Park is used as a recreational facility, a tool for economic development, a means for transportation, and a major contributor to the quality of life in the city.

Results

The Linear Park project was completed in a four year period that lessoned the impact on any individual year's budget. The overall cost was approximately $2.79 million with $1.19 million coming from grants. The following results were obtained during two different surveys conducted in Linear Park on different occasions during the hours of 6:00 PM to 8:00 PM:

Pedestrian and bicyclist counts

DATE	PEDESTRIAN	BIKE	ROLLERBLADE	DOG	TOTAL PEOPLE
8/27/02	225	297	19	22	541
7/29/03	117	239	7	24	423

These results show significant use of the different paths that are included in Linear Park and it is expected that this facility will be enjoyable for many generations to come.

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Local Street Improvements Make Walking Safer and Easier

Pedestrian and Bicycle Information Center

Problem

Seattle's southeastern streets lacked curbs, making sidewalks on these streets less pedestrian friendly and safe. Without curbs, cars parked on the sidewalks and planting strips, leaving no barriers to traffic and making landscaping and maintenance impractical. Additionally, cars were not parking on the street and the excessive street width encouraged unsafe driving speeds while discouraging pedestrians.

Background

Between the years 2001 and 2004, the Seattle Department of Transportation undertook a project to implement safer and more walkable neighborhoods in its southeastern quarter, a largely low-income community.

Solution

The project committed to taking numerous actions — add curbs, promote on-street parallel parking, install landscaping, calm traffic, and repair sidewalks — in an attempt to support neighborhood revitalization and resident participation. However, the project faced several obstacles. Some local residents could disapprove of the improvements because they would reduce space they were using for parking and vehicle repair. Additionally, new planting strips would require regular maintenance. The renovation could also provoke concerns about gentrification. Due to these concerns, funding limitations, and a requirement to have at least 60 percent resident approval, the project was termed a "demonstration project" to serve as a model for future improvements, and one street segment was carefully chosen.

The street segment chosen was appropriate given it already had drains that would reduce overall costs, the sidewalks were in great need of repair, and through-traffic volumes were high. Following a door-to-door outreach program (including bi-lingual assistance), 95 percent of the 66 affected households approved the project. A staff designer was available to meet with residents to help explain the project and incorporate their needs throughout the design and construction. Extruded curb technology was used rather than formed curbs, which would have required repaving the street to current standards. City landscape crews also worked with residents to plant trees and lay sod.

Funding was obtained through two sources: a Community Development Block Grant and a small neighborhood grant of City funds. The grants — available due to the neighborhood's status as a predominately low-income — covered 2600 feet of frontage at a cost estimate of $228,000. However, the funding source is limited in the long-run; it does not allow more than several thousand linear feet of improvements to be accomplished city-wide in any given year.

Results

The results were widely appreciated. Pedestrians have an unimpeded path beside the road that is now protected by attractive plantings. Residents themselves are appreciative of the improvements and there has been no evidence of gentrification pushing out residents. The improvements are viewed more as public investments to bring adequate standards to a low-income neighborhood. The three speed bumps installed and parallel parked cars helped to slow traffic by an average of 12 mi/h.

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Image Source

Institute of Transport Engineers Pedestrian Project Awards Application. Seattle Department of Transportation. http://www.ite.org/awards/pedproject/ppa093.pdf

Mulberry Street Improvement Project

Pedestrian and Bicycle Information Center

Problem

Mulberry Street serves as a connection between the residential community, the local elementary school and the downtown business area but there was not a safe way for pedestrians to travel to and from these areas.

Background

Milton, Delaware is a historic town of less than 2,000 people; one of Milton's main transportation arteries is Mulberry Street. The levels of automobile and transfer trucks combined with the lack of infrastructure make Mulberry Street a dangerous place for pedestrians and bicyclists.

Solution

The initial goal for the Mulberry Street Improvement Project was to provide sidewalk and pavement updates to increase safety and mobility along the project roadway. During the preliminary engineering phase it become apparent that additional design efforts were needed to achieve this goal and provide a quality product meeting community needs and approval. The old water line along the length of the project was replaced to address the need for a continuous stormwater system. The new water line enabled additional fire hydrants to be placed along the project roadway. During construction, field adjustments to the new water line and stormwater system were required to avoid conflicts with the gravity sanitary sewer system. The design engineer responded promptly with avoidance scenarios for the stormwater system through alternate pipe shapes and material types.

Results

The project has been proclaimed by the community as a success. Adjacent residents' yards no longer flood during storm events, pedestrian traffic has been made safer, and a safer route to school has been achieved. The Delaware Department of Transportation (DelDOT) has received reports from the Town of Milton that pedestrian traffic to the downtown business district has increased, with a marked improvement in the downtown business activity. Local police have reported a dramatic reduction in the need for speed enforcement on Mulberry Street and also noted that heavy truck traffic on the street has reduced as a result of the traffic calming measures.

Cost

The cost of the Mulberry Street Improvement Project was $2.7 million, with 80% of the funding coming from federal transportation funding.

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Development of Boulder's Multimodal System

Pedestrian and Bicycle Information Center

Problem

What steps must a city take once its leaders decide to encourage more transportation options to reduce reliance on car travel?

Background

In the late 1980s, Boulder's City Council considered what would be needed — financially, physically, and in quality-of-life terms — to continue to expand the city's roadway system. The council decided that Boulder would provide mobility not through new roads, but through a wide array of transportation choices to make it easy not to drive. Today, Boulder enjoys an 8.8 percent bicycle mode share, according to the 2006 American Community Survey, compared to a nationwide average of 0.5 percent. The city estimates that its bicycle and pedestrian system is 85 percent complete.

The reasons for Boulder's success can be classified into two categories: Good bones, those built-in advantages that are hard to replicate if they're not already in place; and actions taken over the last twenty years to provide real transportation choices to residents, workers and visitors.

Solutions and results

Boulder has leveraged natural advantages with a significant commitment, well-designed plans, and resourceful follow-through to build a multimodal system and institutionalize the accommodation of bicycling and walking on many levels.

NATURAL ADVANTAGES: UNDERLYING CONDITIONS THAT FAVOR BICYCLE AND PEDESTRIAN MODES

University. The University of Colorado (CU) has 30,000 students in a community of 100,000 people. The existence of a university creates a built-in population less inclined to drive, more educated and often more progressive. It helps that CU's transportation policy and priorities have been fairly consistent with those of the city. Boulder focuses on building partnerships with the university, as well as the local school district, major employers and other agencies such as Boulder County, to provide meaningful travel choices that are seamless as they cross jurisdictional boundaries.

Growth boundary. Coordinating transportation programs with land use and planning is essential. Boulder began buying open space in the late 1960s and has amassed 43,000 acres that serve as a physical buffer around the city. The city also collaborates with Boulder County on a forward-thinking comprehensive plan, which focuses growth within existing city boundaries. As a result, most of Boulder's growth is in-fill and redevelopment, which increases density and multimodal-friendly urban forms. This pattern has allowed Boulder to spend its dollars on providing transportation choices rather than building new roads to serve sprawling developments. The city's relatively small size, about twenty-five square miles, means that almost any destination within the city can be reached by a bicycle trip of five miles or less.

PLAN AND FOLLOW UP: BUILDING ON NATURAL ADVANTAGES

Plan. The Boulder City Council adopted its first Transportation Master Plan (TMP) in 1989. Later revisions to the plan set ambitious goals of having only 25 percent of trips made in single-occupant vehicles by the year 2025 and of keeping vehicle miles traveled (VMT) at 1994 levels. The city recently updated its VMT calculations and is close to keeping VMT growth flat, in contrast to most of the rest of the Denver region and the country. In the TMP update of

Development of Boulder's Multimodal System — Boulder, CO

2003, Boulder adopted the concept of complete streets and made a commitment to direct most transportation funding towards accommodating all modes on major corridors. Having a clear plan gives staff a blueprint to follow every day.

Act. Boulder has a strong transit system with buses running on 10-minute frequencies on several major corridors, and over 30,000 transit trips a day in a community of 100,000 people. The city works closely with RTD, the regional transit provider, to provide direct routing on friendly, branded, appealing vehicles, and spends about $1.5 million annually for additional service on high frequency routes. All-access transit pass programs (Eco Passes for businesses and neighborhoods and the CU Student Pass) help fill the seats. The city offers a subsidy to businesses new to the Eco Pass program (50 percent in year one, 25 percent in year two), and an on-going subsidy of 30 percent to help neighborhoods participate. Boulder spends approximately $175,000 on these subsidies annually, which help catalyze nearly $5 million in other local spending on the passes.

The HOP, Boulder's first high frequency service, connects three main activity centers: downtown Boulder, the Twenty-Ninth Street shopping district and the University of Colorado.

Local services that began with the HOP and SKIP routes have expanded to provide links to the regional routes JUMP, DASH and BOLT. GO Boulder works closely with Boulder East, a local transportation management association, to support a network of nearly 400 employee transportation coordinators (ETCs) at local businesses. Recent projects with ETCs include an effort (funded with federal Congestion Mitigation and Air Quality dollars) to increase the pick-up rate of Eco Passes, since city research has shown that Eco Pass holders are five times more likely to use transit than non-holders.

Boulder has over 100 miles of multiuse pathway with 74 underpasses allowing uninterrupted travel through much of town. Since 1989, the city has added to the system each year, on average, one mile of off-street path, half a mile of on-street bicycle lanes, and two underpasses. Ninety-five percent of major arterials have bicycle lanes or adjacent pathways. The off-street system is complemented by an additional 200 miles of dedicated on-street facilities that include bicycle lanes, signed routes and bikable shoulders. Bicycle paths and bicycle lanes have equal priority with the city's major street system for maintenance and snow control.

Boulder reconstructed the approach and facade of this underpass connecting off-campus student housing to the main CU campus. The project set back the opening to improve site distance and installed a raised intersection crossing of the road. New artwork celebrates this gateway to the campus and makes the underpass inviting to users.

Evaluate. Measurements allow changes and progress to be tracked over time. This is important because often public perceptions are not aligned with reality. People may think, "Traffic is up; it takes forever to get across town; nobody rides the bus; the city doesn't spend any money on cars." Evaluation generates data that allow planners to bust myths, have real conversations about progress, and adjust their approach. Boulder uses a wide variety of tools to measure progress, including employee surveys, travel diary studies, estimates of vehicle miles traveled, and traffic counts. The city has automated loop detectors at 13 locations

on the pathway system and has recently begun tracking the numbers of bicycles parked in the downtown area. The city's latest survey of employees shows that 53 percent of work trips by Boulder residents were made by single-occupant vehicles in 2006, down from 65 percent in 1995 (Transportation Metrics, Spring 2008).

Walk the talk. A city manages assets and implements policies through its budget. Even the best plan will not succeed unless resources are allocated in support of community priorities. In 2007 and 2008, Boulder devoted 49 percent of its transportation budget to bicycle, pedestrian, transit and transportation demand management projects. This number fluctuates over time as various major projects move forward, but each year sees a significant investment in multimodal projects. The increment devoted to multimodal projects is likely to grow in the future, as few roadway operation improvements and no roadway capacity projects are on the city's list of priority projects.

Build political support. People in Boulder are active, engaged, and like to debate everything. As a result, most significant projects are controversial, especially if taking a bit of travel lane or reducing parking is suggested. Projects often are scaled back or require additional investment to find a compromise, but the City Council moves most projects forward. Although advocacy and citizen support help, elected officials usually lead on these issues. Boulder's supportive political leadership, the high level of bicycle use, and the city's reputation as a mecca for outdoor-oriented businesses and elite athletes are integrally related and sustain an ongoing commitment to improvements. Identifying and encouraging future champions is essential to building more support.

Broadway side path (top): Boulder designated this sidewalk along Broadway, an arterial that connects downtown to the CU campus, as a multiuse path. Markings and colored pavement separate bicycle and pedestrian travel flow. Where the path crosses Table Mesa Drive (bottom), the raised right turn by-pass crossing has improved compliance by motorists to yield the right of way and better facilitates eye contact between motorists and cyclists/ pedestrians approaching the crosswalk. Note the signs warning motorists to expect bicycle/ pedestrian traffic from both directions.

Redefine the problem. Boulder's transportation engineers cheerfully and routinely design innovative and effective multimodal projects. Most come from traditional engineering backgrounds and were not particularly focused on designing for bicyclists and pedestrians when they were hired. One explanation for the transformation comes from engineer Michael Gardner-Sweeney, the transportation planning and operations coordinator for the city: "Engineers are problem solvers. If the problem is to move as many cars as possible through an intersection, that's what they'll do. If you define the problem differently, you get different results."

Boulder has redefined the problem to be one of moving people in a multimodal system, with a strong emphasis on bicycles, pedestrians and transit. This mindset has been institutionalized throughout the city's transportation division. Often when a project is planned on one of the several state highways that cut through the community, the city asks the state for permission to build narrower lanes or install innovative treatments. The city's engineers are adept at finding standards or producing crash and safety data that back up their designs. The state Department of Transportation (DOT) usually approves the city's requests, based on the validity of the information provided by the engineers.

Development of Boulder's Multimodal System — Boulder, CO

Experiment and refine. The Boulder bikeway network includes a number of side paths along roadways. These paths, and an extensive system of multiuse greenway paths along riparian corridors, are heavily used by the city's cycling population. Various standards were used to design the city's side paths; some operate better than others. To address safety issues that arise when side paths cross roadways and driveways, the city has developed an array of tools including raised right-turn bypass islands, colored pavement and extensive signage. A recent analysis of bicycle- and pedestrian-related crashes by the state DOT shows that Boulder's side paths along roadways do not have higher crash rates than the on-street bicycle system. The relatively large number of bicyclists likely also reduces crashes, as bicyclists are expected users.

Correct mistakes. The eastern half of Boulder was developed after 1950, with the same unfortunate combination of superblocks, strip malls, shopping centers, big parking lots and intimidating arterials as most cities across the country. Boulder has been working to retrofit these areas. The city's biggest arterial is being transformed into a complete street, with a variety of treatments on different sections of the corridor: bicycle lanes on the frontage road, multiuse pathways, shared bicycle and bus lanes, transit upgrades and pedestrian actuated crossing signals. It remains a big street, but now can be navigated on a bicycle or on foot with more comfort.

Changing land use takes longer. Boulder planners have put in place codes and zoning that will bring buildings back up to the street, creating pedestrian-friendly urban forms and reducing the number of curb cuts. The city is breaking up superblocks through redevelopment. The recent major renovation of a Target store included bicycle lanes past the front of the building. Striping bicycle lanes through parking lots may not be ideal, but the lanes connect through an adjacent shopping area to link to greenway paths in either direction. Through the development review process, the city recently asked a big upscale grocer to make parking access function more like a local street.

Leverage assets. In the mid 1980s, Boulder City Council directed staff to build a small section of path along Boulder Creek in the downtown area. The public loved it and clamored for more. That small section of pathway helped catalyze the Greenway System, a program with many goals including riparian protection and flood mitigation. The trail includes a spine pathway along Boulder Creek and connecting paths along its six tributaries.

The 28th Street Transportation Improvement Project transformed this formerly auto-dominated roadway into a complete street that is now inviting and safe for bicyclists, walkers and transit users.

Encouragement and education. Although people in Boulder can travel by bicycle comfortably and sometimes more quickly than by car, there isn't yet an Amsterdam-level of cycling. The city works on education and encouragement through GO Boulder, which handles transportation planning, policy and programs that support mode shift. GO Boulder recently launched GOBikeBoulder.net, an interactive bicycle routing Web site, and GO Smart, an individualized marketing program; it is exploring Velib-style bicycle rentals and Sunday Parkways. The city also partners with the local school district on Safe Routes to School; with Boulder East, a local transportation management association; and with US 36 Commuting Solutions, which focuses on travel along the major corridor between Boulder and Denver.

Staff are convinced that many more trips could be made by bicycle and foot, but changing the American mindset is difficult. As Boulder's Transportation Director Tracy Winfree says, "There is no silver bullet, but there may be a golden menu. Patience, persistence, coordination and on-going commitment are essential to building that effective menu of travel choices for a community over time."

Cost

The city's total transportation budget is approximately $20 million a year. The capital transportation budget is about $1 million a year, leveraged significantly with federal and private development funds. GO Boulder has a budget of $3 million a year and eight staff members.

The city has made a concerted and successful effort to leverage local dollars with federal funds, using Surface Transportation Program funds for several multimodal intersection projects that included operational improvements for cars, transit and bicycle/pedestrian facilities. Congestion Mitigation and Air Quality funds have helped to launch new transit services and fund innovative efforts like GoBikeBoulder, an on-line bicycle mapping service. Transportation Enhancement funds helped build several underpasses and pathway missing links. The city has averaged about $4 million annually in federal funds in recent years, though that is projected to decline.

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Web sites

Transportation Master Plan:
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=331&Itemid=1201

Transportation use measurements:
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=467&Itemid=1657

City of Boulder Transportation Metrics, Spring 2008:
http://www.bouldercolorado.gov/files/Transportation/Transportation/city_of_boulder_transportation_metrics_030308.pdf

Greenway system:
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=4985&Itemid=1189

GoBoulder:
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=8774&Itemid=2973

GoBikeBoulder:
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=8840&Itemid=3018

GoSmart Boulder:
http://gosmartboulder.com/

Image sources

All images: GO Boulder

Philip A. Rayhill Memorial Trail

Pedestrian and Bicycle Information Center

Problem

The towns of New Hartford and Whitestown, New York are only four miles apart, but citizens could not safely travel between them without an automobile.

Background

In March 2000, a Statewide Transportation Attitude and Preference Survey conducted in New York stated that 75 percent of persons surveyed supported bicycle trails, sidewalks, and access to outdoor recreation. The towns of New Hartford and Whitestown wanted to address people's desires to live and work in communities that support quality of life measures. New Hartford and Whitestown joined together to create a multipurpose trail to connect their two communities.

Solution

The Philip A. Rayhill Memorial Trail was built as part of the Route 840 connector between New Hartford and Whitestown. Construction began in June 2003, and in April 2006 the trail was opened for use. The trail connects the two suburban communities to an educational facility, several shopping centers, fitness centers, entertainment venues, business parks, and a federal wetland area. Amenities along the trail such as accessible fishing docks, interpretive kiosks, pedestrian countdown traffic control devices, and a 4-mile asphalt surface make this multiuse trail very innovative and inviting for a multitude of users. The completion of the trail was possible with the cooperation of several different agencies, including the NYS Department of Environmental Conservation, the US Army Corp of Engineers, the towns of New Hartford and Whitestown, Oneida County Department of Public Works, the regional Metropolitan Planning Organization (MPO), and the bicycle and pedestrian advisory committee.

Results

The Completion of the Philip A. Rayhill Memorial Trail has proven to be an inspiration for other local communities and government agencies to include the planning and development of interconnected multiuse trails in their communities. The trail has also received a large amount of publicity and has been the topic for several local newspaper articles. A survey conducted after the trail was complete showed that more than 50 percent of trail users utilize the facility at least four days a week.

Cost

This project cost $600,000 to complete with 80 percent of the funds coming from Federal Transportation Funds.

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Pulaski County Pedestrian and Bicycle Bridge

Pedestrian and Bicycle Information Center

Problem

Pedestrian and bicycle paths in Pulaski County, Arkansas were divided by the Arkansas River, which left the fourteen miles of paths disconnected and incomplete. Pedestrians and bicyclists who wished to cross the river would have to travel by car or not at all, because the two bridges that did cross the Arkansas River had heavy automobile traffic and were not adequate for pedestrians or bicyclists.

View of the bridge. Source: bigdambridge.com

Background

Citizens, local governmental officials, and several local organizations supported the idea of creating a pedestrian and bicycle bridge over Arkansas River. Beginning in 2000, Pulaski County began campaigning for funds for a bridge. By 2004 they had received enough grant money and donations to begin the project with a budget of $11.34 million. Construction of the Pulaski County Pedestrian and Bicycle Bridge — Murray Lock and Dam, or as it is known, the Big Dam Bridge began in the fall of 2004 with an expected completion date of the fall of 2006.

Solution

Pulaski County teamed up with the Army Corps of Engineers to begin construction of a pedestrian and bicycle bridge to connect the north and south sides of the Arkansas River. The bridge was created on top the existing Murray Lock and Dam. Using this existing infrastructure as the foundation for the bridge saved approximately $10 million in construction costs. After two years of construction the bridge opened. It is over ¾ mile long, 14 feet wide, equipped with pedestrian-level LED lights, and has eight observation areas with benches. With the completion of the Big Dam Bridge, over fourteen miles of trails along both sides of the Arkansas River are now connected.

The bridge at night with LED lights.

Results

In conjunction with the Pulaski County Pedestrian and Bicycle Bridge opening, several bicycling and 5K run/walk events have been held. An informal count that was held on a weekend eight months after the bridge opened indicated that nearly 4,000 people used the bridge in one day. City park officials on both sides of the river have also reported increased usage of the parks since the Bridge opening.

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Reconfiguration of Thomas Circle

Pedestrian and Bicycle Information Center

Problem

In the 1950s as vehicular traffic increased in and out of Washington D.C., Thomas Circle was redesigned to better accommodate automobiles. This new design limited the connectivity to other streets and created a hostile environment for pedestrian and bicyclists.

Background

Thomas Circle is a historic landmark located at a major city hub in the old city of Washington D.C. The mid-century design changes not only created a dangerous environment for pedestrians and bicyclists but also prevented access to the green space and historic statue of General George Thomas at the center of the Circle.

Solution

In 2005, Washington D.C., in cooperation and support with the National Park Service, Federal Highway Administration and the State Historic Preservation Officer, decided to reconfigure the Circle with the original historic vision. The redesign enhances the surrounding environment for human activities by addressing several needs related to accessibility, safety, historic perseveration and recreation.

Thomas Circle before renovation.

The project restored the Circle to its original formation, preserving the historic character of the site, while at the same time integrating critical improvements to ensure safe and efficient travel for drivers, bicyclists and pedestrians. The redesign improves accessibility for pedestrians by adding numerous pedestrian crossings connecting the Circle to the surrounding communities. A unique bike lane design surrounding Thomas Circle encourages bicycling as a viable transportation option to and around the center city. The design also includes pedestrians access to the green space and statue at the center of the Circle, which created new opportunities for recreation.

Thomas Circle after improvements.

The restoration of the site to its original design creates new and exciting opportunities for recreation in and around the Circle, including, for the first time ever, access to the green space at the center of the Circle. By improving access for residents, commuters, and visitors, the project facilitates important interactions that strengthen the cohesiveness of the urban environment.

The design approach for the restoration of the Thomas Circle was distinctive in its emphasis on pedestrian accessibility and streetscape that promotes greater connectivity among the surrounding communities and D.C.'s central business district. The project set a significant precedent for future transportation planning and design projects. The emphasis

that was once placed on improving the streets for vehicular traffic is now refocused on implementing context sensitive solutions to connect people to Washington D.C.'s diverse communities and historic resources.

Results

The reconfiguration of Thomas Circle benefits the city in numerous ways. Discussions at neighborhood advisory meetings and in press coverage, in both local and national newspapers, have showed that public opinion of the area has greatly improved. Today, pedestrians and bicyclists are commonplace in and around the Circle. The design changes minimize unsafe interactions between vehicles and non-motorized traffic. Pedestrians are thriving in the area and taking advantage of the newly accessible green space for picnics, sunbathing, and a simple shortcut across the circle. The site's improved connectivity with the surrounding communities enables easier access to existing destination along Washington D.C.'s main corridors and creates new opportunities for development.

Cost

The cost of this project was $5.6 million.

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Route 71 Pedestrian Tunnel at Monmouth University

Pedestrian and Bicycle Information Center

Problem

Monmouth University has a student population of over 5,000 and many of the campus facilities are divided by Route 71. For the past 30 years, a midblock crosswalk was used by pedestrians and small motorized campus utility vehicles to cross Route 71 and reach different parts of campus. The crosswalk was equipped with a flashing beacon and manned by crossing guards.

Background

The frequent and sudden stopping of vehicles at the crosswalk created several problems, including numerous rear-end vehicle crashes, pedestrian collision (including one fatality), and crashes involving crossing guards. A survey showed that during a one-hour period, traffic counts recorded up to 600 pedestrians crossing Route 71 and 1200 vehicles traveling on Route 71. Such large numbers increased the possibility of conflicts. The University and local community both wanted safety and traffic conditions improved. Four different designs were considered: 1) an at-grade crossing with curb cuts, 2) a pedestrian refuge island, 3) a pedestrian bridge, and 4) a pedestrian underpass.

Solution

The southern approach to the crosswalk on Route 71 is part of a National Register historic property, which restricts certain structures from being built. The proposed pedestrian bridge would degrade the historic character of the site and was not approved by the New Jersey State Historic Preservation Office. The at-grade alternative would be completed quickly, but would not eliminate traffic stops or fully address the need for separation of pedestrian and vehicular traffic. The pedestrian underpass was the most agreed upon plan that would decrease pedestrian and vehicle conflicts and eliminate traffic stops.

Students walking through the tunnel.

Student safety, drainage, impact to the existing historic area, and construction were all concerns dealing with the pedestrian underpass. The safety issues were addressed with a security system that is linked to campus police; drainage problems were solved with a pump and underground storage system; architectural treatments were enhanced to blend with the historic context; and constructability issues were solved by a structural design approach aimed at minimizing impacts. The ramps that approached the tunnel were designed to meet Americans with Disabilities Act (ADA) standards with specific grade, landing area, and cross slope requirements. The tunnel width was 14 feet, the height was 10 feet (to accommodate university maintenance vehicles), and the length was 71.5 feet.

Results

The project took 11 months to design and 1 year to construct, allowing it to open for pedestrian traffic in August 2002. The construction of the pedestrian tunnel eliminated vehicular and pedestrian conflicts without impacting the site's historic character or compromising student safety. Since the construction of the tunnel there have not been any pedestrian and vehicular conflicts.

Cost

The costs for this project were $695,000 for final design and construction support, $830,000 for bridge construction costs, and $3,200,000 for road construction costs.

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Serene Way Sidewalk Project

Pedestrian and Bicycle Information Center

Problem

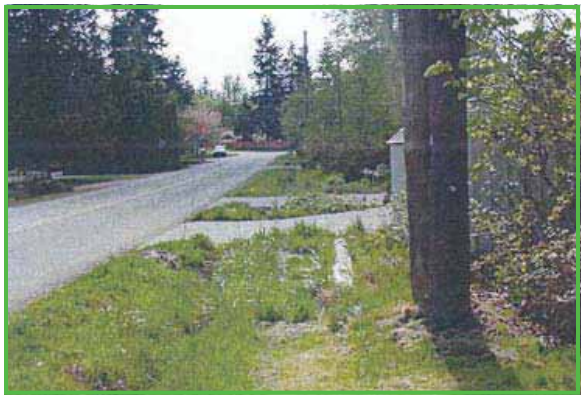
Prior to the sidewalk project, walkers in the Lake Serene Community were forced to walk in the travel lanes of Serene Way, a two-lane local access road. Walkers sometimes had to jump into the ditches to avoid oncoming cars at certain blind turns.

Background

The Lake Serene Community Association initiated the project when they requested a walkway along the road. The road had minimal shoulders, and drainage from the road collected into open ditches along both sides of the road. Existing right-of-way for the road was 60 feet.

Solution

The project operated on four main objectives: 1) To provide a safe walkway, 2) To work with the association, 3) To minimize impacts to adjacent properties, and 4) To minimize modifications to the existing drainage system and avoid the use of a detention pond/pipe design.



Before

After

The 4,500 linear foot walkway provided safe passage not only for pedestrians, but now also for bicyclists, wheelchair users, and those who need to push baby strollers. The walkway is located behind the drainage ditches, which provides a buffer between cars and pedestrians, furthering the perception of safety. Additionally, the sidewalk connects with adjacent pedestrian facilities and provides a safer route to school for students of a local elementary school.

The Community Association met together with the Public Works Department a total of 5 times. At the first meeting, project options were presented with costs ranging from $200,000 to $500,000. After the association realized the limited available funding for the project, they volunteered to reduce costs by removing or relocating any landscaping, vegetation, or fencing that would be in the path of the walkway. The Association discussed schedules and the pros and cons of using porous concrete at subsequent meetings. A certificate dedicating the walkway was eventually presented to the Association.

In order to minimize the impact on adjacent properties, an alignment within the existing right-of-way was chosen that would meander among existing project site features such as fences, trees and utility poles.

Drainage was challenging for the project due to lack of funding, the location near the lake, and the dense residential surroundings. The standard pipe, catch basin, and detention pond/pipe design was infeasible. It was decided to

use porous concrete instead, which acts as an infiltration and retention area, mimicking natural soils filtration throughout the pavement depth. An exemption from detention was granted from the Drainage Compliance Officer.

Though the project budget was estimated at $225,000, final costs totaled $294,000. The project was completed in 10 months.

Results

There is anecdotal evidence of increased foot traffic since the installation of the walkway, particularly in the night hours. The use of porous concrete material enabled the walkway to be built bu eliminating the need for a detention system and its associated design, right-of-way, and construction cost, which would have totaled $500,000.

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Images Source

Institute of Transportation Engineers Pedestrian Project Award Application. Snohomish County Public Works. http://www.ite.org/awards/pedproject/Snohomish.pdf

Severance Circle Project

Pedestrian and Bicycle Information Center

Problem

Severance Circle surrounded a high-use commercial development and had little accommodation for pedestrians and bicyclists, often forcing them into vehicular lanes. Pedestrians forged cut-throughs at the risk of personal harm.

A pedestrian crosses at a newly signalized crosswalk.

Background

Despite being located in a vital suburb of Cleveland with over 100 acres of parkland, the 40-year old Severance Circle was unfriendly to pedestrian and bicycle use. Originally built as a ring road enclosing a shopping mall, no attention was given to connecting the housing, offices, and shopping located there. The Canyon Johnson Urban Fund purchased the since redeveloped center in 2002. It agreed to dedicate Severance Circle as a public street and to build a complete sidewalk system. Funds were set aside by the buyer, the seller, and the City for road and sidewalk improvements.

Solution

Recognizing the appropriate changes to be made, The Department of Planning and Development issued ambitious goals:

1. To create safe, convenient sidewalks connecting the commercial district internally and to neighboring residential areas
2. To calm traffic on Severance Circle
3. To create safe bicycle routes through Severance Town center to increase bicycle travel

A bike lane striped for the project.

A variety of measures were implemented to achieve these goals. Benches and bus shelters were provided, building facades were required to abut the sidewalk and provide storefront displays, pedestrian activated walk signals were added to the busiest intersections and at mid-block crossings, and light poles, shade trees, and awnings were installed. One of the more significant construction projects involved converting the 4-lane road into two-lanes with a center left-turn lane and bike lanes on either side. Hazardous drainage grates were also eliminated from the roadway to improve bicyclist safety. As an added measure, enforcement of speeding and other dangerous driving was stepped up, and numerous tickets were issued.

Funding for the project came from the Severance Ring Road Improvement Notes Series 2003 ($2,741,474) and from a Community Development Block Grant ($425,000). Costs totaled $3,166,474.

Results

Completed in 2003, the $3.6 million project had formed a complete and connected sidewalk system, installed common spaces, benches, bus shelter, pedestrian-scaled lights, trees, and other landscaping. Dedicated bicycle lanes

were added and the four-lane road was reconfigured. During the 2003 holiday shopping rush, vehicular traffic moved without significant delay without speeding. The new sidewalks and crosswalks were also used by pedestrians.

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Images Source

Institute of Transportation Engineers Pedestrian Project Award Application. Cleveland Heights, Department of Planning and Development. http://www.ite.org/awards/pedproject/SeveranceCircle.pdf

Sidewalk Construction Program

Pedestrian and Bicycle Information Center

Problem

The county had an inadequate sidewalk system, particularly for areas with greater safety needs, such as school zones.

Background

The Sidewalk Construction Program was initiated in response to the urgent demand of five unincorporated communities within the County to improve pedestrian safety conditions.

Solution

The Alameda County Transportation Improvement Authority (ACTIA) and the Alameda County Public Works Agency worked together with citizens' groups to develop a priority matrix criteria tool to classify projects based on an objective point-value rating system composed of several components known to generate a high volume of pedestrians: e.g., proximity to schools, recreation, or shopping; and areas experiencing excessive pedestrian/vehicle collision rates. Several additional criteria included feasibility as measured by the cost per foot of sidewalk, right of way availability, and whether the construction would close a gap in existing sidewalks.

Citizen input was achieved through two separate multi-cultural volunteer committees: a Sidewalk Advisory Committee and a Citizen's Watchdog Committee. The two groups attended the monthly scheduled meetings with the Public Works Agency and the ACTIA, acted as liaisons with the community, and were actually given the power to determine the amount of funding to be allocated for each component of each area.

The sidewalk repair portion of the program applied only to single-family residential units in the five county communities, paying half the cost of repairs for applicable properties up to a $750 maximum. Funding was a result of the ACTIA "Measure B Sales Tax" to fund a Bicycle and Pedestrian Safety Fund, reauthorized by voters in 2000. That source provides $100,000 per year for sidewalk construction, while an additional $100,000 was set aside by the Public Works Agency for repair of sidewalks. Two additional grants were also obtained through the Safe Routes to School program, totaling $920,000. The cost of developing the Sidewalk Construction Program itself totaled about $75,000 in staff time.

Results

The program succeeded in furthering community involvement in the decision making process as well as in securing funding. Due to the reauthorization of the sales tax, the program was assured at least a base amount of funding for the next 20 years. The program promoted effective intergovernmental cooperation and received the support of the local U.S. and state legislative representatives.

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Sidewalk Improvements in the Downtown Area

Pedestrian and Bicycle Information Center

Problem

The Village of Okauchee is nestled between two lakes and is a very beautiful and historic town, but neglect has decreased the area's attractiveness. The sidewalks in downtown had not been replaced since they were first laid over 40 years ago. This resulted in cracks and an overall run down look throughout the downtown business area.

Sidewalk conditions before the project.

Background

A "First Impressions" study was conducted by the local government to gather participants' comments on the appearance of the Village. The following responses were collected:
"very limited curbs, gutters, and sidewalks"
"appearance was of general neglect"
"NO SIDEWALKS!"
"Unfulfilled potential, given location and historic-type building stock"

The Okauchee Vision Committee was created in 1998 with the purpose of designing a comprehensive plan for the business district in the downtown area. The committee started the project by gathering data through surveys. One survey completed by 459 households showed support for the following changes:

59 percent ... Improve the appearance
21 percent ... Road work
21 percent ... Sidewalk construction and repair

The presence of historic areas also greatly affected the construction of the sidewalks and roundabout.

Solution

Replacing the sidewalks in the downtown area was the first priority since they had not been repaired in 40 to 60 years. The replacement of these sidewalks eliminated the presence of cracks and uneven surfaces that made the old sidewalks extremely hazardous to all pedestrians. It also added to the overall aesthetic value of the downtown area.

The areas surrounding the business district didn't have any sidewalks and many of the roads had no storm sewers or curbs, which caused the shoulders to often be muddy and filled with runoff. These roads led to an elementary school, a local park, and three restaurants. It became a priority to attempt to transform this into an accessible and safe area for pedestrians, especially children. The addition and replacement of sidewalks increased the walkability and aesthetic value of the downtown area but didn't provide pedestrian amenities. To fix these problems 61 decorative street lamps were added to the downtown village area to promote

A much better pedestrian environment after the project.

safe walking and to increase the area's beauty. Six black metal street benches and trash receptacles were also added to the project area. Two of these benches were added to the plaza area along with low shrubs, roses, day lilies, and an assortment of 50 low growing trees, all of which greatly added to the atmosphere of the plaza.

Results

By the end of this project there were 14,700 linear feet of curb and gutter constructed, 41,340 square feet of sidewalks, one roundabout with a decorative retaining wall, sidewalk plantings, a clock, and 61 street lights. The total cost of the project was $3.3 million and the duration of construction lasted from September 2002 to December 2003.

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Image Source

ITE Pedestrian Project Award Submittal. Town of Oconomowoc and Ruekert/Mielke. http://www.ite.org/awards/pedproject/Okauchee.pdf

Smart Traffic Signal System

Pedestrian and Bicycle Information Center

Problem

Population growth led to higher pedestrian traffic requiring more and better facilities.

Background

The Northern Virginia District (NOVA) of the Virginia DOT oversees a uniquely urbanizing sector, part of which is within the Washington DC metropolitan area. Explosive growth contributed to congestion and increased the demand for multi-modal planning. The project focused on improving pedestrian accessibility, particularly for persons with disabilities.

Solution

The NOVA District Smart Traffic Signal System staff partnered with other departments to find equipment that met departmental goals for functionality and "federal-acceptability" as defined in The Manual of Uniform Traffic Control Devices. Other core stakeholders were included in the process, including regional agencies and focus groups of persons with disabilities.

A pushbutton sign for the Smart Traffic Signal program.

Five specific measures were implemented in the end. First, the Rest-in-Walk Pilot Project in the planned mixed use community of Reston, VA. Reston Parkway, with an average of 29,000 vehicles-per-day, bisects the community and requires pedestrians traveling between several commercial village centers to cross a four-lane arterial road. At nine of the seventeen intersections, the walk indication displays coordinated with the green signal, rather than requiring the pedestrian to activate it through a pushbutton system that often resulted in up to a three minute wait. The intent is to reduce the number of pedestrians illegally and dangerously crossing the street out of frustration. These intersections are also now being considered for accessible pedestrian signal installation.

Second, advanced pedestrian walk phasing was installed at a high-traffic intersection between an 8-lane arterial and a popular avenue. The advance display for the walk indication gives time for pedestrians to establish their presence in the crosswalk before being overtaken by right turning vehicles.

Third, a "pedestrian clear count-down" signal was installed at a busy regional hub for subway and bus transit. Fourth, an Accessible Pedestrian Signal (APS) featuring a locator tone, vibration and a verbal message indicating in which direction to cross for visually impaired persons was also installed. The location of the pushbutton was also moved to be more accessible. Due to strict demands for federally approved equipment, such improvements were previously not possible, and work had to be done to break down institutional barriers. Three additional intersections are now identified to receive the same improvements.

The last measure undertaken was the installation of signing placards along an intensive business corridor spanning the length of Fairfax County. The eighteen placards clearly explain pedestrian signal operations to the diverse pedestrian population living along the corridor.

Results

Constituents were pleased with the results of the initiatives, and several citizens were quoted as saying that the improvements have "made it much safer to get across." Costs associated with the project were minimal, and more key intersections are scheduled for the future. Institutional barriers to implementing federally unapproved Accessible Pedestrian Signaling were relaxed to allow for more creative problem-solving.

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Image Source

Institute of Tranportation Engineers Pedestrian Project Awards Appliction. Viginia Dept. of Transportation. http://www.ite.org/awards/pedproject/ppa004.pdf

Sunnyslope High School Pedestrian Demonstration Project

Pedestrian and Bicycle Information Center

Problem

Sunnyslope High School is located adjacent to a 6-lane arterial street where the designation of a 15-mph school zone has little effect in slowing traffic. This avenue had an average of 32 pedestrian collisions per year over the preceding three years before the project began in 2002. Concern about high traffic speeds, obvious lack of pedestrian safety, and excessive congestion at arrival and dismissal times inspired the project.

Background

The Phoenix City Council funded the creation of a School Safety Team to collaborate with schools, parents, and students. Volunteers participated in conducting traffic studies to assess problems and develop solutions.

Solution

Several primary measures were taken to improve safety. First, solar-powered "Stalker" driver feedback speed monitors were installed at each end of the school campus along the avenue. The monitors flashed the driving speed and a bright LED strobe light when a car's speed exceeded the posted speed of 35 mi/h by at least 5 mi/h. The monitors operated only during the school days between 7a.m. and 5 p.m.

A staggered crosswalk installed for the program.

There was originally one crosswalk at each of the two driveways. One of those was removed, and a median pedestrian safety island was installed at the other. The crosswalk was staggered, narrowed the road crossing, and made a strong visual impression on drivers. The staggered walk forced pedestrians to turn towards oncoming traffic. In addition to the striping at the crosswalk, "SCHOOL" pavement stencils were installed in the lanes as they approach the crossing. The pedestrian warning signs were converted to brighter florescent yellow-green warning signs, and signs were posted at the crosswalk instructing students to "Use Caution When Entering the Street."

A vehicle and pedestrian access on an adjacent avenue was negotiated in order to reduce congestion at arrival and dismissal times on the condition that the school administration agreed to monitor the gate and lock it during other times of the day. A new walkway at this entrance was installed along with a talking pushbutton that triggered the message "Flasher has been activated. Drivers may not stop."

The total cost of the project was $124,600, more than $71,000 of which went to relocating the driveway to improve driveway and traffic circulation. The driveway relocation was funded by the Glendale Union High School District, while the City of Phoenix provided $53,100 for the remaining improvements. The entire project took 9 months.

Results

Compliance with the posted speed limit is good, particularly during school hours when the driver feedback monitor is activated. At these times, the 85th percentile speeds are at 29-mi/h, 6 mi/h under the posted limit. Only one

school-related collision was reported in the six months following the project, and none occurred in the new staggered crosswalk. Crossing at unmarked crosswalks dropped dramatically and pedestrian use of the staggered crosswalk with a safety island dramatically increased. Volunteer observers also noted that students are more cautious when crossing and motorists are more willing to stop for students.

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Image Source

Institute of Transportation Engineers Pedestrian Project Award Application.
City of Phoenix Street Transportation Department. http://www.ite.org/awards/pedproject/ppa071.pdf

Tempe Crosscut Canal Multi-Use Path

Pedestrian and Bicycle Information Center

Problem

The City of Tempe needed better bicycle and pedestrian connections to local bus routes and a generally improved multi-modal environment.

Background

Tempe is dedicated to implementing environmentally-friendly projects that provide alternative modes of transportation, improve air quality, and decrease traffic congestion. The 4-square-mile project area of Papago Park's more than 3,300 people helped ensure that a trail would receive high usage.

Solution

The Crosscut Canal Path provided new opportunities for bicyclists, joggers, and pedestrians. It also incorporated more than typical lighting, landscaping, and — most impressively — public art that highlights unique elements of the local natural environment.

Tempe multi-use path showing the artistic centerline.

Planning for the path began in 1998 by the City of Tempe, the Metropolitan Canal Alliance, and the Papago Salado Organization. The City of Tempe coordinated a neighborhood planning process with the North Tempe Neighborhood Association and other residents. Numerous public meetings brought together representatives from a wide diversity of institutions, including the Phoenix Zoo, the Desert Botanical Gardens, the Salt River Project, and nearby cities. The representatives developed a project master plan to aid in preserving the environmental quality of the area. The design team consisted of landscape architects, a local project artist, engineers, and a project historian.

Tempe multi-use path showing the artistic centerline.

The final 1.25 mile path, completed in 2003, provided an off-street link to neighborhoods and transit services. The innovative art element, called the Centerline, features a six-inch wide granite tile line that runs unbroken down the center of the path until it reaches eight different areas of scenic importance. At these points, the centerline breaks up into abstract patterns reflecting scenic elements such as nearby Hunt's Tomb, large native cottonwood and mesquite trees, mature saguaros, and one of the oldest creosote stands in the region. The additional amenities match the color schemes and materials used to create picnic areas and other improvements in Papago Park.

Results

The project received numerous positive comments from neighbors, the 2003 City of Tempe Beautification Award, and the 2003 Maricopa Association of Governments Livable Community Award. More than 150 people turned out for the grand opening ceremony.

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Images Source

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The Padden Parkway Pedestrian/Bicycle Bridge

Pedestrian and Bicycle Information Center

Problem

Communities in east urban Clark County were divided by the Padden Parkway, a four-lane parkway with few at-grade crossing for pedestrians and bicyclists. It became obvious that as development in the area continued, a separate access bridge was needed to allow for pedestrian and bicycle crossings.

Background

Development in the form of subdivisions, services, and commercial activities are planned on both the north and south sides of the Padden Parkway. This new development generated the need to create a pedestrian/bike bridge over the parkway to meet the needs of the growing community. The county's 20-Year Comprehensive Growth Management Plan stresses the linkage between land use and transportation and the pedestrian-bike bridge crossing over Padden Parkway was a crucial development for the implementation of this plan.

Solution

Planning for the Padden pedestrian/bicycle bridge began in 1998. The design and construction of the bridge took four years and was completed in August of 2003 at the cost of $2.6 million. The bridge is 560 feet long, 14 feet wide and is ADA accessible. The bridge over Padden Parkway connected at each end to a multi-use path that was separated by the parkway. The bridge also led to the future site of a park and ride facility on the Padden Parkway. The area surrounding the parkway's pedestrian/bike bridge connected two extremely isolated parts of the community that would otherwise only be accessible by automobile. Surrounding undeveloped land would most likely be developed in the near future based on the area's rapid growing rate. The Padden Parkway Bridge was a proactive step to associated problems that may arise in the future.

Results

Three months after the bridge was completed a pedestrian and bicycle count was conducted on the Padden Parkway Bridge. The study was conducted for two hours on three different days, both on weekends and week days, and at different times during the day. The following results were found:

Pedestrian and Bicycle Count

DATE/TIME/WEATHER	EASTBOUND PEDS	WESTBOUND PEDS	EASTBOUND BIKES	WESTBOUND BIKES
Fri. 3/5/04 4-6 PM Sunny, fleeting cloud cover, no rain	16	13	3	4
Sat. 3/6/04 1-3 PM No rain, haze w/ sun breaks	1	8	4	6
Wed. 2/10/04 7-9 AM Clear, sunny	0	8	0	5

The Padden Parkway Pedestrian/Bicycle Bridge — Clark County, WA

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Images Source

ITE Pedestrian Project Award Submittal. Clark County, Washington.
http://www.ite.org/pedproject/ClarkCounty.pdf

The ramp leading up to the bridge.

Aerial view of the bridge during construction.

Thurston Avenue Bridge Rehabilitation Project

Pedestrian and Bicycle Information Center

Problem

The Thurston Avenue Bridge serves as the only direct route for vehicular, pedestrian and bicycle traffic traveling between the main residences halls and the central academic campus of Cornell University. Pedestrian and bicycle traffic counts taken in 2002 revealed that 37 pedestrians and 15 bicyclists traveled across the bridge every 15 minutes during the peak hours. This volume is expected to increase to 318 pedestrians per 15-minute interval by 2034 and the number of bicyclists is expected to double in the next 30 years.

Background

Saving the existing historic steel box arches on the Thurston Avenue Bridge was a must when considering reconstruction. The city of Ithaca was able to do this by adding two new induction bent tubular steel arches at the fascias that retained the view of the existing arches.

Solution

Design for the bridge rehabilitation began in 2001 and in March of 2006 the project began. The rehabilitation widened each sidewalk by 2.5 feet and provided two new 5 feet bicycle lanes. Other improvements of the bridge include:

- New bridge railings
- Overlooks at each sidewalks for viewing the adjacent Beebe Lake and Falls and the Fall Creek gorge
- New handicap ramps and detectable warnings via marked crossings, signage, and signs at approaches for ADA accommodation
- Improved visibility, directionality, and movement through intersection at south approach with new slop ramp, pedestrian island, and colored concrete crosswalks
- New LED lighting in top of rail of bridge railing to light sidewalks across the bridge

Results

Since the Thurston Avenue Bridge reopened in October 2007, safety and movement through the corridor has improved through lightings and overall pedestrian visibility, students, staff and visitors can enjoy views of Fall Creek Gorge on the overlook areas, and the flow of public transit buses has improved.

Costs

This project cost $8.3 for construction, $1.2 million for design and $850,000 for construction administration.

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Traffic Calming and Crime Prevention

Pedestrian and Bicycle Information Center

Problem

During the past 60 years many communities in the U.S. have been designed to accommodate automobiles, often to the detriment of cyclists, pedestrians, and residents.

Background

Traffic calming programs can help make bicycling and walking more comfortable and neighborhoods more livable and pleasant. Treatments such as curb extensions, medians, lane narrowings, and roundabouts are designed to slow vehicles on streets where speeds are too high. According to traffic calming expert Dan Burden (2000), "It is a way to reduce the negative effects of automobile use, alter driver behavior and improve conditions for the property owner, retailer, walker and bicyclist" (p. 11).

Although few studies of the relationship between traffic calming and crime prevention exist, there's growing evidence that residents in neighborhoods with slower streets are more likely to take ownership of those streets and in so doing increase the surveillance that is key to deterring crime. The concept of "eyes on the street" or "eyes on the public space," emphasized decades ago by urbanist and author Jane Jacobs (1961), clearly applies to traffic calming. Criminals will find a fast, unpleasant street lined with garage doors an easier target than a slow, quiet street watched over by motorists and people in homes with windows, porches, or front stoops. Motorists traveling at slower speeds are more aware of their surroundings and help deter crime, points out Police Officer Todd George of Overland Park, KS in Neotraditional Design and its Relationship to Preventing Crime.

The volume of traffic on a street influences the quality of neighborhood life. In 1969 in San Francisco, the Urban Design Group surveyed streets, conducted an attitudinal survey of residents, and completed a housing survey. During the two-year project, UC Berkeley Professor Donald Appleyard established a clear correlation between traffic volumes and neighborhood residents interacting with their neighbors. Appleyard (1981) compared heavy, medium, and light traffic streets; he found that on the street with heavy traffic people had withdrawn from the street altogether, leaving it to traffic. However, on the street with light traffic residents were more engaged in the street; children played outdoors more, and there was more ownership and awareness. According to Appleyard, "The contrast between the two streets was striking. On the one hand alienation, on the other friendliness and involvement" (p. 26).

A collaborative planning process has many benefits: it creates relationships and buy-in, fosters a sense of community, and itself may help to reduce crime.

Traffic calming projects can increase a sense of community by slowing, redistributing and reducing traffic, by bringing people together to design the traffic measures, and by giving residents and retailers greater ownership of the public realm. Typically neighbors and city staff collaborate to develop traffic calming programs. Interestingly, the process of working together on a plan can help reduce crime. A study by Harvard University Public Health Professor Felton Earls found that "violent crime rates in communities in which residents willingly worked together were as much as 40 percent lower than in neighborhoods where such relationships were not as strong" (Local Government Commission, 1998, p.1).

Solutions

DAYTON, OH LOWERS CRIME THROUGH STREET CLOSURES

While most traffic calming measures aim to slow traffic and divert some cars and trucks to more appropriate streets, the city of Dayton took a more radical step to deal with crime in the Five Oaks neighborhood. In the early 1990s heavy traffic and cruising for drugs and prostitution drove residents into their homes and made the streets a no-man's land. The city helped neighbors reclaim the streets by closing them to through traffic. The neighborhood was divided into ten mini-neighborhoods of three to six streets; one opening to the adjacent arterial was converted to an entry portal identified by attractive brick pillars. Other streets into the smaller neighborhoods were blocked off by iron gates which could be unlocked to provide access to emergency and maintenance vehicles.

This entry portal to a Dayton neighborhood restricts vehicle access but is open to pedestrians and bicyclists.

Although motor vehicle access was limited, pedestrians and bicyclists could still move into and through the neighborhood (Cisneros, 1995). Traffic calming, along with a plan to promote homeownership, resulted in a 25-50 percent reduction in neighborhood crime and encouraged more resident and community involvement. Traffic passing through the neighborhood declined by two thirds and the number of crashes dropped by 40 percent (Burrington and Heart, 1998).

TRAFFIC CALMING REVITALIZES NEIGHBORHOODS IN WEST PALM BEACH, FL

The neighborhoods of Old Northwood and Northboro Park in West Palm Beach were havens for drug dealers and prostitutes in the 1980s. In an effort to stop commuters from cutting through these neighborhoods, the city implemented traffic calming measures which incidentally reduced the crimes that poor street environments had fostered. The number of arrests for prostitution dropped from 100 in 1992 to less than 20 in 1997, an 80 percent decrease. Over the same period, incidents involving drugs and narcotics fell from approximately 38 to less than 15, a 60 percent decrease. Street crime decreased because traffic calming changed Old Northwood and Northboro Park residents' relationship to their streets (Stillings and Lockwood, 2001).

A traffic-calming roundabout and fresh streetscaping transformed this West Palm Beach neighborhood as well as the street.

TRADITIONAL NEIGHBORHOOD DESIGN PROJECT, DIGGS TOWN, NORFOLK, VA

Diggs Town is a low-rise public housing project; most residents are single African-American women and their children. Unemployment, crime, drugs, and decay plagued Diggs Town; according to a Fannie Mae Foundation report, "The residents feared for their lives and felt they had lost control of their community" (Bothwell, Gindroz, and Lang, 1998, p. 95). The street pattern in the neighborhood didn't allow access to the inner parts of the complex

or easy supervision by residents. This isolated the central part of the project; it became a hub of criminal activity. In 1990 the Norfolk Redevelopment and Housing Authority awarded Urban Design Associates $17 million to redevelop Diggs Town. Parking islands and tree-lined, small-scale streets provided better access and improved the community. Adding front porches and fences encouraged feelings of ownership; articulating entrances and re-landscaping public spaces created coherence and identity.

According to a community police officer, police calls dropped from 25–30 per day to 2–3 per week. When asked what had made the difference, he cited a renewed sense of pride and self-esteem, which led residents to identify and engage with the community. Interviews with residents suggested that the physical form and image of Diggs Town had some effect on the stability of the neighborhood (Bothwell, et al).

ROUNDABOUT AND TRAFFIC CALMING RESTORE HISTORIC WATERFRONT IN FORT PIERCE, FL

An appealing, pedestrian-friendly roadway changed residents' perceptions of Fort Pierce's waterfront and historic downtown.

Traffic and poor design in the historic downtown and waterfront areas of Fort Pierce produced an unappealing pedestrian environment and declining street life. In 1995 the City of Fort Pierce, the Main Street Fort Pierce program, and the Treasure Coast Regional Planning Council jointly sponsored a community charrette to address these issues. The resulting plan included a roundabout at the gateway between the historic downtown and waterfront areas which serves as both a traffic-calming device and a civic monument. A connected system of new waterfront streets extends from the roundabout. Curb extensions, median refuge islands, and clearly marked crosswalks make pedestrian crossing safer and easier. This infrastructure helped prompt a return of pedestrian activity. Ramon Trias, a professional town planner and urban designer, lives in the historic neighborhood between two roundabouts and can speak about their effect on the area from 12 years' personal experience: "Before the roundabouts, the neighborhood was infested with crime and was not even seen as historic. Now it has become one of the best places to live in Fort Pierce, and it is praised for its historic houses and safe streets" (R. Trias to P. Zykofsky, personal communication, July 19, 2007).

Web sites

Follow this link to learn about pedestrian and bicycle planning and design issues that should be considered when reengineering streets for traffic calming projects:
http://www.walkinginfo.org/training/fhwa-training.cfm

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Image sources

Worktable, Dan Burden; Dayton OH gate, Local Government Commission; West Palm Beach FL, Dan Burden; Fort Pierce FL, Dan Burden.

Traffic Calming to Enhance Pedestrian Safety

Pedestrian and Bicycle Information Center

Problem

Despite being a small village, being located just east of New York City resulted in gridlock and speeding vehicles.

A roundabout installed to improve pedestrian safety.

Background

Over 30 percent of the population in Great Neck Plaza is over 65 years of age. This results in a higher proportion of slower-moving and slower-reacting pedestrians. It was therefore necessary that the city take additional measures to create a safe pedestrian environment.

Solution

The Village pursued a program to calm traffic, enhance the visibility of pedestrians, and improve crosswalk safety. Several techniques were employed to accomplish these goals. A roundabout was installed at a busy intersection of two streets adjacent to the Long Island Rail Road Station, the busiest commuter railroad in America. Contrasting pavement color was used to designate the crosswalk area, curb extensions were used to shorten the crossing distance, and decorative fencing was used to direct pedestrians to the crossings. Additionally, "splitter" islands created medians on the approaches to the roundabout, allowing pedestrians to cross one direction of traffic at a time.

Before

Illuminated pedestrian crossings overhead warn motorists of the presence of pedestrians in or entering a crosswalk. The bright Light Emitting Diodes (LEDs) are activated by a pressure sensitive pad installed in the sidewalk handicap ramps. In addition, overhead speed awareness devices were installed on the four main roads leading to the central business district. The devices consist of a radar gun and digital readout of the actual speed of approaching vehicles.

After

Preliminary plans included reducing one major roadway to a two-lane road with landscaped median and left-hand turning lanes at intersections. It was hoped that these changes, along with resurfacing and high-visibility crosswalk markings and countdown pedestrian signals, would decrease traffic congestion, illegal u-turns, and pedestrian crashes.

The project included a comprehensive public outreach program to obtain community consensus for the completed improvements. The village worked closely with the Parking and Pedestrian Safety Committee throughout the planning and design phases. A public information meeting was held to obtain feedback on various alternatives, and a village newsletter and media releases informed the public about ongoing progress.

Funding was provided primarily through the New York State Department of Transportation's Local Safe Streets and Traffic Calming grants. Additional funding came through the Nassau County Department of Public Works, and several municipalities including the Village itself. Total costs were estimated at $1,580,000, including planned and yet to be completed improvements.

Results

Results are not yet available for the project. However, since traffic accidents in the area involving pedestrians are typically severe, even a slight reduction in the number of accidents is considered significant.

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Image Source

Institute of Transportation Engineers Pedestrian Project Award Application. L.K. McLean Associates, Inc. http://www.ite.org/awards/pedproject/GreatNeck.pdf

ENCOURAGEMENT

Bikestation Long Beach

Pedestrian and Bicycle Information Center

Problem

People face many real and perceived barriers to bicycling, including fear of bicycle theft, concern for personal safety, and lack of knowledge and information about bicycling in general. If a bicyclist's trip involves changing modes to bus, train, or walking — what happens to the bike at the point of transition?

Background

In the early 1990s a proactive citizen of Long Beach, CA researched how cities in Europe and Japan achieved high levels of bicycle and transit ridership despite these barriers. His most compelling discovery was the public cycling or bike-transit center, a model that he brought back to Long Beach and convinced the city and other agencies to embrace. The concept promoted alternative transportation choices by using bike parking and other services to help people connect to transit and downtown areas.

Solution

A bike-transit center's services remove many barriers to bicycling. Moreover, a bike-transit center can become a symbol of a city's commitment to bicycling as well as a functional piece of public art that elevates the status of bicycling by incorporating striking architecture and design.

Long Beach built the first bike-transit center, named Bikestation, in North America in 1996. A new, state-of-the-art facility was built to replace the original in 2006. Bikestation Long Beach provides (or will provide by the end of phase two of construction in 2008) the following services and amenities:

- Secure, indoor 24/7 bike parking
- Valet bike parking during staffed hours
- Bicycle repairs, rental and retail
- Tools and repair stands to use free of charge
- Café
- Educational classes on bike maintenance, routes, rights and responsibilities, and more
- Bicycling and transit information
- Bicycle registration
- Access to transit for multi-modal trips
- Bicycle and electric car sharing (demonstrated in Long Beach and Seattle)
- Shower and bathroom
- Bike tours

Bikestation Long Beach — Long Beach, CA

Results

The Bikestation organization now has six facilities in Long Beach, Santa Barbara, Palo Alto, San Francisco, Berkeley, and Seattle. The centers may be operated by public/private partnerships or directly by Bikestation. Each facility is unique, with services and amenities tailored to the local community's needs and resources. The non-profit Bikestation organization serves as an information-clearinghouse and support system to those responsible for day-to-day functions in each city.

In addition, Bikestation consults on many of the bike-transit center facilities and plans in North America. Bike centers are complex projects, involving issues of inter-agency cooperation, political support, and funding. Bikestation helps with feasibility studies, operations and systems planning, design/build issues, and other services.

Bikestation's user surveys consistently show that 30 percent of users previously drove their cars alone to their destinations and would still be doing so if the Bikestation weren't available. More than 60 percent of Bikestation users who were already cycling ride their bikes more frequently. In 2006, Bikestation parked over 50,000 bikes and kept over 300,000 pounds of carbon dioxide and other pollutants from the air.

Costs

Because the new Bikestation Long Beach adapted and reused existing structures, costs for phase one were kept to about $450,000. Construction funds came from the state's bicycle transportation account; the Long Beach Redevelopment Agency provided matching funds. The facility's operating costs are $130,000 annually. The City of Long Beach contributes $48,000 per year; fees for Bikestation services (rentals, retail, repair, and parking) cover the balance. To encourage use, membership rates for 24/7 bike parking cost users $1/day, $12/month, or $96/year.

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Image sources
Allan Crawford

Bike to Work Week

Pedestrian and Bicycle Information Center

A Case Study in Successful Behavior Change

Problem

Initially, Bike to Work events in Victoria, British Columbia inspired only committed cyclists to ride to work. An effort to convince provincial government employees to bicycle to work by linking the message to the province's own "green" initiatives was not recruiting new cyclists to bicycle commuting.

Background

Victoria is the provincial capital of British Columbia. The opportunity to increase bicycling mode share emerged there in the mid-1990s. The province wanted to centralize government services and increase office space downtown and was, concurrently, investing in major transportation infrastructure to accommodate growing suburban populations. The city government supported this development but pressured the province to limit the increased traffic that would result. The province embraced Transportation Demand Management (TDM) to respond to the city's needs and to accommodate an interest among provincial employees in choosing alternate modes. Cycling for transportation was put on the menu of TDM options.

Congestion on the Galloping Goose regional trail is so intense during BTWW that organizers must provide traffic control.

The first iteration of Victoria's Bike to Work Week (BTWW) in 1995 was generated by government staff advocating for cycling as a transportation solution. It was supported almost exclusively by provincial funding. The event was attached to Canada's environment week; about 500 people (mainly provincial employees) participated. The challenge in growing BTWW was to decouple the effort to recruit people to cycle to work from superficially similar initiatives aimed at improving environmental citizenship.

Solution

Organizers soon realized that the event attracted committed cyclists, not the potential and non-cyclists who were their real targets. One highly-placed champion began to research behavior change theory and ultimately focused attention on this model as a way to accomplish the goal of recruiting employees to bicycle to work.

The behavior change model relied on research conducted by both the provincial and federal governments that identified barriers to cycling and reasons for choosing cycling. For most cyclists, health and personal fitness were the main motivators, with environment, for example, far down the list of behavior instigators. Key barriers included anxiety about safety, lack of confidence in traffic, concern about the time needed to ride to work and personal grooming issues.

BTWW organizers applied behavior change theory by narrowing the event's focus and discarding or changing components that didn't attract new cyclists.

Bike to Work Week — Victoria, British Columbia

EARLY ELEMENTS...	EVOLVED INTO:
A share the road race that pitted one cyclist against one motorist in a race to the provincial legislature, to compare the travel time between a car and bicycle.	A commuter challenge, where 25 to 30 bicycle/driver pairs start from different locations and compete to arrive first at a common destination. Cyclists generally win at least half these races, even when starting 8 to 10 km from their destination. The race demonstrates that (1) commuter cycling is time-competitive with driving, and (2) replacing a vehicle commute with a bicycle commute is a time-efficient way to add a fitness routine to the daily schedule.
A free breakfast for participants provided by a local grocery chain. Food stations were set up at store locations for cyclists passing by on their way to work.	A series of "Celebration Stations" along key cycling corridors, particularly regional trails, offer refreshments and sell t-shirts. Sponsors may profile their businesses with free promotional material.
Recruiting and advertising a non-cyclist from a challenging demographic (female, middle aged, traffic averse) to bicycle to work for the first time.	A commuter skills course for cyclists who want to improve their skills and boost their confidence to ride in traffic. (This strategy has helped recruit significant numbers of women to cycling, improving their participation rates and establishing a sustainable program element eligible for different sources and types of funding.) In Victoria, the Capital Regional District Traffic Safety Commission has become the sponsor for Bike to Work Skills Courses.

An essential part of the program (introduced some years after the inaugural event) is individual workplace recruitment. BTWW recruits team captains — individual champions in workplaces — and helps them market the program. Friendly competition between businesses or agencies to win prizes and bragging rights helps boost registration. The bicycle mode share at the several hundred workplaces that have established teams for Bike to Work Week is over 14 percent, almost double the mode share for commuter cycling recorded in Victoria's most recent studies.

In addition to these program elements, other factors contribute to successful behavior change and enhance the event:

- Specific focus on bicycling to work
- Behavior change triggers including multi-day exposure, reinforcements for trying, workplace based teams and employer approval
- Defining and targeting key demographics with messages about benefits to the individual
- Providing skill development for cyclists
- When possible, linking BTWW events to new or improved bicycle facilities that may make cyclists' routes to work more bicycle-friendly

- Experienced team captains to provide support and encouragement to workplace teams
- A skilled staff person to organize the commuter challenge and public events
- Partnerships with employers who endorse workplace teams and provide financial and in-kind support
- Capturing media coverage with public events, compelling stories, and by involving local prominent figures
- "Shoulder season" promotions (i.e., events that take place before and after BTWW in June) that remind the audience and the media that BTWW is a year-round program. Bike to Work Day in October encourages those who are still cycling to continue through the fall and winter. In March and April, the free Bike to Work Skills Course is offered to newer cyclists so they can develop the skills and confidence to join in BTWW.

Result

Bike to Work Week has grown from 1,075 participants in 1998 to 6,446 registered riders in 2008 (about 2 percent of the entire metropolitan census). There were no new cyclists at BTWW in 1998; in 2008, 979 new riders participated.

Platoons of cyclists stream across Johnson Street Bridge during afternoon rush hour.

Bike to Work Week is first a marketing initiative and secondarily a cycling event. It has largely purged politics, partisanship and advocacy from the program, although its directors may work on cycling causes through other forums. It is marketing a behavior — commuter cycling. The program is aimed solely at enabling behavior change to increase bicycle mode share. Mode share of cycling for journey to work trips was 5.6 percent at the last census (2006). Local government research finds that 7.7 percent of afternoon peak-hour commute trips are by bicycle, better than all other cities in Canada by orders of magnitude.

BTWW's success is also reflected in the number of workplaces participating in the program: 679 teams registered in 2008. Smaller workplaces often have 100 percent participation. Cycling accounts for about 14 percent of all work trips in participating workplaces. This suggests that significant growth in commuter cycling can be encouraged by direct recruitment where people work.

The workplace team captains collect most of the participation data; this information is an important tool for recruiting and retaining sponsors, who want to know how many people their marketing dollars have reached. (A chart showing the event's growth 1998–2008 is here: http://www.biketowork.ca/files/images/Historical_Participation_Trends_08.pdf) Although no formal evaluation or survey has been done, many riders report on raffle forms or questionnaires that either they or someone they know started bicycling to work because of Bike to Work Week.

THE BTWW MODEL

The Victoria model has spread successfully to other British Columbia communities over several years. BTWW plans to stage concurrent events across the province, assisting local communities with centralized services including

graphics, brochures, posters, t-shirts, on-line support and registration. Bike to Work B.C., a single, province-wide organization, is being created to channel funding and provide support for new events. BTWW has also exported its template beyond British Columbia. Sacramento, California successfully adopted elements of Victoria's model in 2003; other U.S. and Canadian communities also have explored options to import the program.

Cost

BTWW was eventually established as a stand-alone non-profit organization. The event's cash budget has grown from $5,000 in 1995 to $110,000 in 2008. The province contributed $40,000 to the 2008 budget; in-kind contributions added another $60,000–$70,000 in value to the total. The province has donated to the event regularly since its inception, but a new model is being considered that would fund the Bike to Work B.C. organization, which would in turn underwrite local programs.

BTWW's expenses include the significant costs of an executive director and paid staff, who are essential to the program's success. Other expenses include t-shirts, office rental, equipment purchases, etc. Funds are raised from various government departments and a diverse collection of private sector supporters who invest in the event as part of their corporate advertising and branding. Significant in-kind contributions, including free media advertising, also support BTWW.

The popular Bike to Work Skills Course (a free, seven-hour classroom and on-the-road training program) is now managed as a separate business entity within the organization with exclusive funding and dedicated staff time.

Web sites

Victoria's BTWW 2008: http://www.biketowork.ca/victoria/btww

Census data on bicycling in Canada:
http://www.statcan.ca/Daily/English/080402/d080402a.htm
http://www12.statcan.ca/english/census06/analysis/pow/26_victoria.cfm

Capital Regional District 2006 Origin and Destination Household Travel Survey:
http://www.crd.bc.ca/reports/regionalplanning_/generalreports_/transportation_/researchanddata_/householdtravelsurve_/2006_/crdodtravelsurveyfin/CRDODTravelSurveyFinalReport1_WITHCOVER.pdf

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Images provided by John Luton

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Denver Bike Map

Pedestrian and Bicycle Information Center

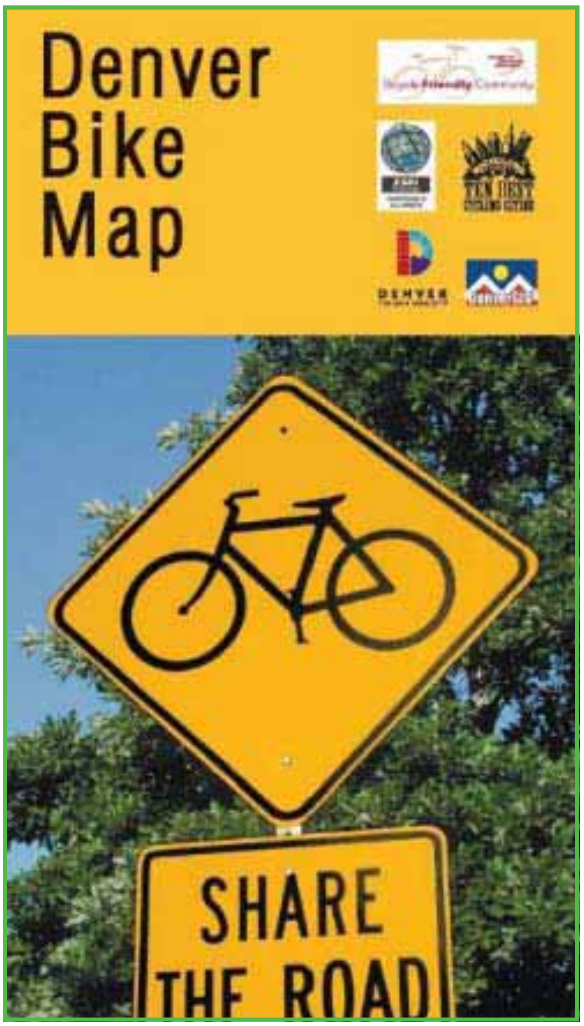
Problem

The City of Denver's original bike map was created in 1996 using graphic arts software. To update the map in its existing format would be a cumbersome, time-consuming process which would involve determining where changes occurred to streets and bike infrastructure and then either adding or updating those features. The goal of the map update was to create an easily-maintainable, readable, user-friendly map that clearly defined the location of current bike routes, bike lanes, bike shops, places of interest, and planned improvements to Denver's bicycle network.

Background

In 1998 Denver Geographic Information Systems (DenverGIS) was formed; it is now a centralized GIS department that supports more than 30 departments and manages more than 800 map layers and associated information resources within the City and County of Denver. GIS uses computers and software to map and analyze location-based information. By 2004 a great deal of the time-consuming process of converting the city's infrastructure from paper-based maps to a digital GIS format had been accomplished.

Between 1996 and 2004 Denver grew substantially. The closure and development of Stapleton Airport and Lowry Air Force Base, the redevelopment of Lower Downtown, and the development of the Central Platte Valley resulted in many new roads, bridges, and other improvements, including many enhancements to Denver's bicycle infrastructure.



The image on the cover of the new Denver Bike Map is worth a thousand words.

Solution

The benefits of using GIS technology to update the bike map included leveraging the large amount of GIS data the city had created since 1998. The Denver Bicycle Master Plan had defined 25 designated bike routes, which by 2004 had already been entered into a GIS format. These routes use bike lanes, shared lanes, and off-street facilities, such as the Platte River and Cherry Creek Trails. In addition, un-numbered neighborhood routes connect between the principal routes. Denver also has an extensive trail system using river corridors, drainageways, and open space.

The process of creating a new GIS map began in July 2004 with a review of existing routes, recently added bike lanes, and planned future improvements. New map layers for bike lanes, bike shops, and bike trail ramps were produced. A base map was created using the Environmental Sciences Research Institute (ESRI) ArcMap software. Careful selection of colors and symbols ensured that the final product would be as clear and useful as possible. Besides data development, the most time-consuming part of this project was the placement of labels. The map contains over 5,000 street labels.

Clear cartography demands that labels be legible and not overlap. To provide open space on the map and avoid a cluttered appearance, street name labels were aligned at one end.

Besides route information, the map contains other useful facts for bicyclists:

- Contact information for all local bike clubs and bike advocacy groups
- Phone numbers for many city agencies, such as Street Maintenance, Trail Maintenance, Traffic Operations, Neighborhood Inspection Services, Animal Shelter, Graffiti Hotline, Smoking Vehicle Hotline
- Police Department contact information, including for the Bicycle Recovery Unit and the Bicycle Safety Unit
- Text and photos showing how to use the bike racks and luggage bays on Regional Transportation District (RTD) buses and bring bikes on board RTD light rail vehicles
- Xcel Energy contact info (for street and trail lighting)
- Graphic illustrations about sharing the trail, multi-use trail shared responsibilities, sharing the road, bike laws, bike theft prevention, and other topics

Field and office work to confirm finished projects and expected completion dates for future developments were necessary to create the map. This process was performed by the City's Public Works - Capital Projects Management unit. All these development sites include new streets, bike lanes, trails, and open spaces (with phased implementation schedules). The Community Planning and Development Department contributed graphic arts support. The cities of Calgary, Alberta and Chicago and the Chicagoland Bicycle Federation graciously allowed the use of their graphic illustrations.

The map is in full color and was printed on archival quality, waterproof and tear-resistant paper that can survive the rigors of bicycling. Conveniently for the city, a local printer specialized in working with this particular paper.

Results

The Denver Bike Map won both the "Best Single Cartographic Product—Large Format" and "Best Overall Map" categories in the map gallery competition in August 2004 at the Environmental Research Systems Institute International User Conference in San Diego. It was chosen from over 1,000 entries from entities such as National Geographic and the United States Geological Survey. The map is also printed in The ESRI Map Book, Volume 20 and will appear in Designed Maps: A Sourcebook for GIS Users in February 2008.

This section of the Denver Bike Map shows the results of giving careful consideration to colors, symbols, and placement of street labels.

An update of the map was produced in December 2006. By creating the map in GIS format, any edits made over the years to the map's geographic features (streets, parks, schools, bike shops, etc.) automatically appear on the map. This allows a fast, streamlined updating process which leverages existing workflows and eliminates duplication of effort. Currently, the Denver Bike Map is being updated as the city adds facilities and new streets to its road network. A new edition of the map is planned for 2009.

Costs

Over 4,000 copies of the map were purchased from February to July 2007. The printing price is about $1 each. The map sells for $5. Retailers such as bookstores, bike shops, and the Denver transit agency may purchase the map in bulk for $2.50 each (allowing a 100 percent markup). Sales revenue goes into a dedicated fund for printing future editions of the map.

It is difficult to calculate the cost of producing the new Denver Bike Map. Much of the data had already been created by DenverGIS; this was a sunk cost. The real expense came from the city staff time used to develop the map: "staff months" of effort were needed.

Web site to view the map
http://www.denvergov.org/Portals/482/documents/BikeMapPage1.pdf
http://www.denvergov.org/Portals/482/documents/BikeMapPage2.pdf

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Image sources
Map cover photo, James MacKay; map section, City and County of Denver, CO

Let's Walk Downtown

Pedestrian and Bicycle Information Center

Problem

Most Atlanta citizens don't consider walking, even when taking short trips.

Background

Atlanta's Downtown Transportation Management Association (TMA) began an education program in 2004 to increase walking for short trips, with the goals of promoting health and sustainability, decreasing the need for unnecessary trips, and thereby reducing congestion.

Solution

The primary component of the Let's Walk Downtown plan was the "Walk There!" challenge. This challenge encouraged members of the Georgia State Legislature, City Council, and the Mayor's office to pledge to walk instead of driving. Participants received a pedometer to track the number of steps they took each week, totaling them on the TMA website on a weekly basis. Weekly and monthly winners were recognized with prizes. The TMA has also developed walking maps, distributed in public places, which highlight the sites within easy walking distance.

The elected officials and staff participated in promotional events to help raise awareness of the health, environmental, and social benefits of walking. The project sponsors and participating organizations are many: the Clean Air Campaign, the Georgia State University Police, the Hyatt Hotel, the Georgia Coalition of Physical Activity and Nutrition, the Morehouse School of Medicine, and a variety of city agencies. Educational materials were distributed to the Morehouse School of Medicine and the Police Department.

Results

The Walk There! Challenge was quite successful with elected officials, as nearly 2000 pedometers were distributed. Additionally, the challenge was covered in several media publications. It is planned to expand the challenge to other groups, including Atlanta Public School employees.

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Image sources

Central Atlanta Progress Atlanta Downtown Improvement District.
http://www.centralatlantaprogress.org/TransParking_WalkThere.asp

Portland SmartTrips

Pedestrian and Bicycle Information Center

Problem

Portland residents choose single-occupancy car trips as their primary mode of transportation. Besides poor community health and safety, this choice creates road congestion that compromises the region's economic vitality. The Portland area is the third most trade- and freight-dependent region in the U.S.; its economy will suffer if nothing is done to get cars off the roads. Most personal everyday trips are three miles or less and easily could be made by safer and healthier modes of transportation — walking, bicycling and transit. The city has an economic incentive to encourage these alternate modes.

Background

In 2002 the Portland Office of Transportation brought the individualized marketing program TravelSmart to the United States from Australia and Europe to reduce drive-alone trips and increase walking, bicycling, transit, and carpool trips. The pilot project was conducted in 2003 with 600 households; a large-scale project with 6,100 households followed in 2004. After working with the TravelSmart architects SocialData America for these two projects, Portland modified the program to reduce costs, add hands-on experiential activities, and extend the contact period with residents to a longer, eight-month dialogue. The result was SmartTrips.

An array of brochures, maps, incentives, and events contributes to the effectiveness of the SmartTrips marketing program.

Solution

SmartTrips is a comprehensive approach to reduce drive-alone trips and increase biking, walking, and public transit in targeted geographic areas of the city. It incorporates an innovative and highly effective individualized marketing methodology, which hand-delivers packets of information to residents who wish to learn more about all their transportation options including transit, walking, bicycling, carpooling, car sharing, and combining trips. Key components feature biking and walking maps and organized activities that get people out in their neighborhoods or places of employment to shop, work, and discover how many trips they can easily, conveniently, and safely make without using a car. Success is tracked by evaluating qualitative and quantitative results from surveys and other performance measures.

The project has five primary goals:

- reducing drive alone trips
- reducing vehicle miles driven by area residents and employees
- increasing awareness and raising acceptability of all travel modes
- increasing walking, biking, transit, carpooling and car sharing trips
- increasing neighborhood mobility and livability.

Portland SmartTrips — Portland, OR

The Transportation Options Division of the Portland Office of Transportation chooses an area of town with approximately 20,000 households each year to implement this program. Area selection is based on analyzing land use patterns, transit service availability, bike and walking infrastructure, and current transit or streetscape infrastructure investments such as new light rail or bicycle and pedestrian trails.

SMARTTRIPS INDIVIDUALIZED MARKETING

In late March, each household in a SmartTrips area receives a newsletter with a calendar of nearby walks, clinics, and bicycle rides. The newsletter highlights SmartTrips programs, including the Ten Toe Express Walking Campaign, Portland By Cycle Campaign, Senior Strolls, and Women on Bikes. The newsletter articles also describe other transportation projects and programs such as Safe Routes to School, an area streetscape project, and how to use the transit agency's services.

The first newsletter includes a notice about the SmartTrips Order Form that residents use to get information and incentives about walking, bicycling, transit, carpooling, and more. The Options Division sends order forms in waves to approximately 2,500 households each week. The three members of the Options delivery staff process and deliver the materials and incentives within a two-week period — usually within one week of receiving an order. Three weeks after the order form is sent, Options mails a reminder postcard with the Web order form address and a phone number for requesting an order form by mail.

Speed, efficiency, and professional materials are central to making the program a success. A packet delivered six weeks after it's ordered is too late. A bicycle delivery person hand-delivers each packet or leaves it in a conspicuous spot. Residents receive their requested materials in a handy vinyl tote bag with an attached, personalized paper luggage tag. A thank-you letter, SmartTrips Calendar of events, and area walking map are included in every delivery bag.

Residents can order a variety of maps, brochures, tips, and event schedules for every mode of transportation: walking, bicycling, transit, carpool, car sharing, and driving.

- **Walking** — The "Ten Toe Walking" kit includes a free pedometer donated by Kaiser Permanente plus a schedule of neighborhood walking tours, a Walk to Wellness brochure highlighting area programs focused on walking and health, walking logs to keep count of daily steps, an Oregon Crosswalk Laws brochure, and an area walking map. Each of these items can be ordered à la carte as well. The kit also includes a shopping list pad and a 72-coupon booklet for area businesses. A Senior Stroll schedule and description of walks is also available.
- **Bicycling** — The Portland By Cycle kit includes citywide and neighborhood bicycle maps, a Portland By Cycle Guide with tips and rules of the road, Portland By Cycle Rides and Workshop schedules, a Women on Bikes Rides and Clinics brochure, a personalized bicycle trip planning request postcard, a TriMet Bikes on Transit Guide, a leg strap, and a 72-coupon booklet for area businesses. Additional items can be ordered à la carte: the Oregon Bicycling Manual with the rules of the road, a City of Portland downtown bicycling map and other neighborhood bike maps, a Women on Bikes Resource guide, and a Bicycle Helmet brochure.
- **Transit** — All bus and light rail schedules, the Honored Citizen's Guide for seniors and the disabled, and a personalized transit tracker card can be ordered. The transit tracker card gives the four bus stop ID numbers, in and outbound, for the closest stops to the resident's home. With this information the resident can call the bus/MAX stop for real-time bus arrival information — not just the scheduled time.
- **Driving** — Car sharing, carpooling, and older driver information can be ordered, including safety guidelines for older drivers.

With each order one incentive may be chosen: a SmartTrips umbrella, Bandana Bicycle Map, or Transportation Options T-shirt.

On May 1 all area residents receive a second newsletter reminding them to order materials, and listing the Web address, phone number, and more events and activities. Everyone who orders materials or attends one or more of the walks and rides gets the final three newsletters every two months: July 1, September 1, and mid-November.

SMARTTRIPS EVENTS AND ACTIVITIES

Ten Toe Express Walks — To help people get started and meet others to walk with, the Options Division organizes four to six guided walks each month from May to September in the SmartTrips area. Some are short, some are long; all highlight great places to walk within area neighborhoods.

Senior Strolls — As with Ten Toe Express Walks, Senior Strolls help seniors connect with each other while they become comfortable with walking as a transportation option. The slower paced strolls, which start and end on TriMet routes, teach seniors about different neighborhoods and offer the benefit of meeting other seniors to walk with; they are offered weekly May through October.

Portland By Cycle Rides and Classes — Portland By Cycle includes a series of evening rides and classes May through September. The rides are designed for new and infrequent cyclists. Participants tour various parts of the SmartTrips area and learn the best ways to get around by bike. A safety briefing opens the ride program; safety tips are offered along the ride by trained volunteer and staff ride leaders.

Options works with individuals and organizations to offer eight free classes that provide more specific information on bicycling. Topics include shopping by bicycle, introduction to bike commuting, bicycle touring, riding in the rain, and basic bike maintenance.

Women on Bikes — Women on Bikes is a series of clinics, conversations, and rides. Topics of the clinics and conversations include bike selection, gear for bike and cyclist, bike handling skills, basic bike maintenance, the city's bikeway network, cyclists' rights and responsibilities, how to ride with children, how to shop by bike, and advocacy. Rides are scheduled to practice skills, try different routes, meet other women to ride with, and demonstrate the ease of commuting by bike.

Events/OptionsMobile — The OptionsMobile, a Honda Insight hybrid vehicle, is scheduled in as many outreach events in the SmartTrips area as staff can accommodate with either volunteers (Ambassadors) and/or staff. At events, the Options staff distributes all SmartTrips materials, schedules and safety information, and offers personal assistance to those with questions and concerns.

Results

SmartTrips and TravelSmart projects have yielded a reduction of 9 to 13 percent in drive-alone car trips by all area residents with a corresponding increase in walking, bicycling, and transit mode shares in the SmartTrips areas. These results were collected through random telephone surveys of 300 to 600 households in each SmartTrips area with a corresponding control group. Trip diaries from survey participants capture trip activity for the previous day

with calls made over a two-week period to get weekday and weekend data. For more detailed information about the results methodology, check the SmartTrips final reports on the Web site listed below.

All SmartTrips area residents receive SmartTrips messages at least seven times through mailers, media coverage, and outreach events. Approximately 30 percent of all area residents either ordered materials or participated in a SmartTrips event or activity. (Each walk generally draws from 30 to 50 participants; new people attend each time. Each bike ride attracts about 18 cyclists, but there have been as many 75 on some rides.) Twenty percent of all households order materials.
Area residents submit annually an average of 1,000 comments praising the program, some describing how it prompted them to change the way they get around and how much they love living in Portland because of programs like SmartTrips. These kudos help make it a popular program with politicians, agency staff, and neighborhood leaders.

Portland By Cycle rides offer information, experience, and support for those new to cycling.

Costs

The program costs $10 per person in the SmartTrips area. A typical 20,000-household program costs $570,000. This cost includes 4.35 FT staff and most materials and services. Staff overhead is included in this number, but computer and general overhead and printing bicycle maps and transit schedules are not.

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Image sources
City of Portland

South Carolina Bicycling and Walking Resolution

Pedestrian and Bicycle Information Center

Problem

South Carolina needed to increase elected leaders' support for pedestrian and bicycle improvements.

Solution

The SCDOT, under the leadership of the Executive Director Elizabeth S. Mabry, formed a statewide Advisory Committee on Bicycle and Pedestrian Facilities to help guide the Department of Transportation in providing walking and bicycling facilities. The committee was composed of a diverse number of organizations, including the State Senate, House of Representatives, several state government departments, the AARP of South Carolina, the Palmetto Conservation Organization (sponsor of a local trail initiative), two different prominent state employers, and several organizations promoting physical activity or child safety and education. Through this Committee a vision for the state was developed, and a practical strategy for getting there was conceived.

Second, the Department of Transportation, in partnership with the South Carolina Division Office of the Federal Highway Administration sponsored the first state conference focusing on pedestrian and bike issues called "Transportation Choices for the 21st Century." Over 350 people attended, including state employees, community leaders, interest groups, and planning professionals. Participants learned from communities with success in their own towns.

Following the success of the conference, the South Carolina Transportation Commission approved a resolution affirming that bicycling and walking accommodations should be a routine part of the Department's planning, design, construction, and operating activities, and would be included in the everyday operations of its transportation system. The resolution recognized that "increasing walking and bicycling offers the potential for cleaner air, greater health of the population, reduced traffic congestion, more livable communities, less reliance on fossil fuels and their foreign supply sources, and more efficient use of road space and resources."

The only cost was $100,000 programmed as a Transportation Enhancement Project to cover any costs of the Conference not born by registrations and exhibitor fees. Another $1500 was also donated towards the conference by the cosponsor, Norman J. Arnold School of Public Health at the University of South Carolina. Members of the Advisory Committee donated their time from their various organizations so that meetings were not considered a public cost.

Results

In the months since the conference, a new citizens' pedestrian task force formed in Anderson, and the preexisting pedestrian groups have new inspiration. Project designers are more cognizant of pedestrian facilities in projects and in mitigating some aspects of projects that are adverse to pedestrians. There has been an increased interest in providing pedestrian facilities; dozens of rural Transportation Enhancement projects were recently proposed to provide sidewalks, trails, or streetscapes to aid pedestrian safety and accommodation.

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Images Source
South Carolina Department of Transportation. www.scdot.org

PLANNING

City of Charlotte Commitment to the Pedestrian Program

Pedestrian and Bicycle Information Center

Problem

The City of Charlotte needs better pedestrian facilities to promote a safe, comfortable, efficient, and connected pedestrian system.

Background

Charlotte is committed to advancing a balanced transportation system that accommodates motorists, transit users, pedestrians, and bicyclists. The city's commitment to becoming a more walkable community is evident in the $5 million annual allocation to build and maintain sidewalks.

Solution

Charlotte created a comprehensive Pedestrian Program to manage sidewalk installation and upkeep as well as public outreach for pedestrian issues to help comply with and exceed Americans with Disabilities Act (ADA) requirements. The program created a centralized and organized structure for advancing pedestrian needs in the city.

Results

Some of the results of the commitment to the Pedestrian Program are:

- Construction of approximately 14 miles of sidewalks in 2003
- Hiring of a full-time Pedestrian Program Manager
- 100 percent complete GIS inventory of existing sidewalks throughout the city
- Development of mid-block crossing guidelines
- Installation of pedestrian countdown signals
- Implementation of public awareness campaigns
- Creation of a Pedestrian Master Plan.

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Community Involvement During the Planning Process

Pedestrian and Bicycle Information Center

Problem

Norfolk wanted to foster economic development in several communities across the metro area, with an eye for enhancing individual community character.

Background

A community task force and an advocacy group—Civic League of Presidents—formed a partnership in the Five Points area of Norfolk, Virginia. They worked in coordination with a city-wide program that supported commercial development—the Commercial Corridors Program—to improve a busy corridor. One segment contained the high school, middle school, elementary school, and community center all in close proximity.

Solution

The partnership undertook a planning study to look at the streetscape and revitalize the area for commercial development.

Rather than impose a plan on the residents, the group conducted in depth community meetings and surveys to find out what the residents wanted their community to look like. Letters were sent directly to residents, flyers were posted in public areas, and meetings were arranged at convenient times. More than 13 public meetings and focus groups were conducted throughout the process, including a "pancake dinner" to draw participants. Between 40 and 50 residents regularly showed up to voice their concerns.

Priorities identified by residents in the detailed survey were adopted as top priorities for the project. The community voted a "pilot star" to be the recurring community symbol for bus shelters, light poles and more. Rather than bold, themed commercial development, citizens were most concerned about having a safe outdoor space to exercise and teach their children to ride bikes, a continuous and accessible sidewalk system, and improved lighting.

Results

In response to these concerns, Norfolk is in the process of developing a multiuse trail system that loops the high school and community center, providing a safe and useful space for jogging, biking, and other recreation.

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Images Source: *Kevin Kluzak. City of Norfolk.*

Creating a Pedestrian Facility Inventory

Pedestrian and Bicycle Information Center

Problem

There were no complete inventories of pedestrian and bicycle facilities in New Castle County, Delaware, and Cecil County, Maryland before 2002.

Background

WILMAPCO is the Metropolitan Planning Organization for New Castle County, Delaware, and Cecil County, Maryland. In 2002 WILMAPCO partnered with Delaware Department of Transportation, both county governments, and the Maryland State Highway Administration to create a comprehensive database of pedestrian and bicycle facilities in the area.

Solution

WILMAPCO identified all pedestrian facilities using high resolution aerial photographs. Analysts reviewed the maps and county development information to create a dataset that tracked the length of sidewalks, the material, and the approximate year the facility was built. The dataset was then put to various analytical uses including:

- Analyzing existing pedestrian coverage and connectivity in the region
- Establishing maintenance schedules and cost analyses for transportation agencies
- Helping analyze congestion mitigation strategies
- Developing future transportation projects based on needs assessment

Results

WILMAPCO developed a Sidewalk Inventory to provide various agencies with an up-to-date inventory of the non-motorized facilities in the region. The Sidewalk Inventory was created using Geographic Information Systems (GIS) technology by digitizing the sidewalks using 2002 Delaware State Orthophotos. The dataset shows that the WILMAPCO area has 1,207.65 miles of sidewalk and other pedestrian facilities, made up of 11,841 different segments.

The project itself cost WILMAPCO very little. The greatest cost of creating the Inventory, approximately $5 million for the aerial photographs, was paid for by the Delaware DOT as a part of a state initiative. WILMAPCO paid $400 for a new computer hard drive to store the data, and the remaining expense was staff time to compile the data.

Local civic organizations have expressed interest in using the Sidewalk Inventory to identify where new sidewalks are needed to create a more complete network of pedestrian facilities. WILMAPCO can also use the Sidewalk Inventory to track the installation of new facilities and the impact the new facilities have on reducing congestion

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Downtown Orlando Transportation Plan

Pedestrian and Bicycle Information Center

Problem

By 2027 downtown Orlando could add the equivalent of a small city to its population. With the number of residents expected to rise by 157 percent (36,500 people) and employment likely to increase 36 percent (30,000 people), everyday errands — commuting to work, picking up groceries, going to a doctor appointment, a movie, or the coffee shop — could add up to epic congestion. How can the increased trips resulting from growth be transferred from individual cars to other transportation modes (bicycling, walking, transit)?

Background

Orlando is the largest city in Central Florida. Two major highways intersect the downtown; both carry thousands of employees and visitors and are undergoing expansion. Phase I of a planned 62-mile commuter rail system is expected to be running in 2009; the four Orlando stations are located within the study area of the Downtown Transportation Plan.

In 2000 the Downtown Outlook Plan articulated the vision of "providing pedestrian and bicycle connections amongst homes, workplaces, cultural events and shopping." Two years later, the Downtown Orlando 20-Point Strategic Plan included several goals that shaped the mission for the Downtown Transportation Plan. The strategic plan emphasized using transportation improvements as a catalyst to create quality "people places" that ensure downtown Orlando is a pedestrian-, bicycle- and transit-friendly environment.

Solution

The Downtown Transportation Plan (DTP; November 2006) built on the research and goals of the two earlier plans to address all transportation modes (transit, bicycle/pedestrian, parking, roadway, and freight). The Bicycle and Pedestrian section's objective is to provide a secure, convenient, efficient, comfortable, and welcoming network for bicyclists and pedestrians. It emphasizes building complete streets that balance safety, convenience, and mobility for all road users.

Regardless of individual mode choice, all trips begin and end as a pedestrian trip. Nationally recognized walking authority Dan Burden led walking audits of the study area with the mayor, city commissioners, neighborhood liaisons, and transportation, planning, police, fire, and engineering professionals participating as "Street Doctors". Qualitative assessments of the existing environment evaluated Crime Prevention through Environmental Design (CPTED) and building transparency, streetscape elements, comfort characteristics (shade and width of sidewalks), Americans with Disabilities Act (ADA) compliance, and pedestrian treatments at intersections. The audits built on a previous survey performed as part of the Active Living by Design (ALbD) initiative that measured the bicycle and pedestrian level of service for the study area. General recommendations to improve walkability in the study area include updating the city's land development code, prioritizing sidewalk gaps, designating primary and secondary pedestrian corridors, and specifying streetscape guidelines.

To improve the connectivity of the bicycle network, the DTP recommends adding bicycle parking, developing a bike station/bike shop in the downtown core, and completing the Orlando Urban Trail. This trail connects Loch Haven Park, the city's museum and theater campus, to Parramore, an historic African-American neighborhood, along a route that passes several residential neighborhoods, the urban core of downtown, two commuter rail stations, the bus station, a large K-12 school, a hospital campus, and a planned events center.

Downtown Orlando Transportation Plan — Orlando, FL

Results

The city council adopted the Downtown Transportation Plan in December 2006. Some of the bicycle and pedestrian recommendations have been implemented, such as adding 70 bike racks throughout downtown, updating streetscape guidelines to include primary and secondary pedestrian corridors, requiring that a bicycle and pedestrian checklist be attached to all plans submitted to the city for review to ensure consistency with land development codes, and updating the bike parking code. A test project for improving street walkability is in progress on a block with small businesses. Pedestrian- and transit-oriented design is part of the planning for commuter rail transit stations.

Although all the recommendations from the Bicycle and Pedestrian section have not yet been funded, most have been added to the city's capital improvement program. Funding comes through a variety of state, regional and municipal agencies, non-profits, and grants. Several projects are already underway:

- $1 million is budgeted for design and construction of the Orlando Urban Trail; most of the trail corridor right of way has been acquired.
- Primary and secondary street enhancements have become standard conditions of approval on plans submitted for development review.
- $17 million has been allocated for the Church Street streetscape and other enhancements to this active downtown corridor.
- $10,000 has been spent to place bike racks around downtown.

Several potential projects identified on the walking audits and listed in the DTP are not yet funded. Sidewalk gaps are addressed by an annual $500,000 appropriation from the general fund and are prioritized by Public Works.

The Downtown Transportation Plan helped Orlando win the "Snowball Effect" award from ALbD. This award recognized the city for building on its bicycle and pedestrian programs step by step in 2004-2006, beginning with walking audits. The audits were used to update existing pedestrian/bicycle codes, guidelines, and levels of service, and to identify needed facility improvements which became part of the transportation plan.

Costs

The Downtown Transportation Plan cost $298,000 and took 18 months to complete. The Community Redevelopment Area (CRA), which encompasses most of downtown Orlando, and the Florida Department of Transportation (FDOT) each contributed $149,000. The CRA is part of the city, but is funded through a special property tax increment.

Web sites

For the Downtown Orlando Transportation Plan:
http://www.cityoforlando.net/planning/Transportation/documents/DTPDOCS/DTP1106.pdf

For more on walkability audits, visit: http://www.walkinginfo.org/problems/audits.cfm

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Image sources
Get Active Orlando!, City of Orlando FL

PBIC CASE STUDY—TUCSON, AZ

Intermodal Transportation Planning and Development:

A closer look at linking transit to bicycling and walking

Pedestrian and Bicycle Information Center

Problem

Can communities reduce the length or number of car trips by making better intermodal connections? An intermodal trip involves more than one type of transportation, such as walking and transit, bicycling and transit, or driving and transit. Communities interested in offering commuters more transportation choices in an age of rising gas prices and concern about climate change can learn from the plans, policies and programs implemented by the City of Tucson.

Background

The Tucson region, population 1 million, makes up the majority of Pima County's population. It has evolved into a thriving metropolitan area over the last four decades. Homogenous land-use zoning, one-story planned housing developments, strip malls and lots of cars have all contributed to urban sprawl. The average one-way work commute in Pima County is now 13 miles; the mode split is 74 percent single-occupant driving, 14.7 percent carpooling, 2.6 percent walking, 2.5 percent transit, 3.7 percent work at home, and 2.7 percent other modes, including bicycling (Pima Association of Governments Regional Transportation Plan 2030).

City leaders and citizen advocates support intermodal planning and development in the greater Tucson community to develop a more balanced mode share. Tucson's regional transit system, Sun Tran, has grown significantly since it was established in 1973. It now provides over 18 million passenger trips a year on a network of 505 route miles, using a fleet of 203 alternative-fueled buses. Some routes offer service from 4:00 a.m. to midnight on weekdays; all local (non-express) routes operate on weekends; and seven of the 38 routes provide 10 to 15-minute service Monday through Friday. Ridership increased 31 percent between fiscal years 2002 and 2007. April 2008 ridership grew 14.7 percent compared to April 2007. The system continues to expand as part of the 20-year Regional Transportation Authority (RTA) plan funded with a one-half cent countywide sales tax.

Solution

Tucson has made many gradual improvements to the Sun Tran system in an effort to improve intermodal connections.

BICYCLE RACKS ON BUSES

All buses have bicycle racks that hold two bicycles. The Bikes On Bus program is so successful that staff stopped promoting it because the racks are often full and riders are turned away. Sun Tran reports 27,000 bicycle boardings in an average month. This program has given some people the opportunity to attend college and hold a steady job. Drivers report that cyclists may ride ten miles to the nearest bus stop to catch the bus; this option was not possible years ago.

Intermodal Transportation Planning and Development — Tucson, AZ

ACCESSIBLE BUSES

One of the city's goals is to decrease rider dependence on paratransit service by making the fixed routes more accessible for people with disabilities. Sun Tran's entire bus fleet is ADA-accessible, providing regionwide travel for wheelchair users and anyone with limited mobility. All new buses are low-floor vehicles with wheelchair ramps that have cam mechanisms to reduce slopes for easier ingress and egress. Accessing the bus at some of Tucson's outlying roads is still challenging because slope and missing curbs present potential or actual barriers.

City staff recently drafted a new policy regarding Segway use on buses. The local Segway dealer asked for clarification to ensure these devices are permitted on public buses as a medical mobility device. The policy does allow Segway users to board under certain conditions to ensure a safe transition. Although no one has tried to board yet, Segways offer another multi-modal option for commuters.

BUS SHELTERS

The city contracts with a private advertising company to provide clean, modern and functional bus shelters to attract more transit riders. The company provides all the shelters and concrete pads and maintains them in exchange for ad revenue. (The city earns a percentage of the revenue which goes directly into the general fund.) Some shelters have solar-powered tops to supply lighting for ad displays.

Tucson earned 218,500 in 2007 from these advertising bus shelters.

One of the principal benefits of the program is that bus stops are upgraded to ADA standards with new concrete pads, sidewalk connections to nearby intersections, wheelchair passenger shade, lighting and route information. The city also plans to add 100 bicycle racks at high-volume bus stop locations. These improvements encourage multi-modal commutes as transit becomes a more attractive option for drivers, cyclists, and pedestrians.

PARK-AND-RIDES

Park-and-rides are another major component of successful intermodal systems. Sun Tran serves 22 facilities, of which four are owned by the city and the rest are located on private properties (usually shopping centers) through agreements with the owners. The city-owned facilities have 50 to 100 vehicle parking spaces as well as both bicycle racks and bicycle lockers that the general public can rent for $2 per month. The lockers offer another option for multi-modal commuters who cannot bring their bicycles on the bus.

Six new regional park-and-rides (for bicycles and vehicles) will be built within the next two years as part of the 20-year RTA plan. They will be located in outlying areas currently not served by Sun Tran or other fixed route systems. All will be fed by new express routes traveling to central Tucson, in a hub and spoke arrangement. The facilities will offer basic amenities: shelters, lighting, landscaping, video security, route information, and bicycle racks and lockers. All park-and-rides are free and open to the public. The city is currently collaborating with a private developer to integrate a park-and-ride into a new upscale shopping center on the city's growing southeast side.

Intermodal Transportation Planning and Development — Tucson, AZ

TRANSIT CENTERS

Three transit centers serve as the major hubs on the Sun Tran route network: one on the south side, one on the north side, and one in the heart of downtown Tucson. The majority of all routes converge at these hubs. Two of the centers have adjacent park-and-ride lots to accommodate long-distance commutes from the north and south. A five-level mixed-use parking garage was recently constructed next to the downtown transit center.

A new communication tool that serves and increases transit ridership is Sun Tran's real-time information display, which notifies riders when the next bus is due to arrive. Display monitors are mounted above each designated route stop at the transit centers and currently show scheduled departures. Actual departures will be displayed when the program software becomes fully operational at the end of 2008. This system will eventually be expanded to other stops as well as park-and-rides to give riders more confidence in making transfers between modes.

Ridership from small rural communities is growing due to the aging population and the high cost of gas which disproportionately affects low-income families, making seamless transfers between rural and urban fixed route systems a high priority for the region. The south-side transit center offers a designated bus bay for Pima County transit service to the Tohono O'odham Indian Reservation 60 miles west of Tucson.

The rural town of Marana route and an urban Sun Tran route both terminate in the parking lot of a home improvement store on the northwest side. The rural route schedule is specifically developed to coordinate with the Sun Tran schedule for easy transfers.

SIDEWALK CONNECTIONS

One of the major deterrents to using transit is a lack of sidewalks that are safe, direct and easily accessible. Tucson is making up for many decades of poor planning by installing new sidewalks and ramps along major roadway corridors. A regional sidewalk study conducted in 2003 identified gaps in the pedestrian system and established priorities through an itemized list of projects. Corridors with high transit use, high commercial and residential densities, and connections to major medical centers are given priority.

The city has constructed tens of miles of new sidewalk since 2000. A new sidewalk inventory will begin in the fall of 2008 to measure progress and re-prioritize gaps in the network. Pedestrian travel has increased along these corridors as all people, including persons with disabilities, now have a safe place to walk. In terms of intermodal connections, many of the bus stops are now ADA-accessible from the nearest intersection where once wheelchair users or parents with strollers were forced to travel in the vehicle lane.

BIKEWAYS

With over 700 miles of on-street lanes, shared-use paths and designated neighborhood bicycle routes, the Tucson region has one of the most extensive bikeway networks in the U.S. While the regional mode split for bicycle use is very low (2.1 percent), central Tucson has a large population of citizens who commute by bicycle, especially near the University of Arizona campus. The year-round warm weather and the connected grid pattern of streets encourage cycling.

Several policies have contributed to the success of the bikeway network. The Tucson Department of Transportation requires that all roadway improvement projects include on-street bicycle lanes during reconstruction. The same goes

for Pima County and some other jurisdictions. The region also has a network of shared-use paths along its dry rivers that are connected via underpasses and overpasses. About half of the bikeways are on major transit routes or provide direct access to park-and-rides and transit centers where bicycle parking is available.

A new trend in intermodal travel has emerged near the University of Arizona campus. Many of the 51,000 students, staff and faculty drive to the university's outlying parking lots, then commute by bicycle to campus. This is a direct result of on-campus parking that is in short supply, expensive and hard to access. About 14 percent of the entire campus population commutes by bike. Of the 25,000 who live within five miles of campus, about 23 percent commute by bike.

DOWNTOWN INTERMODAL CENTER MASTER PLAN

In 1999, Tucson adopted the Downtown Intermodal Center Master Plan in an effort to connect regional transit services and stimulate downtown revitalization. The plan focuses on the historic Union Pacific train depot and adjacent parcels where many transit services now converge. The depot, renovated to its 1941 design, currently houses Amtrak and rental car agencies, as well as several other downtown offices.

Future depot plans include a proposal for intercity rail service to Phoenix, which voters will decide in November 2008 when they consider a statewide comprehensive transportation initiative. There has been much discussion of intercity rail between Tucson and Phoenix as a way to alleviate congestion on Interstate 10 and make intermodal connections between the two large metro areas. A 2035 growth study projects a future population of 8 million along this corridor between the Mexican border (65 miles south of Tucson) and Phoenix (115 miles northwest of Tucson).

The master plan also includes construction of a new Greyhound bus depot next to the historic train station to offer easy transfers and sharing of taxi services. Sun Tran's downtown transit center is just across the street, as is the hub for the free downtown shuttle service known as TICET.

MODERN STREETCAR SYSTEM

Tucson recently began planning a four-mile modern streetcar system to link the University of Arizona campus with downtown and Rio Nuevo, a major infill project west of downtown. The streetcar will serve as the backbone of the regional transit system with connections between fixed bus routes, circulator shuttles, bikeways, park-and-rides, and pedestrians within the corridor. Bicycles will be allowed on the streetcars.

A rendering of future intermodal connections on the University of Arizona campus. Note the bicycle lanes on each side of the road.

The future streetcar system is also a key component of the Downtown Intermodal Center Master Plan. The line will pass by the southern edge of the downtown transit center, offering easy transfers to Sun Tran, Amtrak, TICET, and large downtown parking garages. Investors are now gearing up to build high-density mixed use projects adjacent to the intermodal center. This shows that well-designed multi-modal transportation facilities offer valuable services that attract new types of development.

REGIONAL COLLABORATION

The Regional Transportation Authority coordinates all Tucson area public transit services by hosting a Transit Working Group each month. The group is charged with developing a seamless and cost-effective intermodal system. This demanding task requires representatives from each agency to think beyond their own interests and focus on the greater good of the transit-riding public.

The transit working group is currently developing a fare collection system that will integrate all fixed route services using a computerized card-reading format. Users will be able to transfer easily from one service to another and in most cases for free. Transit agencies will be able to track daily ridership, revenue and user payments with relative ease. This information can be used to analyze multi-transit and multi-modal trips throughout the region.

ENCOURAGEMENT

The Travel Reduction Program is a regional program sponsored by the Pima Association of Governments (PAG). It's a combination of alternate modes programs that are offered to major employers as well as the general public to encourage more carpooling, bicycling, transit use and telecommuting. Program details are available at http://www.pagnet.org/Default.aspx?tabid=220.

Result

Several investments have contributed to the success of intermodal travel in Tucson, while several have yet to be tested. The new Sun Tran buses with state-of-the-art wheelchair ramps and bicycle racks are simple but effective tools to make commutes easier. Solid data supports this case — and the frequent sight of overcrowded racks.

The bus shelter program successfully appeals to riders who are concerned about safety and comfort. Sun Tran's 10-minute frequencies entice new riders to the system by reducing wait times. Connections between major bikeways and transit centers are another important component of intermodal transportation system success. The installation of new sidewalks and ramps establishes basic connections to bus stops. Each of these investments is easy to implement as long as funding is available.

Probably most discouraging is that the park-and-rides that were once heavily used in the late 1980s and early 1990s are now only 10 to 20 percent occupied daily. This may have to do with a combination of causes: a population shift that no longer supports downtown express bus service, concerns about personal vehicle theft, limited amenities, and a lack of interest in the locations where there is no retail activity. City staff will continue to study this issue to ensure future facilities are highly utilized.

The Intermodal Depot Center is still under development, as is the four-mile modern streetcar system. It is hard to know if transfers between the various modes — Greyhound, Amtrak, Sun Tran and the modern streetcar — will meet expectations. But one thing is certain: gas prices are rising and the need for more transportation options grows every day. Connections between modes are more significant than ever before.

Cost

Tucson pays for intermodal improvements through a variety of sources:

- Sidewalks are funded through the RTA as well as major roadway projects using state gas taxes.
- Bikeways are funded through the RTA, major roadway projects, and federal Transportation Enhancements. The City of Tucson mandates the inclusion of bicycle lanes as a normal feature of major roadway improvements and re-striping projects where adequate right-of-way is available.
- Bus shelters are funded through ad revenues provided by the ad company.
- Bicycle racks on buses are funded using Federal Transit Authority grants and RTA money for bus purchases. The key is to make a commitment to funding the racks as if they are a standard feature that needs to be included with all bus purchases. Each racks costs about $500, not including installation.
- The costs of the streetcar project and elements of the downtown intermodal center are not yet determined.

Websites

Pima Association of Governments 2030 Regional Transportation Plan, 2006:
http://www.pagnet.org/Programs/TransportationPlanning/PlansandPrograms/RegionalTransportationPlanandStudies/2030RegionalTransportationPlan/tabid/379/Default.aspx

The streetcar project details (including a video simulation) are available at http://www.tucsontransitstudy.com/

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Livable Streets Plan

Pedestrian and Bicycle Information Center

Problem

The City of Raleigh needed an achievable action plan for the downtown that would support existing businesses, strengthen links with area neighborhoods, and provide a vision with clear goals.

A woman crosses at a midblock bulb-out.

Background

The Livable Streets downtown plan came to fruition through the broad-based Livable Streets Partnership, comprised of the Downtown Raleigh Alliance, the City of Raleigh, the State of North Carolina, Wake County, citizen and business interests, and public and private agencies. There were approximately 400 participants in all.

Solution

The group held openly public topic-centered work sessions to formulate goals and an action each month for a year. The City of Raleigh funded a study on streets, parking, wayfinding, and pedestrian needs that, among other diverse resources, were reviewed by partners and other participants as they explored new concepts for the downtown area. A final four-day charrette process sorted the plan into a series of approximately 130 Actions and Strategies. Five primary actions were identified to be accomplished in the following five years, one of which was to "improve the pedestrian environment."

The pedestrian-oriented objectives included to:

- Make downtown accessible to everyone
- Recognize the wellbeing of people on foot as a top priority
- Balance the needs of pedestrians against those of the car
- Create and attractive, well-lit, safe environment that links office and residential uses to amenities such as restaurants, museums, and other venues

Numerous recommendations were detailed in a Downtown Raleigh Pedestrian Design Toolkit (Matin/Alexiou/Bryson, PLLC in association with TooleDesign). Strategies included converting one-way streets to two-way operation with more space for bike lanes, sidewalks, or medians; installing street furniture; requiring pedestrian-oriented ground level uses with detailed facades; improving lighting; installing curb extensions, refuges and other measures to improve pedestrian comfort at mid-block crossing and intersections; providing a variety of seating areas near common gathering places; and more.

Funding and in-kind contributions came in part through a wide variety of sponsors including local and national financial institutions, real estate associates, energy corporations, and other business and nonprofit organizations. Costs for consultant work totaled $435,000.

Results

The planning process took just over a year before the plan was approved by the City Council in May of 2003. All top five priorities are in the process of being implemented. As of 2006, several streets already underwent redevelopment into two-way streets with significant improvements for pedestrian safety and comfort.

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Images Source:
Institute of Transportation Engineers Pedestrian Project Award Application. City of Raleigh Planning Department.

New Jersey Governor's Pedestrian Safety Initiative

Pedestrian and Bicycle Information Center

Problem

New Jersey's pedestrian fatality rate consistently exceeds the national average. Although the number of fatalities fluctuates, in a typical year about 150 pedestrians are killed statewide. The persistence of the problem led the Federal Highway Administration (FHWA) to designate New Jersey as a Pedestrian Safety Focus State.

Background

The pedestrian safety problem had concerned state officials for some time; a variety of programs were put in place over the years in an attempt to address it. In the summer of 2006, the issue moved front and center as the new transportation commissioner and the governor of New Jersey embraced a major action agenda for pedestrian safety. Drawing on a recently completed NJ Department of Transportation (NJDOT) pedestrian safety policy study, a comprehensive interagency initiative was devised to attack the issue on multiple fronts. Along with NJDOT, the governor's office engaged the Department of Law and Public Safety and the Motor Vehicle Commission as partners in this effort, which was announced to the public in September 2006.

The new initiative reflects the finding that New Jersey's most severe pedestrian crashes are not usually concentrated at individual "hot spots," but are spread out along corridors. Although NJDOT has made good progress in applying countermeasures to the state's highest pedestrian crash intersections, analysis showed that most of the fatal pedestrian crashes were occurring between intersections. For this reason, NJDOT applied a corridor-level approach and designed a new Pedestrian Safety Corridor program as a central part of the initiative. The initiative also recognizes the importance of strengthening education and enforcement concerning pedestrian safety. The role of automobile-oriented land use patterns as a pedestrian risk factor was also recognized, along with the particular pedestrian risks faced by New Jersey's schoolchildren and transit users.

Solution

In September 2006 Governor Jon Corzine announced an unprecedented five-year, $74 million program to reduce pedestrian risks throughout the state by combining infrastructure improvements with enforcement and educational strategies. Resources are being targeted to areas of greatest need, based on improved data management systems that allow the state to monitor and map statewide pedestrian safety patterns. The following sections provide an overview of each element of the program.

PEDESTRIAN SAFETY CORRIDOR PROGRAM

A key element of the initiative is the Pedestrian Safety Corridor program, which targets selected corridors with a history of pedestrian safety problems for investigation and improvement. This program was modeled in part on an existing Safe Corridors program enacted in New Jersey in 2003, which couples intensive enforcement with engineering countermeasures for highway segments with high motor vehicle crash rates. The program design also drew on the experience of other states with corridor-based pedestrian safety programs, as well as federal guidance on zone-based approaches to pedestrian safety (Zone Guide for Pedestrian Safety, NHTSA/FHWA, 1998).

For each designated corridor, safety impact teams made up of engineering professionals and local stakeholders work together to develop improvement concepts, including facility improvements and educational and

enforcement strategies targeted to area pedestrians and motorists. The safety impact teams work in a concentrated fashion during a day-long session that combines an overview of corridor safety issues, a field visit to walk the most critical areas of the corridor, and a group brainstorming session to identify potential improvement measures. Improvement concepts are then organized in a matrix and reviewed by the appropriate technical staff at NJDOT and in follow-up discussions with local officials. After identifying local priorities, a determination is made on which measures NJDOT will fund, study further, or implement directly with in-house forces.

Initial corridors include Ferry Street in Newark, Route 70 in Cherry Hill, and Route 27 in Roselle, Linden and Elizabeth. Facility improvement measures that have been funded or are under consideration include sidewalk installation, crosswalk and pedestrian signal improvements including countdown timers, traffic calming measures, lighting improvements, and bus stop relocation. Local educational efforts include school-based outreach in Newark and targeted outreach to area residents along the Route 27 corridor.

PEDESTRIAN SAFETY IMPROVEMENT PROJECTS

NJDOT has also created a $50 million fund specifically designated for pedestrian safety improvement projects over a five-year period. Safety projects at eight locations are under development, including sidewalk construction, curb ramps, crosswalks, traffic calming, signage, and pedestrian countdown signals.

SAFE ROUTES TO SCHOOL PROGRAM

Another key element of the initiative is the state's Safe Routes to School program. This program allots $15 million to local governments, enabling them to create safer walking (and bicycling) environments near schools and to increase pedestrian safety awareness among schoolchildren and motorists. NJDOT has held information workshops on the program throughout the state and is selecting locations for the first round of program funds. The program has attracted a high level of interest: over half of New Jersey's municipalities have submitted applications.

SAFE STREETS TO TRANSIT PROGRAM

New Jersey's high rate of transit commuting (double the national average) is thought to be a factor in pedestrian exposure to motor vehicle crashes. For this reason, the governor's initiative includes a $5 million effort to reduce pedestrian risks around transit stations by developing and funding facility improvements in priority locations.

PEDESTRIAN LAW ENFORCEMENT

Enforcement strategies are an integral part of the Pedestrian Safety Initiative. The New Jersey attorney general is working with local law enforcement agencies to more vigorously enforce and prosecute the laws currently in place to protect pedestrian safety. The attorney general will collaborate with local and county prosecutors to ensure prosecution of failure-to-yield violations and to reduce the plea bargaining and downgrading of such offenses that has frequently occurred in the past. The attorney general, through the Division of Highway and Traffic Safety, will also issue $1.5 million in grants to state and local law enforcement agencies for targeted enforcement and educational efforts. New, stronger legislation is also being considered to protect pedestrians.

IMPROVED DRIVER EDUCATION

The initiative also includes an emphasis on improved driver education. The New Jersey drivers' manual is being completely rewritten to incorporate clear, forceful information on the responsibilities of both motorists and pedestrians. New test questions on the responsibilities of motorists and pedestrians are being added to the drivers' exam. A driver education curriculum is also under development.

RISK PREVENTION THROUGH PEDESTRIAN PLANNING

New Jersey's predominantly automobile-oriented suburban land use patterns create a challenge for many pedestrians, especially for non-drivers who live or work along major highways. For this reason, the governor's initiative includes a pedestrian risk prevention strategy tied to the state highway access permit process. The need for pedestrian safety improvements will be considered as developers apply for access permits along state highways. NJDOT will also continue to implement its longstanding pedestrian policy, which calls for consideration of pedestrian needs in all highway improvement projects.

Results

Since the governor's initiative is in the early stages, numerical results are not yet available. Each element of the program is being monitored to determine its effectiveness over time. Each pedestrian safety corridor will be studied once implementation is complete; crash results will be compared with those before the intervention. The Safe Routes to School program also includes a monitoring process. Records will also be kept on the number of new drivers educated under the improved driver training and licensing program and on pedestrian enforcement activities.

One early success is a significant increase in interagency coordination to address pedestrian safety as a shared problem. For example, NJDOT and NJ Transit are working together to expedite priority pedestrian improvements in the vicinity of bus stops on the pedestrian safety corridors. Collaboration between NJDOT and local governments has been extremely productive; in several cases, local governments have implemented safety impact team recommendations on their own initiative before receiving any state funding. The Division of Highway Traffic Safety under the attorney general's office will conduct a statewide pedestrian safety marketing and education program. The state's ability to adapt existing programs and funding sources on an expedited basis to meet a critical need is another indication of early success.

As the nation's most densely populated state, New Jersey will likely face continued challenges in safely accommodating pedestrians. The governor's initiative shows what can be done with program champions at the top levels of government, effective interagency collaboration, and active local partnerships.

Costs

The $74 million Governor's Pedestrian Safety Initiative is funded with a combination of State Transportation Trust fund dollars and federal SAFETEA-LU money. All programs other than Safe Routes to School (SRTS) Program were funded with NJ State Transportation Trust Fund dollars. SRTS is funded with federal transportation dollars.

Web sites and resources

NJDOT: http://www.state.nj.us/transportation

NJ Bicycle and Pedestrian Resource Center: http://www.njbikeped.org

Guidance on zone-based approach to pedestrian safety:
U.S. Department of Transportation. (1998). Zone Guide for Pedestrian Safety (DOT HS 808 842). http://safety.fhwa.dot.gov/PED_BIKE/docs/zoneguide.pdf

See also "How to Develop a Pedestrian Safety Action Plan, 2006": http://www.walkinginfo.org/library/details.cfm?id=229

On developing a pedestrian safety action plan workshop:
"Designing Streets for Pedestrian Safety" http://www.walkinginfo.org/training/pdps/

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Pedestrian and Bicycle Travel Policy

Pedestrian and Bicycle Information Center

Problem

The roadway design process in Kentucky was focused only on automobile travel and rarely accommodated nonmotorized travel.

Background

Kentucky created the Pedestrian and Bicycle Design Guidance Task Force in response to the then new USDOT publication "Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach." The task force was headed by the Multimodal Programs division. Its goal was to develop policies to guide the Kentucky Transportation Cabinet on when, where, and how to include bicycle and pedestrian facilities. The Task Force included representatives from a variety of state departments, including the University of Kentucky Department of Civil Engineering, FHWA, the Kentucky Planning Commission, Kentucky Heritage Council, Bicycle Coalition of Kentucky, and more.

Solution

After a year of tri-weekly meetings, the Task Force's Pedestrian and Bicycle Design Guidance was reviewed and signed in as an official order. The policy requires the Transportation Cabinet to plan and build all new and reconstructed roadways with pedestrians and bicyclists in mind. The policy guidelines give roadway planners and designers specific criteria to consider for accommodating pedestrian travel, including adjacent land use, existing pedestrian traffic, local pedestrian and bike plans, transit stops, and public interest and demand. The policy also encompasses several other objectives. Through providing alternative transportation options to the car, it is hoped to reduce vehicle miles traveled (VMT) and improve air quality in the state. More partnerships with local communities are to be formed to aid in maintenance of newly built shared use paths.

Results

Public acceptance of nonmotorized travel is growing. In Louisville, for example, there were over 3,000 bicycle boardings on city buses in January 2003, which is six times as many as reported in January 2000. In the year following the enactment of the Policy in 2002, there were several highway reconstruction projects that incorporated bicycle and pedestrian facilities. These included an 8-mile bicycle trail, bike lanes, a waterfront park with a pedestrian/bicycle greenbelt connector, and several other shared use paths.

Bikes-On-Board Year-to-Year Comparison chart, 2001-2003.

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Pedestrian Generator Checklist

Pedestrian and Bicycle Information Center

Problem

New York engineers needed guidance on when and how to accommodate pedestrians when designing roadways. Before the Pedestrian Generator Checklist, engineers had no specific guidance on what, if any, pedestrian facilities should be included in the roadway design.

Background

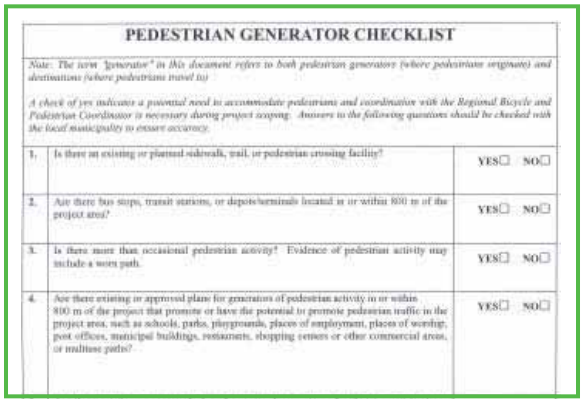
The goal of the transportation system is to provide safe and efficient mobility and access for all modes of travel, including walking. Whether designing new transportation facilities or reconstructing or resurfacing existing ones, the presence of pedestrians should be considered. This consideration may lead to the installment of pedestrian facilities such as crossings, refuge islands, pedestrian signs and signals, Intelligent Transportation System (ITS), sidewalks, walkways, curb ramps, bus stops, call boxes, street furniture, etc.

Solution

New York State DOT developed a Pedestrian Generator Checklist to aid in determining if pedestrian facilities are needed along a roadway. If the need to accommodate pedestrians is determined to exist, facilities intended for them should be designed, constructed, and maintained in accordance with current guidelines and standards.

Results

The Pedestrian Generator Checklist is completed for all new construction, reconstruction, bridge replacement, bridge rehabilitation, signal requirement contracts, and maintenance projects. The completed checklist is then submitted to the Regional Bicycle and Pedestrian Coordinator for review. Projects with one ore more "Yes" answers on the checklist indicate a potential need to accommodate pedestrians. Exceptional circumstances that would exempt projects from requiring pedestrian facilities include:



PEDESTRIAN GENERATOR CHECKLIST

Note: The term "generator" in this document refers to both pedestrian generators (where pedestrians originate) and destinations (where pedestrians travel to)

A check of yes indicates a potential need to accommodate pedestrians and coordination with the Regional Bicycle and Pedestrian Coordinator is necessary during project scoping. Answers to the following questions should be checked with the local municipality to ensure accuracy.

1.	Is there an existing or planned sidewalk, trail, or pedestrian crossing facility?	YES☐ NO☐
2.	Are there bus stops, transit stations, or depots/terminals located in or within 800 m of the project area?	YES☐ NO☐
3.	Is there more than occasional pedestrian activity? Evidence of pedestrian activity may include a worn path.	YES☐ NO☐
4.	Are there existing or approved plans for generators of pedestrian activity in or within 800 m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as schools, parks, playgrounds, places of employment, places of worship, post offices, municipal buildings, restaurants, shopping centers or other commercial areas, or multiuse paths?	YES☐ NO☐

- Roads where pedestrians are prohibited by law
- Projects where the cost of establishing pedestrian facilities would be excessively disproportionate to the need or probable use
- Projects that exist in an area where sparse population or other factors indicate the absence of a need for pedestrian facilities.

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Images Source

Institute of Transportation Engineers Pedestrian Project Awards Application.
http://ite-espanol.org/awards/pedproject/NYStateEngineeringInstruction.pdf

Pedestrian Safety Planning Group

Pedestrian and Bicycle Information Center

Problem

Despite being one of the most walkable suburbs in New York State's Capital District with over 25 miles of sidewalk, the town had 44 pedestrian crashes over a seven year period, three of which resulting in fatalities.

Background

Community interest in addressing key pedestrian safety issues increased, especially following a local presentation of the USDOT "Pedestrian Safety Road Show." The Bethlehem Citizens for Pedestrian Safety formed a planning group that met regularly to address the issues. Participants consisted of a broad spectrum of actors, including the Town Supervisor, Town Board members, Planner, Highway Superintendent and Highway Department staff, the Police Department Traffic Safety unit supervisor, the NYSDOT Pedestrian/Bicycle Coordinator, and the Capital District Transportation Committee (CDTC). The group was also supported by the local school district and several neighborhood associations. Expert members of the group took field explorations to review various locations for improvement that the Town Planner used to develop a document to guide decisions and prioritize improvements.

Solution

The group's efforts resulted in several projects, including structural improvements, education initiatives, data gathering, and more. Over two miles of new sidewalks were installed to bridge gaps and extend to common destinations (such as the school). New pavement markings — including at crosswalks — were installed by taking advantage of the routine maintenance cycle to request additional work.

"WALK LEFT/RIDE RIGHT" signs were installed around the town, and additional refrigerator magnet versions of the sign were distributed to promote the effort. Other educational efforts included the distribution of general pedestrian safety flyers at major community events, and an evaluation of compliance in various locations to the "Yield to Pedestrians in Crosswalks" law.

Cost to the planning group itself was minimal, consisting only of mailing expenses. The town absorbed the expense of having town employees participate in the meetings. Capital improvement costs were covered by either the Capital District Transportation Committee (CDTC) or NYSDOT, and ranged from $1,300,000 to $7,000,000 for bypass reconstruction and the addition of sidewalks, shoulders and more.

Results

The group met with and gave recommendations to NYSDOT's Regional Design Engineer regarding things that could be included in the Captial District Transportation Improvement Plan (TIP). The relationship between the two is ongoing. The Pedestrian Safety Planning Group was successful in realizing its goals and serves as a model of effective government-citizen partnerships.

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Technical Assistance for Small Cities and Rural Communities

Pedestrian and Bicycle Information Center

Problem

Developing affordable bicycle and pedestrian plans is particularly difficult in rural areas where funding and population density are low.

Background

As one of sixteen Regional Development Centers (RDCs), the Coosa Valley RDC serves Northwest Georgia. As a part of their 2005 contract with the Georgia Department of Transportation (DOT), the CVRDC was required to prepare a Bicycle and Pedestrian Plan. Though the county already had an impressive system of multiuse paths, the plan was an important impetus for the creation of a Pedestrian and Bicycle Task Force. Nicknamed "Bike! Walk! Northwest Georgia," the task force consisted of over 30 members, representing every county in the region and diverse citizen and local government interests. The group had the first of its monthly meetings in the fall of 2005, and focused on a variety of issues.

Solution

Less than a year after the task force began, the Bike! Walk! Northwest Georgia task force hosted a week-long series of work sessions and presentations to help formulate a direction for their efforts. The presentations focused on implementing bicycle, pedestrian, and trail project improvements in small cities and rural communities. Using funds provided by the Georgia DOT, the CVRDC hired two experts with the National Center for Bicycling and Walking (NCBW) to spend a week visiting and working with public agency and community leaders in Rome, La Fayette, Trenton, and Cartersville, Georgia.

Through these sessions, the region's planners were able to get better acquainted with bicycle and pedestrian issues, and learn appropriate next steps. With several regional multiuse paths, including one that follows a rail corridor extending across 3 counties abutting the border of Alabama, they also learned that they were ahead of the majority of rural communities in terms of pedestrian facilities. The NCBW representatives presented the task force with a final report that outlined issues to be addressed and recommended strategies.

Results

Though the region was doing better than the NCBW staff had anticipated, the staff were able to provide additional expertise that emphasized to local planners the importance of securing funding and creating a timeline and plan of the development process.

A few major projects planned and accomplished by the group include an online catalog of all the pedestrian facilities in the region, a series of bicycle and walking events designed to promote use of the trails, and the establishment of

a Safe Routes to School program. In addition, the task force will undertake a study in conjunction with the Atlanta Regional Commission to determine the demographics of users, and to quantify the economic impact of the trails as to promote further development along the paths. Their next steps include learning about tourism from a county specialist, to better publicize the trails, and to elicit more feedback from citizens about their needs and wants.

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Images Source
www.bwnwga.org

Traffic Calming Guidelines

Pedestrian and Bicycle Information Center

Problem

The City of Sacramento lacked a cohesive guide explaining the advantages and disadvantages of various traffic calming treatments that could potentially improve pedestrian safety.

Background

The Traffic Calming Guidelines were developed by the City of Sacramento's Department of Public Works to provide tools for citizens, Public Works staff, and other interested parties to help choose appropriate traffic calming devices that adequately accommodate motor vehicles, pedestrians, and bicyclists.

Solution

The final 70-page Traffic Calming Guidelines publication not only specifies a toolbox of traffic calming measures, but also defines the process to follow for retrofitting existing neighborhoods, the probable results of the measures, and standard designs for the implementation of traffic calming measures. It lists advantages and disadvantages to various treatments and provides illustrative pictures, estimated costs, and impacts.

Planted mini-circle.

The process starts when a neighborhood has been identified for inclusion in the traffic management program. It begins by establishing a Traffic Calming Committee that takes a proactive role in creating a plan for their neighborhood and meets regularly with Public Works staff. The Guidelines toolkit is a key element in the education and communication between planners and residents. Once these changes are made, such as enforcement and educational components, an evaluation period takes place. At this point in the process the City staff present a report to the neighborhood, and if necessary, further measures are considered.

Diverters with newly planted trees.

Partners included the Planning and Fire departments, the City School District, Walk Sacramento, Sacramento Area Bicycle Advocates, and Dan Burden's Walkable Communities. Funding was provided through a combined effort of the City of Sacramento, the State of California Office of Traffic Safety, the Business, Transportation, and Housing Agency, and the Federal Highway Administration. The total cost for the development of the guidebook was approximately $27,000.

Results

The City of Sacramento adopted the Guidelines to assist the public, city staff, consultants, and developers in creating a safer environment for pedestrians by identifying traffic calming devices and steps for implementation. Speeds were reduced in local neighborhoods, and new neighborhoods were designed from the start to promote reduced speeds.

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Images Source
Mark Hanneman, Sacramento Department of Public Works.

Trail User Counts and Surveys

Pedestrian and Bicycle Information Center

Problem

Planners and advocates for a new county bicycle/pedestrian trail needed usage data to strengthen grant requests and influence policy and funding decisions.

Background

The Ozaukee Interurban Trail is a paved, 30-mile shared-use trail that connects six communities in Ozaukee County, Wis. (immediately north of Milwaukee). Most of the Interurban Trail is off-road, using an old rail right-of-way now owned by WE Energies. Where the right-of-way has been lost, the trail uses existing roadways. A particular two-mile stretch carries cyclists along a heavily traveled county road (speed limit 45 mph), across Interstate 43 on a bridge with low railings, and through a suburban subdivision. Planners wanted to replace this section with an off-road segment whose centerpiece is a bicycle/pedestrian bridge spanning both the county highway and I-43. The original cost of this Trail Improvement Project was $1.24 million.

A partnership of three county departments (Planning, Resources and Land Management; Parks; Highway) and the Ozaukee Interurban Trail Advisory Council, a volunteer group charged with overseeing trail development, worked to secure funding for the project through a Congestion Mitigation and Air Quality (CMAQ) grant from the Wisconsin Department of Transportation (WisDOT). CMAQ grants are funded with federal dollars appropriated under SAFETEA-LU; they require a 20 percent local match. WisDOT awarded $991,600 to the Trail Improvement Project in 2004.

The Ozaukee County Board of Supervisors had about one year to decide whether to accept the grant. Ozaukee County residents tend to be fiscally conservative and pressure their elected officials to limit property tax increases. Some supervisors considered the Interurban Trail a pleasant amenity but not an essential service, and believed residents wouldn't want to use tax dollars to pay for improvements. The county board decided that the necessary local match ($248,000) would not be funded with county tax revenue. To convince the county board to accept the CMAQ grant and to apply successfully for grants to help make up the local match, planners and advocates needed data on trail use and impact.

Solution

Lack of data sometimes confounds advocates and local officials in smaller jurisdictions who want to justify policy and funding decisions for bicycle/pedestrian facilities. Developing and administering a survey that produces reliable results can be difficult, time-consuming, and expensive. The federal government and regional planning agencies do large-scale surveys, but the results lack detailed data for a specific geographic area. Sometimes data from other locations can be used to forecast usage or impact in a similar area, or local questions can piggyback on a regional survey. In this case, planners used several sources of data.

The Interurban Trail opened in September 2002. A survey conducted during the trail's one-year anniversary celebration asked about trail usage habits (frequency, time of day, distance traveled, reasons for use, etc.) and economic impact. The responses were encouraging, but this first survey's usefulness was limited because the group sampled was small, composed mainly of people who supported the trail, and respondents' self-reported behavior was not inherently reliable.

The Trail Advisory Council and Parks Department next arranged a trail count in August 2004. The counts were conducted at two different intersections for seven 14-hour days in each location. Volunteers counted the total number of people passing, their use of the trail (walker, dog walker, runner/jogger, cyclist, other), and their movement along the trail (crossing, entering, exiting). They also noted significant details about the weather. The data were summarized by day and hour, user type, and movement on the trail. (Of the week's 8,825 total users at the two locations, 68.5% were cyclists; 17.5% were walkers; 6.5% were runners/joggers; 4% were dog-walkers; 3% were in-line skaters or other users.) Planners used the data to create assumptions about year-round trail use.

The Interurban Trail is used year-round.

The third source of information available to planners was a survey from the county's comprehensive planning process. The survey used a random digit dial sampling procedure to find and interview 406 county residents; several questions about the Interurban Trail were part of the instrument. The survey, done in March 2005, found that 53 percent of respondents had used the trail and nearly 70 percent favored expanding it. Furthermore, 76 percent of those who wanted to expand the trail favored using county tax dollars to do so; even a majority of respondents who didn't use the trail supported using tax dollars for expansion.

Finally, because the trail is promoted in print and television as a tourism destination in Ozaukee County (and several of the cities it links rely on tourism), planners wanted to estimate the trail's potential economic impact. They built estimates by extrapolating from the 2000 U.S. Census, the 2002 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors, and research from the Wisconsin Department of Tourism; cited the results of another Wisconsin trail study; and used data from the 2003 anniversary survey.

Results

The information from these surveys, counts, and estimates provided the documentation that county staff and their partners on the Trail Advisory Council needed to convince county supervisors to accept the CMAQ grant and to secure funding toward the $248,000 local match goal. The county applied for, and received, two Wisconsin Department of Natural Resources Stewardship Grants ($50,000 and $74,000), a $10,000 grant from the Bikes Belong Coalition, and a $25,000 grant from the Wisconsin Energy Corporation Foundation, among others. The county board voted to accept these and the CMAQ grant, and approved the Trail Improvement Project; however, construction planned for 2006 is stalled for other reasons. (Updates on the status of the Trail Improvement Project are available at http://www.interurbantrail.us/TrailEnhancementProject/TalkingPointsAug2.pdf and http://www.jsonline.com/story/index.aspx?id=671921)

Costs

The main cost associated with developing the data was staff time. Volunteers collected the data during the trail usage survey and the 2003 survey. The comprehensive plan survey was contracted with the University of Wisconsin-Milwaukee's Center for Urban Initiatives and Research; questions about the Interurban Trail were a small part of the whole, which was paid for through a Wisconsin Comprehensive Planning Grant.

Web sites and resources

The Ozaukee Interurban Trail Web site: http://www.interurbantrail.us/Index.htm

The Ozaukee County Web site: http://www.co.ozaukee.wi.us/

For basic guidelines on developing and administering surveys to trail users, see Trail User Survey Book: How to conduct a survey and win support for your trail (Rails to Trails Conservancy, 2005) at http://www.railtrails.org/resources/documents/resource_docs/UserSurveyMethodology.pdf

This 1998 study of the Mohawk-Hudson Bike-Hike Trail in New York includes a survey and user count sheet at the end of the document: http://www.cdtcmpo.org/bike/usersurvey.pdf

A summary of existing national or multi-state sources of bicycle and pedestrian data can be found in Table 2-1 of the USDOT — BTS publication, Bicycle and Pedestrian Data: Sources, Needs, & Gaps (BTS00-02), Washington, DC: 2002
http://www.bts.gov/publications/bicycle_and_pedestrian_data

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References

This case study was developed with information provided by the Ozaukee County Planning, Resources and Land Management Department, the Ozaukee County Parks Department, and the Ozaukee Interurban Trail Advisory Council.

Image Source
Association of Pedestrian and Bicycle Professionals (APBP)

Tucson Region Sidewalk Inventory

Pedestrian and Bicycle Information Center

Problem

The Tucson region's metropolitan planning organization, Pima Association of Governments (PAG), needed to assess regional sidewalk connectivity and accessibility in order to establish priorities for funding and construction.

Background

The Tucson Region Sidewalk Inventory began in the mid-1990s when City of Tucson Department of Transportation interns videotaped every major bus route and recorded sidewalk connections and ramps into an AutoCAD map file. This became the basis for PAG's expanded inventory.

Meanwhile, members of Tucson's Commission on Disability Issues (CODI) and other key advocates for the disabled community pushed for more sidewalks and better region-wide accessibility. Responding to their concerns, PAG undertook to revise and expand the Tucson area's sidewalk inventory beginning in 2003. The project was completed in 2005.

Solution

The Tucson Region Sidewalk Inventory resulted in a comprehensive assessment of sidewalks and Americans with Disabilities Act (ADA) access along all major roadways in the Tucson region. PAG planned to use the inventory to identify gaps and prioritize the sidewalk projects necessary to complete a regional network of pedestrian-accessible transportation corridors.

The inventory focused specifically on the major roadway grid network which consisted of approximately 4,000 directional miles of arterials and collectors. Existing shared-use pathways, most of which parallel major arterials and river parks, also were included. Sidewalks were inventoried based on half-mile to one-mile roadway segments, or between major intersection points. This level of detail was sufficient to analyze sidewalk needs on a regional scale.

Advocates for the disabled stayed involved throughout the project. A project working group made up of representatives from CODI and other organizations, transportation officials from local jurisdictions, and PAG staff met several times to discuss the inventory process, the ranking system, and expected outcomes of the project. Disabled community members helped PAG staff gain insight into accessibility issues when they all spent several hours on the streets in manual and electric wheelchairs. This exercise identified many barriers to accessibility: missing or poorly maintained sidewalks and wheelchair ramps, misplaced utility poles and signs, old railroad crossings and underpasses, steep-sloped driveways, sandwich signs, and vehicle parking encroachment.

Some barriers to accessibility become obvious only when experienced first-hand.

PAG began to update and expand the inventory in early 2003 using new tools and techniques in a particular sequence. In what was essentially a process of elimination, staff first recorded what they knew for sure. Then they did as much as possible using aerial maps and online photos; whatever areas were left had to be field-verified.

To begin, local staff used their knowledge of regional road conditions to identify segments with no sidewalks. (Approximately 25 percent of roadways surveyed were rural roads commonly known not to have sidewalks, much less other basic infrastructure.) Then staff created a survey using PAG's 2002 digital aerial imagery covering the entire road system in the Tucson region to identify areas where sidewalks were needed. The color imagery showed the landscape in great detail at high resolution. In the third step of the process, the Tucson Department of Transportation's Transview Web site was used to get a clear horizontal view of urban arterials using a series of photo images packaged in a "Virtual Ride" function. By clicking a button, the viewer can "drive" a selected roadway at a set speed and scan the sidewalk area and other roadway features. Finally, field surveys were conducted to verify any unknown areas as well as roadways under construction.

When the sidewalk inventory fieldwork was completed, each half-mile to mile roadway segment was recorded into a Microsoft Excel database and mapped using a GIS-based program. The database contains pertinent information on each roadway segment such as location, roadway type and classification (arterial, collector), jurisdictional control, transit routes, and sidewalk status.

Once the inventory was complete, planners and advocates needed to create a rational process to guide local officials in identifying priority sidewalk projects. A 100-point ranking system using nine criteria was developed with input from local jurisdictional staff, pedestrian planners, and members of the disabled community. Fortunately, PAG had all the necessary data to determine population density, average daily traffic, transit route ridership, and proximity to business districts, school, parks, and medical facilities -- the main criteria used in the ranking system.

Results

The project resulted in a detailed inventory of sidewalks and ramps along major roadways throughout the Tucson region. It also established a systematic process for prioritizing and programming sidewalk projects in local jurisdictions.

The list of high-priority projects served as the foundation for the pedestrian element of the $2.1 billion, 20-year Regional Transportation Authority (RTA) plan, approved by voters in 2006. The RTA plan allocates approximately $30 million for construction of sidewalks, ramps, and signalized crosswalks. To show the community that its money is being spent as promised, some of the first RTA projects to be completed were those identified in the plan.

Many miles of new sidewalks and ramps have been built since the RTA plan passed. The City of Tucson Department of Transportation has used the inventory to focus on completing key sidewalk gaps along major urban roadways and has already completed several sidewalk projects with RTA funds. (Most of the 50 top-ranked sidewalk projects are in the urban core, 32 of them located on just five major roads. Not surprisingly, frequent pedestrian-related crashes occurred along these same corridors.) Jurisdictions will complete their prioritized projects as they request RTA funds over the next 19 years.

Costs

The inventory project cost approximately $25,000 in staff time and materials. The cost included about 19 full-time weeks of staff time spent working on the inventory, developing maps, writing the report, and printing, assembling and distributing copies of the report. A private citizen on the project committee donated 40 hours to help with data input. Using online digital maps saved time because staff did less field work.

Web sites

Link to the Tucson Region Sidewalk Inventory Report:
http://www.pagnet.org/documents/Pedestrian/SidewalkInventory2005.pdf

Link to the Tucson Regional Transportation Authority:
http://www.rtamobility.com/index.php?option=com_content&task=view&id=188&Itemid=152

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OTHER

Charlotte's South Corridor

Pedestrian and Bicycle Information Center

Problem

The City of Charlotte needed better pedestrian access to the transit system.

Background

The City invested $371 million in a South Corridor Light Rail, and $19.7 million in an historic trolley restoration project. A robust pedestrian network was needed for both of these new transit systems to be effective. The South Corridor Light Rail project was the first of five corridors planned for expansion of light rail and associated pedestrian-related amenities.

Solution

The City Council adopted the Transit Station Area Planning Principles in 2001 to ensure proper design and connections for the new transit corridor. The principles included a heavy pedestrian emphasis were aimed at increasing development density within easy walking distance (1/2 mile) of the 15 transit stations. Development will be required to provide parking at the rear or sides of buildings, construct buildings at the sidewalk line, and orient their access for pedestrian use. Additionally, the principles called for higher density residential development with first floor commercial uses oriented to the front of the building.

Charlotte voters approved a $100 million bond referendum in 2001. $20 million of the funds were designated for South Corridor Transit infrastructure, and an additional $10 million were dedicated to citywide sidewalk construction. With the funds realized, the city staff set to work on more detailed plans. Through a charrette brainstorming process including city staff and hired consultants, a pedestrian "quality of service" methodology was developed to evaluate the "walkability" of nearby neighborhoods and surrounding land uses. As a result of this comprehensive evaluation, the detailed vision featured pedestrian facilities like wide sidewalks, shade tree planting, pedestrian-scale lighting, and midblock crosswalks.

The Vintage Trolley project runs alongside the northernmost 3 miles of the light rail line and incorporates a pedestrian path extending the entire length. Benches, lighting and landscaping were also installed, in addition to a pedestrian bridge to allow the trolley to connect with the Charlotte Convention Center.

Sponsors for the project included the City of Charlotte, the Charlotte Metropolitan Transit Commission (CATS), the Charlotte Trolley, Inc., and the Charlotte-Mecklenburg Planning Commission. While the initial efforts began in 1998, the line's opening was recently postponed from 2006 to 2013.

Results

The materials developed can all be applied to future projects and will serve as ongoing tools to provide for pedestrian needs. These materials include the Planning Principles, the Pedestrian Quality of Service assessment, and a Transportation Adequacy evaluation for development siting. In addition, significant pedestrian facilities were built at 7 of the 15 transit stops. The infrastructure investment has also spurred economic development. As of 2003, 20 pedestrian or transit oriented developments had already begun, the tax value of properties jumped from $20.2 million to $393.2 million, and tax revenue increased from $240,650 to $4,706,000.

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Images Source:
Institute of Transportation Engineers Pedestrian Project Award Application. Charlotte Department of Transportation.

Citizen's Accessibility Evaluation Tool

Pedestrian and Bicycle Information Center

Problem

Pedestrians on Busch Boulevard had a multitude of difficulties to deal with when navigating the corridor. The high-traffic corridor was in need not only of an improved pedestrian environment, but also a means of assessing the problem.

Background

As the State Department of Transportation prepared to resurface Busch Boulevard, a high-volume corridor, The Hillsborough County Metropolitan Planning Organization's (MPO) Transportation Disadvantaged Coordinating Board decided to get involved and show accessibility problems that also needed addressing.

Solution

The MPO staff designed and executed an accessibility evaluation tool that can be used as a template for future citizen evaluations.

An assessment sheet was developed by the MPO and four Busch Boulevard intersections were identified for evaluation. Citizens with disabilities, family members, caregivers and advocates were identified, emphasizing cross-disability representation. The site evaluation conducted for the Busch Boulevard Corridor included participation by the identified citizens, volunteers and staff members. All participants were asked to identify and document barriers to accessibility. The information was then compiled and reported in a final illustrated document.

This person was using Busch Boulevard on the day of the evaluation. He got stuck in the sand and gravel shoulder and was assisted out by evaluation participants.

The assessment documented the common pedestrian activities in order to identify what needs should be addressed. Walking was a common travel mode for everyday tasks since several neighborhoods border the corridor. Typical pedestrian groups included families with young children in strollers, children on their way school, the elderly, bicyclists, and persons with disabilities.

The extensive assessment noted several problem categories:

- Sidewalk discontinuity and condition
- Conflicts between pedestrians and motorists (very wide driveways, large right turning radii)
- Curb ramps (slope too steep, lack of landing pad, etc)
- Bus stops (inaccessible in the grass, no bus lane)
- Inaccessible Signals (difficult to find for the visually impaired, inaudible, no brail)
- Crossings (too little time to cross, no median refuge, curves confuse guide dogs)
- Railroad tracks (no crossing for wheelchairs, confuse guide dogs)
- Lack of buffers between traffic and walkway
- Obstructions in walkway (poorly placed benches, utility poles, holes)

Project sponsors included the local Transportation Disadvantaged Coordinating Board (TDCB), YES! of America United, and the statewide Real Choice Partnership. Funding was not a complicated affair as the main costs were staff hours, a few good cameras, and committed citizen volunteers. The biggest challenge was the logistics of the day itself, as staff had to coordinate with the Transit system to use an accessible bus for the day, in order to cover enough ground in the relatively inaccessible corridor.

This large turning radius at 30th street invites high speed turns, which may result in high speed crashes with people trying to cross the street.

Results

A final report detailed the existing conditions and made recommendations to improve the environment, including landscape treatments, lighting, transit infrastructure, pedestrian infrastructure, utilities, and several supportive policies such as easement dedications, overlay districts, and sign ordinances. The lavishly illustrated document made a big impression on professionals and legislators, and the DOT has since committed to incorporating suggestions from the document into the design.

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http://www.hillsboroughmpo.org/pubmaps/otherplansstudies/BuschBlvdFinalReport.pdf

Images source:
Hillsborough County Metropolitan Planning Organization.
http://www.hillsboroughmpo.org/pubmaps/otherplansstudies/BuschBlvdFinalReport.pdf

Community Action and Fundraising in Portland, OR

Pedestrian and Bicycle Information Center

Problem

A Portland neighborhood needed safer pedestrian facilities following a tragic incident.

Background

A determined community member in Portland, Oregon, took the lead promoting pedestrian safety after a local resident was killed crossing a street at night in the rain. As the new co-chair of the transportation committee for her all-volunteer neighborhood association, she had the idea to create bright florescent yellow umbrellas marked with pedestrian crossing symbols and two transparent sections to look through. With this innovative tool, pedestrians could stay dry in the rainy climate and act as their own moving pedestrian crossing sign at the same time.

The design of the umbrella.

Solution

She contacted the owner of a local umbrella company who was eager to work with her and agreed to put the new product in their catalog. She submitted grants to two main sources of funding: the City's Office of Neighborhood Involvement, which makes money available to neighborhood associations, and a local grant program set up to offset the inconvenience caused by a nearby waste transfer station.

In addition, she contacted the city council with specific requests: the installation of painted crosswalks at every intersection in the neighborhood, a center line "Stop for Pedestrians" sign, and traffic calming signs. The Portland Department of Transportation (PDOT) granted the requests and the city created pedestrian crosswalk criteria based on peak pedestrian traffic as well. The city also performed an active crosswalk enforcement action to deter crosswalk violations.

One of the greatest challenges of community-based advocacy work is finding other volunteers willing to commit their time to a project. In this case, the neighborhood association maintained a sizable regular attendance by actively inviting affected parties and talking about topics of immediate interest to residents. When an issue extended beyond their neighborhood, the group put invitations in the mailboxes of other affected residents. Contact within the group was maintained with the help of an email newsletter.

Results

The PDOT continues to work with community members and neighborhood organizations to put on safety fairs, where the umbrellas are sold at a reduced cost. The PDOT also purchases umbrellas to distribute to older pedestrians at partnered senior centers and food distribution centers.

Contact

http://portlandtransport.com/archives/2007/02/proactive_pedes.html

Image Source:
Portland Transport. http://portlandtransport.com/archives/2007/02/proactive_pedes.html

Corridor Traffic Calming

Pedestrian and Bicycle Information Center

Problem

Speeding by cut-through traffic was making the Forest Lakes community unsafe.

Background

The Forest Lakes community in Albemarle, Virginia, took the initiative to solve speeding and cut-through traffic problems on a major street that runs through theirs and an adjacent neighborhood. The county conducted a survey to determine the extent of the speeding problem and subsequently agreed to consider solutions. The community elected several residents to represent them on a committee that also included representatives from the Department of Transportation , the police department, the fire department , and the school board.

Solution

Through a process of sharing and negotiation, residents could express their concerns and desires, and officials shared their abilities and limitations. Originally residents asked for street signs announcing a $200 fine for speeding. The police, however, felt that this would be ineffective, as they don't have the resources to consistently patrol the area. The group agreed upon several measures, including speed bumps, white road edge markings, and pavement markings reading "Slow Down" and "Speed Limit 25." Reflective green florescent pedestrian signs were also installed. As speeding school buses were observed to be a part of the problem, the local school board also agreed to enforce the speed limit among school bus drivers. According to the Virginia DOT guidelines, it must be shown that at least 75 percent of the community is in favor of proposed improvements before beginning, so the group also conducted a door to door survey of about 200 of the 1000 homes in the community and found near unanimous approval.

Results

Community initiative clearly triumphed in this case. One DOT representative even stated, "We never would have tackled that battle if they hadn't come to us first." Though no formal evaluation of the changes has been done, residents are pleased with the changes, and county officials feel a good solution was worked out through the negotiation process.

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Creating Active Rural Communities

Pedestrian and Bicycle Information Center

Problem

There are many challenges unique to creating active communities in rural places, and yet there is very little literature or research to guide a community that pursues this goal. Some of the obstacles a rural community faces include large distances between destinations (20 km/12 miles or more); a prevalent "car culture"; an extensive road network and a small tax base, so that the focus on transportation is to maintain existing roads for cars, rather than to create or improve walking or cycling infrastructure; and limited capacity or expertise within municipal governments (staff and elected representatives) to make planning for active communities a priority.

Background

Haliburton County is a large rural area located about 220 km (137 miles) north of Toronto, Ontario. The landscape is largely made up of lakes and forest with large tracts of government land. It is over 4,500 square km (1,737 square miles) in size and takes about an hour to cross east/west or north/south. The county has a year-round population of about 17,000 which expands to approximately 65,000 during the summer months with cottagers. Two main villages, Minden and Haliburton, located about 24 km (15 miles) apart, are the hubs of most social and economic activity.

Different sectors in the community recognized that adding walking and bicycling to the local planning agenda would require initiative from interested citizens and organizations. Late in 2004, the Communities in Action Committee (CIA) formed to begin promotion and planning for active transportation. In 2005 the Haliburton Highlands Cycling Coalition (HHCC) was formed to advocate and plan for bicycling.

Both coalitions have a combination of volunteer and professional representation:

- Administration for the CIA is managed by the Haliburton County Community Co-operative, a non-profit group that is structured so that its members can start new projects and initiatives that interest them and benefit the community. Through various provincial and foundation grants, the CIA has been able to hire a part-time project coordinator who has been integral to the project's success.
- The Haliburton, Kawartha, Pine Ridge District Health Unit, which covers three different counties, is the administrative parent of the HHCC. Two staff from the Health Unit sit on the HHCC; other members are volunteers and cyclists. These staff members have also been able to dedicate work time towards initiatives of the HHCC, which has provided valuable continuity and leadership to the work.

Both the CIA and HHCC have two main goals: to advocate for active transportation and cycling at the municipal level, and to promote both broadly throughout the community.

Solution

PARTNERSHIPS

Bringing stakeholders into the coalitions helped to raise public and political awareness of active transportation and cycling. Between the CIA and HHCC, sectors represented on the committees include public health, tourism, economic development, trails, community-based research, transportation planning, municipal recreation and community development. Other important stakeholders such as school districts and municipal governments are provided with regular updates and opportunities for input.

PLANNING

Both the CIA and HHCC worked with consultants to develop plans and used those plans as advocacy tools and action strategies with municipal governments. The CIA completed an Active Transportation Plan for Minden. The HHCC completed a Cycling Master Plan for Haliburton County.
Advocacy

Both coalitions emphasize long-term advocacy with decision makers as the key to seeing their plans come to fruition. The coalitions understood that much of the implementation, particularly around physical infrastructure, requires leadership from and partnership with local governments.

PROMOTION

Promotion of active transportation messages to the public focused on village hubs and promoted a doable message. The "Park the Car and Get Movin'!" campaign encouraged people to park their cars in free parking areas and walk to do their errands when they are in town. The HHCC approached promotion by holding events. Each May/June a series of bicycling workshops and rides are organized to encourage people to get out and bicycle, culminating in a Cycling Festival in June to bring people together to celebrate bicycling with fun events and activities for the whole family.

The Shifting Gears Cycling Festival offers local cyclists of all ages an opportunity to get together and celebrate cycling. Participants in 2007 get ready to ride 1km through Haliburton village.

SMALL-TOWN OPPORTUNITIES

One of the greatest opportunities in a rural community is its small-town nature. Key individuals wear many different hats, so when someone joins a coalition under one official hat, his or her other affiliations may also benefit the group. For example, one of the trail representatives on the CIA is also the county roads engineer. He is very generous about sharing his professional expertise and insights into the planning process even though he is there in a different capacity.

"The medium is the message" holds true in a small community, where prominent community members who are early adopters catch the attention of everyday people. Prominent people are easily identified, and word of mouth is one of the most effective ways to get a message out. For example, a local radio host was seen parking her car in a public parking lot and walking half a kilometer (about one-third mile) to work. Of course everyone knew her car and asked her why she was doing this. She promoted the message, "Park the Car & Get Movin'!" this way, as well as by talking about it on her weekly show. As more people express their values by walking (and cycling) the talk, they send a message to local politicians which can influence decision making.

Result

The work of both coalitions is ongoing. Successful advocacy to make active transportation and bicycling a planning priority takes time, with success measured in small steps. The past three years have brought these specific achievements:

- Municipalities purchased and installed bike racks, and provided in-kind support to install active transportation signs.
- Four municipalities hosted events for the World Record Walk in October 2007, which demonstrated their interest in promoting walking.
- Increased interest and engagement from municipal and county councils and staff, through participation in workshops and community forums hosted by the CIA and HHCC. In 2007 the Minden council adopted the International Charter for Walking.
- Municipalities have contributed funding for two important trail projects in Haliburton and Minden; these trails are key active transportation corridors.
- Financial contribution from local councils towards the 2008 Cycling Festival.
- A successful letter-writing campaign to the county advocating for paved shoulders on an upcoming road reconstruction project.
- Increased public participation in the annual cycling festival and workshops.
- A particularly important intangible success is the social development that continues to happen through both projects. New networks and partnerships form when people volunteer at or attend events or participate in focus groups. This process builds human capacity in the community for future planning and advocacy work.

In addition, these projects have raised awareness about the benefits of healthy active living. As a result, many people are making changes to incorporate daily physical activity into their lives. While no evaluation has been done, more people have been observed walking, cycling and participating in activities such as the commuter challenge to get to work actively.

The Municipality of Dysart, et al., provided in-kind support to install four of these sign kiosks in Haliburton Village, to encourage people to park their cars and walk in town. Kiosks themselves were donated by Haliburton Forest, and the signs provided by the CIA. Similar signs will be put up in three places in Minden.

Cost

The overall budget for the CIA to date has been about $104,520, with in-kind contributions valued at about $40,000. The HHCC's budget has been about $47,000, with in-kind contributions valued at about $15,000. The in-kind donations covered a range of expenses, including staff time, administration, facility and equipment use, map printing, sign installation, and many hours of volunteer time.

Both the CIA and HHCC have successfully applied for funding from local, provincial and national sources. A large portion of money came from provincial and federal government grants. Local government has contributed to the cycling festival. Non-governmental organizations that promote health and safety (Heart and Stroke foundation, Safe Kids Canada, Health for Life) have also provided funds.

Web sites

Communities in Action: http://haliburtoninaction.r8.org
Haliburton Highlands Cycling Coalition: www.cyclehaliburton.ca

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Image sources
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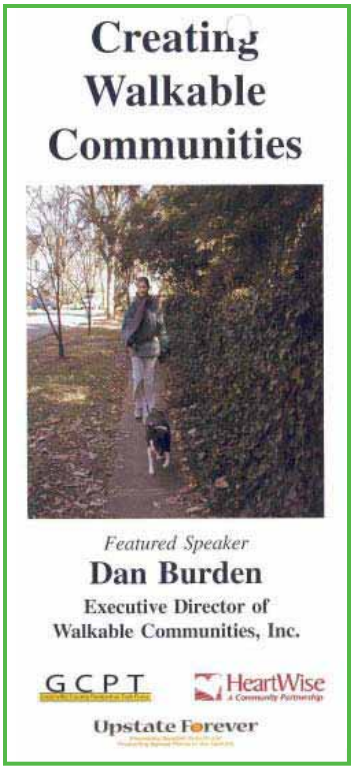
Creating Walkable Communities, Partnership Campaign

Pedestrian and Bicycle Information Center

Problem

Pedestrian safety receives little attention and funding in South Carolina. Perhaps as a result, pedestrian fatality rates per 100,000 residents are fourth highest in the nation.



Background

The Upstate region of South Carolina is a rapidly-growing, six-county area situated between Charlotte, North Carolina, and Atlanta, Georgia. Upstate Forever is a non-profit organization committed to promoting sustainable development in this area of South Carolina.

Solution

Upstate Forever organized a series of seven presentations by pedestrian expert Dan Burden given on March 11 and 12, 2003. The presentations were designed to focus on pedestrian issues in Upstate South Carolina and targeted at public officials, transportation engineers, and the public at large. The approximate cost of the event was $10,000 for speaker fees, material distribution, and various other expenses. Some of the cost was offset by public and private endorsers who each contributed $100.

Results

More than 500 people attended the events, which received noteworthy coverage in several area newspapers. Policymakers are beginning to explore ways to improve pedestrian access in various communities. One Upstate city council passed a resolution to "express City Council's commitment to pedestrian oriented design concepts in sidewalks, streets, and streetscapes, and to provide for review of existing land development regulations and related procedures." In addition, one city planner asked Upstate Forever to help design a pedestrian-oriented downtown redevelopment plan.

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Image Source

Institute of Transportation Engineers Pedestrian Project Awards Application. Walkable Communities, Inc. http://www.ite.org/activeliving/files/C-2-C_ppa028.pdf

Crosswalk Flags and the Adopt-a-Crosswalk Program

Pedestrian and Bicycle Information Center

Problem

Motorists' inability to see pedestrians crossing at various road and crosswalk types created an unsafe environment for pedestrians.

Flags used in the program.

Background

The Mayor of Salt Lake City in 2000, Rocky Anderson, responded to a national study that declared Salt Lake City as "not pedestrian friendly" by creating a Pedestrian Safety Committee aimed at reducing pedestrian injury accidents. The committee implemented several different safety measures, including crosswalk flags and the Adopt-a-Crosswalk Program.

Solution

Removable orange flags were installed at crosswalks to increase drivers' visibility of pedestrians. The flags increased visibility and showed a clear indication of pedestrians' desire to cross the street. It was shown that both pedestrians and drivers thought there was a benefit of the simple presence of the flags in their holders at the crosswalk. Pedestrians take the flags from one end of the crosswalk to increase their visibility as they cross the street and then return them to the other holder.

Six initial crosswalks were outfitted with flags in August of 2000. By 2007 there were 40 city-maintained downtown flag locations. Due to the lack of available funds and an increased demand of crosswalks with flags, the city began an Adopt-a-Crosswalk program in January 2001. The Adopt-a-Crosswalk program allows individuals or businesses within a one block radius of a marked crosswalk to "adopt" the crosswalk. This program requires that the sponsor monitors the flags and purchases replacement flags when needed. The city installs the flag holders and usage signs, and provides the initial supply of flags at no cost; replacement flags are available for $0.50 each.

Pedestrians cross the street using flags to increase visibility.

City ordinances were also modified to increase penalties for drivers who fail to yield for disabled pedestrians, pedestrians carrying orange flags, and school crossing guards. For these violations, the drivers were required to appear before the Justice Court Judge and were charged a fine between $1 and $750, with a recommended fine of $425.

Results

As of spring 2007 there were 134 adopted crosswalks; 46 adopted by schools and 88 adopted by residents and businesses. Salt Lake City estimated that the crosswalk flag program costs the city $30,000 annually. After the initial crosswalk flags were installed observations and interviews revealed that 11 percent of pedestrians were using the flags. Approximately six months later it was estimated that approximately 14 percent of pedestrians were using the flags. The installation of crosswalk flags also created a significant amount of local and national media coverage that increased public awareness about pedestrian safety education. The crosswalk flag program and the Adopt-a-

Crosswalk Flags and the Adopt-a-Crosswalk Program—Salt Lake City, UT

Crosswalk program, along with several other pedestrian safety measures, resulted in a 31 percent decrease in city-wide pedestrian injury crashes, based on 2000 data.

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Image Source

ITE Pedestrian Project Award Submittal. Pedestrian Safety Committee.
http://www.ite.org/awards/pedproject/SaltLakeCity.pdf

East Winston Heritage Trails

Pedestrian and Bicycle Information Center

Problem

Minority populations in Winston-Salem are disproportionately affected by obesity and resulting chronic health problems. In addition, many minority cultural sites were lost throughout the years to urban renewal.

Start Point Marker for Heritage Trail and directional Markers for 14th street and Holland Trails.

Background

The Forsyth County Department of Public Health initiated the "Behealthy" Coalition in 1999 to address the burden of chronic diseases. Increasing physical activity among residents of Forsyth County is its main objective.

In the first few decades of the 20th century, Winston-Salem became home to a prosperous and growing black middle class where black-owned businesses and neighborhoods thrived. However, the expansion of RJ Reynolds Tobacco Company, Winston-Salem State University, interstate highways, and more, all led to the destruction of entire black neighborhoods.

Solution

With seed money from Beactive North Carolina, the Behealthy Coalition initiated a plan to develop several walking trail routes in historic neighborhoods in Winston-Salem. The Behealthy Coalition partnered with the City Department of Transportation, the City/County Planning Department, the Director of African American Programs at Old Salem, and the Society for the Study of Afro American History in Forsyth County to develop trail maps highlighting the history of seven different neighborhoods in Winston-Salem. The six trails range in length from 0.8 miles to 2.4 miles, and many educational, religious, and cultural institutions are highlighted on the trail map. The map also features safety tips and descriptions of the neighborhoods.

Flag presentation at the First Neighborhood Heritage Day, April 2002.

The city of Winston-Salem Department of Transportation assisted the Behealthy Coalition with finding a cost-effective and practical way to permanently mark the Heritage Trails. Preformed thermoplastic trail markers were used, each in a distinct color to correspond with the color designation on the walking trail map. A walker can enter a trail at any point and complete the trail loop by following the designated trail color.

The total budget was $7,526. Grants from Beactive North Carolina covered $7320, and a small donation of $206 from the City of Winston-Salem Department of Transportation covered the rest after funding fell short for the installation of trail signs. The majority of work required to complete this project came from partnered agency staff time and community member volunteer hours.

Results

Soon after completion of the project, the Women's Health Center of Excellence of Wake Forest University Baptist Medical Center (a Behealthy partner) received a grant to develop neighborhood walking groups as a means to build social capital among walkers and community decision-makers. The success of these walking groups led to a community-wide celebration of health, history, and heritage with the first annual Heritage Day. The event included outdoor games, a fruit and vegetable tasting station, a "walking health fair," free health screenings, and guided trolley tours of the historical Black Neighborhoods. In addition, the Coalition sponsors downtown lunch-hour walks, attracting up to 500 participants at a time.

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Image Source

Institute of Transportation Engineers Pedestrian Project Award. Forsyth County Department of Public Health. http://www.ite.org/awards/pedproject/ppa087.pdf

Get Active Orlando

Pedestrian and Bicycle Information Center

Problem

The Community Redevelopment Area in downtown Orlando was in need of multi-faceted measures to promote revitalization and community health.

Background

Funded by a grant received in 2004 from Active Living by Design, Get Active Orlando works to encourage and facilitate walking and bicycling in Orlando's downtown Community Redevelopment Area.

Solution

Orlando's expansive program, Get Active Orlando, (funded by Active Living by Design) aims to encourage and facilitate walking and bicycling in the downtown area. Get Active Orlando's vision is to establish downtown Orlando and its adjacent neighborhoods as an "Active Living District," with residents, employees, and others in the downtown area routinely making active choices in an environment that encourages safe physical activity. This broad coalition of local agencies, health services, and advocacy groups maintains a particularly strong partnership with local neighborhood association leaders, sending a commissioner to attend every association meeting. Residents may voice concerns and have questions answered through this personal contact and regular newsletters of current events.

The program conducted a "get active" survey of the terrain. One hundred volunteers were equipped with measuring wheels and a checklist to evaluate engineering and aesthetic aspects of the urban walking and bicycling environment. From this initial evaluation, the city developed a downtown pedestrian and bicycle transportation plan that included changes to the current code, particularly regarding pedestrian-friendly building design.

Results

Funding efforts led to $25,000 of gas tax revenue reserved for installing bikeways around the city, and a state grant with matching local funds provides for trails, sidewalk improvements, bike parking, urban gardens, senior walking groups, and more. Community programs such as hip hop and golf classes have also been implemented in response to resident interest. Regular communication between all the partners maintains the strong long-term partnership that drives the initiatives.

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http://www.activeliving.org/node/291?tab=summary.

Image Source
Active Living By Design.
http://www.activelivingbydesign.org/cgi-bin/albd.org/view_services.cgi?request=show_public_home&dept_id=117

Green Ribbon Month

Pedestrian and Bicycle Information Center

Problem

Speeding through school and residential zones was common, and there were too many pedestrian injuries and deaths.

Background

Green Ribbon Month was started in 1998 by the Davis County Safe Kids Coalition to protect children from being hit by motor vehicles in school zones and crosswalks. Three teenagers were hit and killed in one intersection alone over a period of six years.

Solution

The project chose green as a color to coincide with the fluorescent green color of pedestrian and school crossing signs, and green ribbons were put up where pedestrians had been killed to serve as a reminder to drivers about the importance of driving with care. Many diverse groups were brought together to work in collaboration, including state and local health departments, the State Department of Transportation, the Utah Parent Teacher Association and numerous schools.

The public awareness campaign included green ribbons displayed on signs, cars, people, fences, trees, and poles. In addition, local PTAs had parents and drivers all sign pledges to drive 5 mi/h under the posted speed in school zones and residential areas, to stop at crosswalks, to yield to pedestrians when making turns, to not pass a vehicle stopped for a pedestrian, and to educate their children about pedestrian safety. Children also signed pledges about safe pedestrian practices. Good media coverage helped the project along, including a publicized press conference with representatives from several organizations and the police department.

Costs of the program were minimal as sponsors — local printing companies, the health departments, and the Utah Highway Safety Office — funded the reproduction of posters, information packets, and mailings. Local PTAs spent about $15 to buy ribbons and copy pledge cards.

A green ribbon tied on a school zone sign.

Results

The project was a success in Davis County and soon spread to the entire state. The State Governor declared September to be Green Ribbon Month, and in the fourth year after the program began, more than 35,000 people participated. Most impressively, pedestrian and motor vehicle crashes decreased every year after the implementation of the program.

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Image Source:
Institute of Transportation Engineers Pedestrian Project Award Application. Violence and Injury Prevention Program. http://www.ite.org/awards/pedproject/ppa022.pdf

Health Impact Assessment of Proposed Atlanta Beltline

Pedestrian and Bicycle Information Center

Problem

The proposed Atlanta Beltline is a large-scale transportation and land use development which has the potential to change redevelopment patterns long into the future. The Health Impact Assessment will provide a way to assess the easily overlooked effects and recommend elements to emphasize or change.

Background

The Health Impact Assessment is a tool commonly used in Europe and New Zealand, but is only just beginning to gain ground here in the U.S. The Center for Disease Control is using it to evaluate projects and policies that will impact health but don't have health as a primary focus. The Beltline project grew out of a Georgia Tech student's master thesis and was subsequently picked up by city. The "beltline" is a loop of 22 miles of unused railroad track. The project intends to install a new light rail system along the tracks to connect the downtown neighborhoods and to convert the area surrounding it into a multiuse bicycle and walking trail.

Solution

In 2003, a group called the Healthy Places Research Group was formed to collaboratively explore the built environment and the health of communities. Organizations involved include Emory University's Rollins School of Public Health, Georgia Tech's College of Architecture, the Center for Quality Growth and Regional Development, professionals from the Centers for Disease Control and Prevention (CDC), the pedestrian advocacy group PEDS, neighborhood organization representatives, researchers, and students. Several professionals who had been following the success of health impact assessments abroad came together at these meetings and found the Beltline to be an ideal project to study from this angle.

The Beltline offers the potential not only for an extended system of transit and greenways, but also significant redevelopment in what is now underused industrial area. The Health Impact Assessment will evaluate the expected effects of the project and make recommendations on how best to mitigate the negative impacts and promote the positive ones. Funding was provided through a grant by the Robert Wood Johnson Foundation. Research focused on the impact relating to physical activity, access to parks, transit, healthy foods, safety (including injury and crime), social capital networks, and environmental factors including water resources, brown fields, air quality and noise.

Not only does the Health Impact Analysis aim to identify the risks and benefits associated with the project, but also to involve the community and stakeholders in the process and to communicate these issues to key decision makers. Though funding was not provided for soliciting community input, approximately 1,000 surveys were distributed through neighborhood planning units in addition to being made available online. Researchers aimed to discover

what residents felt were important health issues for them, and what their expectations were surrounding the Beltline development project. Despite the fact that funding was lacking to make the surveys truly representative, feedback from residents was able to be used in certain instances to help guide the researchers' inquiries.

Results

The report is still under review by the Robert Wood Johnson Foundation, and results are expected to be published by the end of June 2007. The assessment has real potential to influence the project while it is still in the early planning stages. The Atlanta Beltline is confirmed for implementation, although it is still undergoing planning revision.

A computer simulation of a greenway near transit.

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Image Source
Center for Quality Growth and Regional Development. http://www.cqgrd.gatech.edu

Keep Kids Alive, Drive 25

Pedestrian and Bicycle Information Center

Problem

Speeding in residential areas was too common and rendered neighborhoods unsafe for children and other pedestrians.

Background

Tom Everson, a local resident of Omaha, Nebraska, started a grassroots education campaign in 1998 to reduce residential speeding. The campaign has since spread to more than 240 communities all over the US. Collaborations between local residents, schools, neighborhood associations, local businesses, law enforcement, traffic engineering, and transportation departments improved mutual trust and strengthened opportunities to get the message out.

Solution

The program was founded on the recognition that the majority of speeders in neighborhoods are residents themselves and that most speeders simply aren't paying attention to their speed. Elements of the public awareness campaign included street and yard signs, brochures, bumper stickers, trash can decals, and public service announcements. Each element contained the dramatic and effective slogan, "Keep Kids Alive, Drive 25." Other slogans expanded the message outside the neighborhood: "No Need to Speed," "STOP. Take 3 To See," "Check Your Speed," and a Spanish language version, "Mantenga A Los Niños Vivos, Maneje A 25."

Cost varies widely depending upon the extent of the campaign. Yard signs cost about $13, though some communities spent up to $10,000 for long-term campaigns. Funding has come through both the sale of related educational products as well as partnerships with local businesses. For example, Radio Disney sponsored public service announcements in Omaha, and Blue-Cross-Blue Shield of Nebraska underwrote the cost of bumper stickers. In some cases, local departments of transportation have sponsored joint efforts, such as the installation of radar trailers and street signs.

Results

The campaign has been a widely recognized success. The first study of effectiveness, conducted in Oceanside, CA, found a 16 percent decrease in average vehicle speeds in targeted neighborhoods. Similar success was found in Omaha, where 75 percent of drivers braked when passing a yard sign. Free information on how to implement a new campaign can be obtained by emailing Tom Everson at Tom@kkad25.org.

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Images Source: *Keep Kids Alive Drive 25, www.keepkidsavlivedrive25.org*

Main Street Project

Pedestrian and Bicycle Information Center

Problem

Several local citizens and community leaders realized that much needed physical changes to their village's pedestrian environment would be the most successful if they unfolded hand-in-hand through a participatory community building process. More than just a sidewalk improvement project, the extensive community participation process inspired a re-visioning of downtown Trumansburg and has led to spin-off projects around town.

Personalized commemorative bricks helped raise money for the project.

Background

In 1995, Paula Horrigan, an area resident and professor of landscape architecture at Cornell University, worked with community leaders and stakeholders to create the Main Street Design Guide, outlining planning, preservation and design vision strategies for Trumansburg's Main Street Corridor. Several years later in 2001, the opportunity came to implement the vision when Horrigan and village Trustee Alan Vogel successfully applied for and received a TEA-21 grant for $800,000. A Main Street Advisory Committee was formed, and the Main Street Project was born. With a small local government, no professional planning staff and a commitment to making the improvements project a truly community-driven process, Horrigan worked with the village to apply for a Cornell Research and Extension Integration Grant to assist the village with facilitating the public process. The $20,000 grant, entitled the Engaged Community Project (ECP), enabled Horrigan and her Cornell colleague, Scott Sears from ILR Extension to assemble the ECP team and hire graduate student, Annalisa Raymer. With the ECP as catalyst, the process of turning a physical infrastructure project into a community engaged, community capacity building process began.

Solution

This ECP project provided the initial leadership to jump-start and facilitate the Main Street Project's unfolding. From the larger Main Street Advisory Committee several subcommittees including the fundraising, design, evaluation, and research teams were formed. Each group drew from resident professionals, citizen "idea-people" and business owners for their members. Each group had different project tasks related to the overall goal of revitalizing Main Street's sidewalks and civic spaces.

Celebrating the project.

Diverse voices, inclusiveness and intergenerational representation were priority concerns of all the groups who used multiple communication and participation modes including public forums posters, church and school assemblies, website and a biweekly column in the local newspaper to get the word out. Several months into the project, acting on the recommendation of the ECP team, the village hired a part-time Main Street Project Assistant and Coordinator of Volunteers, Susan Henninger. Henninger's role, which evolved and adapted to the project's needs, provided crucial continuity in documenting, communicating and activating the Main Street Project.

Using an approach called Participatory Evaluative Action Research (PEAR), the evaluation team gathered community input on all ongoing projects and worked to revise this input into achievable goals and designs. They gave out questionnaires asking participants how they would like to use the public space, how they envision their village, and other opinions on what qualities were valued. The research and advisory teams together prioritized three main questions to investigate: 1) How successful is the main street project in uncovering and addressing concerns of the diverse community? 2) To what extent does the community exercise ownership of the main street project? 3) How does the Main Street Project understand and incorporate community conceptions of the "T-Burg" spirit, identity and place attachment, and the roles of Main Street in the resulting design and its modes of operation?

To answer these questions, the research team conducted interviews with business owners and civic institutions, sent questionnaires to every household along Main Street, and conducted a children's project providing trace paper to draw their desires for the downtown space. As residents often are not sure what specific design goals they want, or know how particular changes would be important to them, surveys often solicited opinions based more on how people envisioned using the space. The many public forums held were not merely places to present developed ideas, but also to actively solicit community input. Breakout groups gave citizens a chance to get involved in the various teams. Sketch artists were on site to give visual form to ideas as they occurred. At one event, hay bales, paint, chalk and set like props (including a clock tower) were used to simulate the changes that would be made to traffic flows, attracting more participants and providing a concrete demonstration to consider. A youth questionnaire was available on the web and at the school, and all active design sessions were recorded. Additionally, the research team observed how people used the streets, noting interactions between cars and people, illegal turns, trucks' turning radiuses, and more. However, a key to the success of the project was the organic nature of the process. All the various teams consulted with each other often as issues arose.

Additional smaller groups worked on a variety of interests. The bus stops worked in conjunction with the Tompkins County Area Transit, who committed to provide funding to improve local bus stops to encourage more riders. Other volunteers developed a "commemorative bulletin" as a sort of historical scrapbook to catalogue the changes going on in the community. Also included in the bulletin were winning youth essays on local history. The project actively recruited youth and families to participate. For example, high school students and 4-H members were able to complete community service requirements through fundraising, an Earth Day event had kids help clean up Main Street, and the local Fourth Grade Architecture Project was made a part of the Design Community Meeting.

Several community disagreements were addressed during the process, including a concern over lost parking, the potential violation of NY State Historic Preservation Office (SHPO) guidelines, and concern over a lost "island" turn-around space. Observation and documentation of parking issues revealed that the parking would not be dramatically impacted, however to be safe, extra care was taken to distribute parking to address everyone's needs. To address SHPO, organizers traveled to Albany and argued that the less conventional proposed improvements, which were trying deliberately to avoid a faux traditionalism, would be consistent with the goals of rehabilitating a living vernacular cultural main street landscape. And finally, community members who were concerned over lost turn around space were brought into the planning dialogue when a community-wide vote resulted in a more flexible solution. The island turnaround space was retained and redesigned so it could easily be closed off during community events.

Further funding was obtained through the State legislature with a $100,000 grant, and many local fundraising events added to the pool. In order to attract donor grants, the fundraising group raised money to provide matching funds by selling personalized commemorative bricks and bluestones, and holding streetscape festivals including the autumn "Corn on the Curb" celebration.

Results

Excellent fundraising resulted in enough funding to assure completion of all the projects in the original plan, as well as additional funds to put towards future improvements. The half-time position of Coordinator of Volunteers was so successful that it was expanded into the role of Community Development Coordinator after five years. Projects completed included sidewalk and curb installation, paving, unique seating installation, retaining walls, tree plantings, curb extensions, storm drains, street lighting, and more.

Most of all, the project which started out as an effort to get the community involved in a few downtown improvements has become a community renewal effort. Additional volunteers have begun projects to develop small parks around town, public access points to the creek, local musician fundraising events, and more. In addition, out of the project emerged two complimentary methods for engaging residents in public placemaking: 1) the Companion Practices approach (a synthesis of civic engagement, community design and action inquiry); and 2) Participatory Evaluative Action Research (PEAR).

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Image Source
The Trumansburg Main Street Project.
http://mainstreetproject.blogspot.com/

Mayor's Committee on the Built Environment

Pedestrian and Bicycle Information Center

Problem

Though the City had recently completed a Bike Summit to evaluate changes needed to accommodate bicyclists, little had been done to address pedestrian issues.

Background

In 2004, Louisville's Mayor initiated the "Healthy Home Town" program to promote and support physical activity. About two years later, the Committee on the Built Environment was created to further support the program. Composed of both agency coordinators and community members, the committee was concerned with all issues of the built environment that affect physical activity.

Solution

The Committee's first project was to create a Safe Routes to School program. Committee members worked with local schools and other agencies to evaluate current walking routes to determine which projects to submit for inclusion in the program. As a complement to the Mayor's Miles Program, which encourages residents to walk in parks that designate every 1/10 of a mile, the committee used neighborhood-specific sidewalk decals to indicate recommended walking paths. It is hoped that the unique decals will empower neighborhood residents, and that the clear walking trails will serve walkers well.

Another related project was updating the small neighborhood plans. One member of the Committee was also in charge of these small plans, and walking surveys were conducted as a part of the community process. Interested residents were given a map and an assessment checklist. The final assessments were put on a large master map for each neighborhood and evaluated for priority spots. With little funding for small pedestrian improvements, this prioritizing system gives greater clout to necessary projects.

Active Louisville, one of 25 city partnerships in the country to receive a grant from the Robert Wood Johnson Foundation for an Active Living By Design program, was motivated by the Mayor's Bike Summit to provide a similar opportunity for walkers. Partnering with the Committee on the Built Environment, the two groups pursued a $100,000 grant from the Municipal Planning Organization (MPO) to fund a Pedestrian Summit. The summit, still in the planning stages, will use this funding to hire a consultant to structure public involvement in the project. There will also be a pre-planning brainstorm session involving planners, engineers, and other stakeholders to bring them into the process early and get input on feasibility. Additionally, Mark Fenton, host of the PBS TV show America's Walking, will come to speak at a public event to advocate the five P's: Preparation, Promotion, Programs, Physical Improvement, and Policy. Following the summit, a draft pedestrian plan will be made that outlines the priority issues to be addressed. The summit is scheduled for spring 2008.

Results

As of mid 2007, three neighborhoods have undergone walking surveys as a step to updating their plans and prioritizing pedestrian improvements. The summit has yet to take place, but the agency has high hopes that with the additional funding received from the MPO, the Pedestrian Summit will be able to make a great impact.

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Mobile Tablet Bus Stop Inventory

Pedestrian and Bicycle Information Center

Problem

The Louisville bus system had an inordinate number of inaccessible bus stops and a limited fund to improve them.

Background

The Missoula Bicycle and Pedestrian Program pursued a Congestion Mitigation and Air Quality (CMAQ) grant, funding the creation of a pedestrian safety campaign that began in 2004, and has been operating since.

Solution

The Transit Authority of River City (TARC) began an inventory of bus stops, cataloging in particular what they dubbed to be the "Hall of Shame;" those bus stops that were entirely inaccessible due to ditches, mud, lack of sidewalks, and other impediments. TARC representatives worked together with the Regional Mobility Council to prioritize needs and projects.

Due to the efforts of the group, the Authority received federal grants under the SAFETEA-LU legislation, the New Freedom Initiative, and the Jobs Access and Reverse Commute (JARC) program to provide better access to transit stops. One objective was a more thorough bus stop inventory using handheld computer tablets. The units use Global Positioning System (GPS) to allow users to record the amenities offered at a particular location, including their condition.

This system will also be used to compile data received from neighborhood walking surveys, and will allow all the final data to be added to a new software database for trip planning.

Results

The inventory of all 7,000 bus stops will be completed in the summer of 2007 and will add to the trip planning software database to be implemented in the fall of 2007.

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Norfolk Pedestrian Safety Initiatives

Pedestrian and Bicycle Information Center

Problem

Norfolk — a city of almost 240,000 with a quickly growing tourist sector, an international airport, and four different colleges/universities — experienced high demand for a safe and attractive pedestrian environment.

A planted median and refuge island for pedestrians.

Background

Norfolk had a good track record of decreasing pedestrian crashes. Pedestrian accident counts in 2003 were only half the rate of 1996. This success was made possible by several key pedestrian safety initiatives.

Solution

The three primary safety initiatives pursued by the City of Norfolk were the School Safety Program, the Downtown Pedestrian Safety Program, and the Mid-block Pedestrian Crossing Safety Program. The Division of Transportation partnered with the Norfolk Police Department, Norfolk Public Schools, and the Parent Teachers Association to provide a safe school environment. The first of their activities was the Safe Routes to School Program, whereby safe walking routes for children were designated and marked with symbols for children to follow. When necessary, new sidewalks and crosswalks with handicap ramps were installed. The Hazard Investigation Team (HIT) worked in conjunction with the Safe Routes program by evaluating concerns or complaints regarding the safe walking route to school. The team was made up of representatives of each partnered organization.

The City also was involved in several facility enhancement projects around schools, including school zone flashers, pedestrian crossing signs, crosswalks with diagonally painted lines, and in some cases, pedestrian activated in-pavement amber lights. Funding for these lighted crosswalks was available through a technology incentive program. In addition, engineers worked with school administrations to create safe parent pick-up and drop-off areas, and the Norfolk Police Department enforced the school zone regularly with the use of speed radar trailers. This enforcement was funded by a grant of $10,000 from the Department of Motor Vehicles.

The Downtown Pedestrian Safety Program implemented a series of safety measures, including extended walk times at intersections during off-peak and weekend times, explanatory pedestrian walk signs, brick or “stamped asphalt” crosswalks, pedestrian countdown signals, and reduced speed limits along high foot traffic corridors.

There are several major arteries that flow through residential and commercial areas in downtown Norfolk, providing a challenge to balance traffic flow and pedestrian safety. Towards this goal, mid-block pedestrian refuge islands with landscaping were installed. The policy was to first implement the temporary technique of “reflected domes,” and if proven successful, then searching for funding for a permanent installation.

Results

Anecdotally, the mid-block crossing islands were found to be successful. No accidents have taken place since the installation of the refuge islands in the few locations where several accidents — including a fatality — had occurred.

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Images Source

Institute of Transportation Engineers Pedestrian Project Award Application. City of Norfolk Division of Transportation. http://www.ite.org/awards/pedproject/Norfolk.pdf

Olympia's Parks and Sidewalks Funding Measure

Pedestrian and Bicycle Information Center

Problem

Olympia, WA omitted sidewalks from city streets during two eras: a century ago, when lower-income neighborhoods were first built; and in the 1950s and '60s, when automobiles were the dominant mode of travel. The result was a lot of missing sidewalks.

In 2003 both the Bicycle and Pedestrian Advisory Committee and the Parks and Recreation Advisory Committee presented separate sidewalk and parks improvement plans at the same time. For a time it seemed that the two initiatives would compete for funding: How would Olympia be able to pay for two sizeable improvement programs?

Background

Olympia had neglected sidewalk construction for decades; the missing sidewalks made it difficult to walk to school, to the transit stop, to the store, to work, or for recreation. The city's Bicycle and Pedestrian Advisory Committee worked from 1997 through 2003 to develop an inventory and rank city sidewalk needs. It was estimated that installing a sidewalk on one side of major roads in the city would cost over $50 million. That was a lot of money for a city of 45,000 people — and more than 300 years' worth of work at the then-current funding level.

Simultaneously, the city's Parks and Recreation Advisory Committee was working on a new parks plan. It identified over $100 million in park funding needed to serve Olympia's growing population. A walking advocate who participated in drafting the parks plan took care that walking was examined in the parks survey, which found walking to be the primary form of active recreation. The final plan included several goals and policies relating to walking.

Solution

After the city council approved both plans in late 2003, the search for a funding mechanism began. The Parks Department and the Bicycle and Pedestrian Advisory Committee each identified several funding options. The Parks staff requested that the city council appoint a citizen advisory group to review the parks funding options and make a recommendation to the Council. Meanwhile, sidewalk advocates had formed Walkable Olympia Neighborhoods (WON!) to lobby for including sidewalks with parks and open space funding. When WON! succeeded in getting the Council to include sidewalks in the list of projects for potential funding, the Parks staff worried that "their" funding measure was being usurped.

WON! had expected this development and began organizing. Early in the effort, a visit through Olympia by Walkable Communities guru Dan Burden (www.walkable.org) provided education, guidance, and a stimulating vision. Advocates needed to identify a constituency because there was no active walking group. To solicit interested citizens, realtor's information boxes

Realtor's information boxes were used to solicit advocates and later, to distribute campaign literature.

were installed at key pedestrian locations in town; over 100 walkers responded. WON! asked walkers to attend the meetings of the Parks and Recreation Advisory Committee. At the first meeting, five members of the public were present; all were walking advocates. At the second meeting, 14 out of 15 were advocates. At the final meeting, over 30 people spoke in support of sidewalk funding.

The campaign turned a corner when the city conducted a poll to determine the level of funding voters would support. WON! succeeded at including questions in the poll, and the results were encouraging: 42 percent supported a 1 percent tax for sidewalks; 49 percent supported a 2 percent tax for parks. Fifty-seven percent supported a 3 percent tax for parks and sidewalks. Suddenly sidewalk funding was perceived as providing the margin of victory for a combined campaign. The tension between parks and sidewalk advocates evaporated.

Taking note of the unanimous support from advocates for parks, sidewalks and open space, the city council voted in July 2004 to put a 3 percent tax measure on the September ballot. The early election date helped in two ways. First, advocates were ready to begin a campaign, whereas opponents had little time to organize (for example, WON! had already planted over 100 yard signs even before the city council put the measure on the ballot). Second, summer is a great time of year to interest the public in outdoor activities and issues.

The campaign committee, Olympians for a Livable Community: Parks, Open Space, and Sidewalks (OLC), included members of the city council, the Parks Advisory Committee, the Bicycle and Pedestrian Advisory Committee, WON!, and other community advocates. The campaign's message emphasized three key points: "A Legacy of Natural Treasures", "A Livable Community", and "Health and Safety". These were included in all presentations and literature.

Volunteers spoke to neighborhood associations, service clubs, and other interested groups, and eventually placed 400 yard signs. In the process, OLC identified volunteers in most of the City's precincts who worked in support of the measure in each neighborhood. Politically active households donated funds; altogether the campaign raised about $12,000.

The campaign committee included members of every stakeholder group.

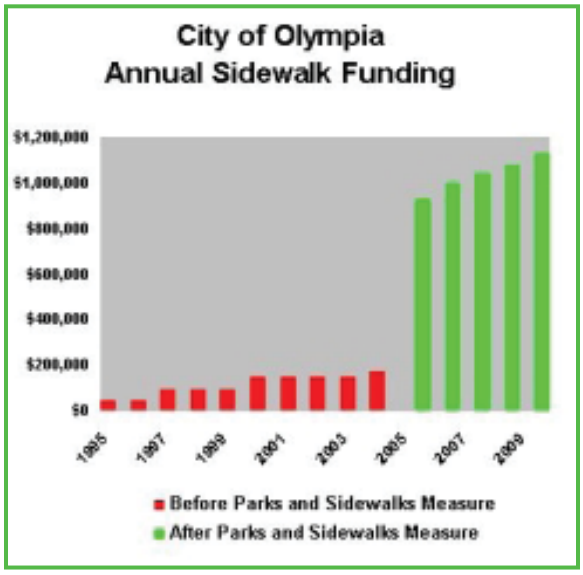
Three different pieces of campaign literature were developed. The first was a single-sheet photocopy; 4,000 pieces were distributed from the information boxes around town. The second was a four-page color piece, with a map showing where the priority sidewalks and parks would be built. This brochure was hand-delivered in easy-to-walk precincts and mailed to the remaining voters. The third was a color super-sized postcard, mailed to female voters with good voting records just as ballots were distributed (the poll had shown that women supported the funding measure more than men).

On election night, tension rose as tabulation was delayed. The first count, which didn't appear until after 10 p.m., was 52 percent positive, rising to 54 percent by 11 p.m. The final tally, including absentee ballots, was 57.1 percent of the vote — exactly what the poll suggested could be achieved.

Olympia's Parks and Sidewalks Funding Measure — Olympia, WA

Result

In September 2004 Olympia voters approved a 3 percent tax on electricity, natural gas and telephone utilities, with one third of the proceeds dedicated to sidewalk construction and the balance to parks and open space acquisition and development. The measure increased sidewalk funding from $150,000 to $1 million per year.



Olympia now enjoys a seven-fold increase in city sidewalk funding. The City Manager created a team of three people — a planner, an engineering designer, and a contract manager — to direct sidewalk construction. Because these are retrofit sidewalks, there are delicate negotiations with homeowners over relocation of shrubbery and other landscaping. The cost per foot ranges from $150 to as much as $400 in areas with difficult topography, storm water management, or right-of-way acquisition issues. Porous concrete on many sidewalks helps reduce storm water management costs. Although costs exceed estimates, revenues also run higher than originally forecast. Three years into construction, projects are generally on schedule with the most important segments being built first.

The city adopted the 'Parks and Pathways' logo for the funding measure projects. Every block of new sidewalk has a stamp in it so future walkers will associate that particular sidewalk with the funding measure. The collaborative campaign allowed both sidewalk and parks advocates to achieve their goals.

Cost

The precampaign, when WON! lobbied to have sidewalks included in the ballot measure, cost about $5,000. That included buying the realtor boxes, printing the first 250 yard signs, and printing several thousand pieces of literature. The election campaign cost an additional $12,000 (about $1 per vote).

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Image sources
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Overcoming Opposition to Sidewalk Construction

Pedestrian and Bicycle Information Center

Problem

A PTA committee at Sherwood Forest Elementary School in Winston-Salem, N.C., with support from the principal and school staff, worked with city staff on a Safe Routes to School (SRTS) grant application for the school. The proposal included adding almost one mile of new sidewalk along one side of a busy neighborhood street.

Only a week before the grant application was due, some residents on the street heard about the plan for the new sidewalk and mounted a vocal opposition campaign. City Council Member Robert Clark, who represents that ward, stated that he would support construction of the sidewalk only if a clear majority of residents on the street favored the sidewalk. He further added that any resident or property owner who did not respond would be counted as a negative vote. Clark's approval and support was crucial to getting the city council's approval of the grant application and submitting the application to the North Carolina Department of Transportation.

Background

Following a day-long SRTS workshop in September 2006 at Sherwood Forest Elementary School, Sharon S., an energetic and enthusiastic mother who walks her children to school, pulled together a committee of parents to organize monthly walk-to-school events for the students. The goal was to interest more students in walking regularly to school. These events, supported by the principal and school staff, succeeded in attracting 200 students and their parents who walked together from a nearby church. Encouraged by this response, the committee worked with the city staff on an SRTS grant application for the school, which included adding 4,500 feet of new sidewalk along one side of a busy neighborhood street, Kirklees Road.

While the streets immediately around the school have sidewalks, many other streets in the neighborhood do not. Many children would need to use these streets to walk to school, and parents are concerned about their own and their children's safety. Kirklees Road, one of the longest streets in the neighborhood, provides a critical connection for many walkers. Much of this street also borders a city park with a very popular walking trail that many residents enjoy. A sidewalk on Kirklees would not only make it safer for children to walk to school, it would provide a safe connector for residents to walk to the park.

Nearly 200 students and parents participated in this monthly walk to Sherwood Forest Elementary School on a Physical Friday.

A sidewalk on Kirklees Road would separate pedestrians from motor vehicles on this busy connector, which many people from outside the neighborhood use as a short cut to Silas Creek Parkway. Because of the hilly topography, sight distances are limited; motorists often exceed the 25-mph speed limit. In fact, several pedestrian crashes have occurred in the area, with one adult pedestrian fatality and one serious injury on Kirklees Road in the recent past.

An initial informal survey of homeowners along Kirklees had shown that a majority of those polled favored the sidewalk: 14 said "yes" while nine said "no." However, 11 homeowners either weren't home or didn't respond. Under Council Member Clark's dictum these would count as "no" votes. Once word spread along the street about the proposed sidewalk, neighbors started talking more with each other and those opposed to the sidewalk worked to find more opponents. In some cases, it appeared that the Safe Routes to School grant application was

being misrepresented by the sidewalk opponents, which in turn generated great concern among the SRTS committee members.

With only a few days before the crucial city council meeting, the committee had to quickly reach a consensus and act to gain support from the necessary majority of property owners on Kirklees for the sidewalk construction.

The proposed sidewalk along busy Kirklees Road would connect students' homes with existing sidewalks near Sherwood Forest Elementary School.

Solution

After much e-mail discussion, the committee decided to address the misinformation with a flyer explaining Safe Routes to School and the rationale underlying the grant application. Led by committee member Dixie Y., four representatives of the committee went door-to-door along Kirklees Road. By talking personally — neighbor to neighbor — and handing out the information flyer, this energetic group was able to turn the situation around within 24 hours.

Result

As the result of this personal contact and information-sharing, 54 percent of the property owners agreed to support the sidewalk. The final tally was 20 in favor, 14 opposed, and 3 with no response. Even though those who didn't respond counted as "no" votes, the committee ended up with a majority in favor. At a later Town Hall Meeting, Council Member Clark confirmed publicly that the sidewalk would be constructed if the grant application was funded by the North Carolina Safe Routes to School Program.

The committee followed up with thank-you flyers to those who had voted for the sidewalk and included information about the grant. A separate version of the flyer was created to answer questions that other neighbors might have about the project.

Cost

No costs were incurred because volunteers handled all the work.

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Image sources
Photo: Judi Lawson Wallace
Map: City of Winston-Salem

Pedestrian Design Assistance Program

Pedestrian and Bicycle Information Center

Problem

The Maricopa Association of Governments (MAG) wanted a way to encourage the integration of pedestrian facilities into infrastructure improvements.

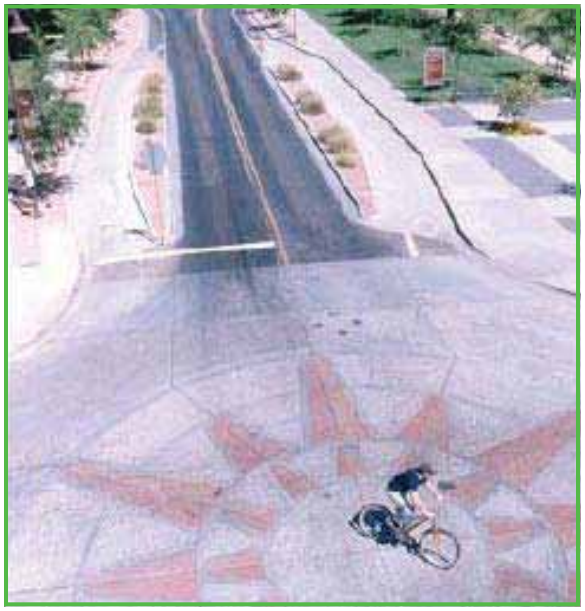
Background

The MAG had a Pedestrian Area Policies and Design Guidelines for several years. However, with increasing demand for facilities improvements outlined in this document, there was a need to provide reserved funding for pedestrian projects.

Solution

In 1996, the MAG in Phoenix, Arizona succeeded in developing a permanent source of funds for bicycle and pedestrian projects at $300,000 and $200,000 per year respectively. The intent of the program is to stimulate integration of pedestrian facilities into the planning and design of all types of infrastructure and development. The funds come out of federal funding to the Metropolitan Planning Organization (MPO). The 29 cities in the district are eligible to submit applications for funding.

The review process passes by two main bodies, first to the Bicycle and Pedestrian Planning Committee, and then to the Mayor's office. While the Mayor's office has design control over the project, it does not have the responsibility of administering it, as all projects are contracted out to one of a list of regional consultants.



A bicycle facility combined with public art.

Results

Not only does the fund help to get more pedestrian and bicycle improvements on the table, it also inspires jurisdictions to work for more. This resource brings to the forefront local pedestrian issues and prepares localities to take on larger programs and to reach for federal Congestion Mitigation and Air Quality (CMAC) grants for construction.

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Images Source

"Pedestrian Design Assistance Program Projects." July 2006.

Pedestrian Safety Initiative

Pedestrian and Bicycle Information Center

Problem

The pedestrian facilities surrounding the two high-traffic bus stations in the Takoma/Langley Crossroads area in Maryland were less than safe. In a 14 month period, 7 pedestrians were killed. The victims included three children, and all were Hispanic. State Farm ranked the intersection as the 3rd most dangerous in Maryland.

Background

The Takoma/Langley Crossroads area in Maryland is home to a large transient Hispanic population who rely on the bus system for their daily commute. In fact, the area bus system issues more transfers than any other Prince George's County station not yet served by a metro station. The location was a challenging area to initiate projects, as the neighborhood sits on the border lines between three separate jurisdictions: Prince Georges County, Montgomery County, and the City of Takoma Park. Due to the transient nature of much of the local population, there were no clear community organizations or neighborhood associations with whom to work.

Before

After

Solution

It took the leadership of a retired local business owner to initiate a pedestrian safety project. The former Government Commissioned Task Forces had collapsed when overall streetscape project funding was cut and projects that cost in the tens of millions were shelved. The challenge was then to piece together smaller projects, and this required multiagency coordination. Citizen advocate Erwin Mack learned who to contact and who was responsible for what, and prodded the jurisdictions to take action. The Pedestrian Safety Advisory Committee was formed with representatives from each jurisdiction to avoid the duplication of efforts or projects. The group met bimonthly and the retired citizen advocate provided the group with lunch and encouraged their efforts. As one planner involved commented, "All the money in the world can't buy you a volunteer, and all the money in the world couldn't have hired a better coordinator to lead the meetings."

Bilingual focus groups were held early on to solicit community input. Some of the comments by Latinos suggested that many of them were unfamiliar with traffic rules here, as rules are generally much less enforced in their native country. Additionally, participants complained that traffic moved more quickly here and that there was inadequate time to cross intersections.

Measures taken include pedestrian crossing signs, marked crosswalks, improved street lighting, and medians with channelized fences. Seven signalized areas are being reconstructed to include pedestrian activated signals, curb cuts, and ramps. At a distance of 1 mile from the intersections, overhead mast arms with flashing beacons and a

"pedestrian area, next mile" sign have been installed on all corridors. Currently under negotiation is the land for the location of a new bus transfer area that will provide 12 bus spaces and eliminate the need to cross major roads to make transfers.

Business leaders were either champions or strong critics. Erwin Mack, a local business owner, provided leadership and even started the Crossroads Development Authority to organize business support. Another installed a perimeter fence at his own cost to help channel pedestrians. However, the issue of developing the bus transfer center is still being negotiated with the property owners of the chosen site.

Funding initially came through state programs and the Community Design Division to fund specific parts of the effort, such as safety or resurfacing. Each county later agreed to a request to contribute $2.5 million towards the transit center. In addition, the state set aside Consolidated Transportation Program funds for transit-related improvements for the Maryland Transit Administration (MTA). Improvement costs totaled nearly $20 million.

In addition to physical improvements, there have been quarterly pedestrian crosswalk enforcement events, during which education materials are handed out. These efforts have were organized by a county non-profit organization, C-SAFE — a Hot Spots Community Initiative dedicated to safety and crime prevention, and supported by the Governor's Office of Crime Control and Prevention and several other local agencies. The group recruits volunteers from nearby colleges and the Prince George's County Office of the Executive Hispanic Liaisons as well.

Results

A sense of place has been created in a previously auto-centered commercial area. The physical improvements have all been installed and the new bus transfer station is confirmed, with secured funding and only the details to be worked out to attain parcels of property.

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Images Source

"Pedestrian Safety —Takoma/Langley Park." District 2 Annual Meeting, Institute of Transportation Engineers. May 11th, 2006.

Quantifying Countermeasure Effectiveness

Pedestrian and Bicycle Information Center

Problem

Pedestrian and bicycle professionals sometimes encounter resistance when proposing crash countermeasures, due either to competing interests along a corridor or the desire to cut costs. Quantifying the effectiveness of corridor-length countermeasures such as medians, lighting and bicycle lanes will help proponents make a better case for these elements.

Background

With the help of the University of Florida, Metroplan Orlando (the metropolitan planning organization for the Orlando-area counties of Orange, Osceola and Seminole) conducted pedestrian and bicyclist crash plotting and analysis for the years 2003 and 2004 for the entire three-county Orlando metropolitan area. All crashes were from long-form police crash reports and involved motor vehicles; they were analyzed with Pedestrian and Bicycle Crash Analysis Tool software (PBCAT; developed by the University of North Carolina Highway Safety Research Center for FHWA). From this mapping effort, high-crash corridors were identified for further study.

Solution

While knowing the numbers, locations and behaviors involved in crashes is useful, exposure data is essential when attempting to assess countermeasure effectiveness. To develop this data, Metroplan Orlando worked with Sprinkle Consulting, Inc. to select three pairs of streets for comparisons of streets with and without medians, lighting and bicycle lanes. Pairs were selected to keep other key factors comparable: number of lanes, speed, volumes, demographics, transit routes, median (for bicycle lane and lighting comparison), and lighting (for median and bicycle lane comparison). All were six-lane arterials. Three additional years of crash reports were collected, plotted and analyzed for the study streets. One hundred seventy-one reports were reviewed involving 118 bicyclist and 53 pedestrian crashes.

Sprinkle conducted site visits to note specific issues that might otherwise be missed. Of particular importance was the difference between courtesy lighting, which is generally placed on an as-needed basis at the request of businesses or residents and may leave dark gaps, and design lighting, specifically designed to effectively light the entire street. Crashes coded as “Dark, With Street Lighting” may have in fact occurred in dark gaps between lamps.

Field observation staff were recruited from local staffing agencies, trained on data collection procedures and dispatched to assigned locations. For bicyclists, observers noted these variables:

- Use of the sidewalk or roadway/bicycle lane
- Travel with or against the flow of traffic
- Equipped with headlight
- Wore a helmet
- Gender
- Estimated age.

Pedestrians crossing through holes in traffic on a six-lane arterial.

For pedestrians, observers noted these variables:

- Crossed at intersection, midblock, or island
- Crossed through a gap or a hole
- Wore light or dark clothing.

Most pedestrians do not cross in gaps; they cross in holes. A gap occurs when a walker can step into the roadway and reach a place of safety before any car crosses his path. A hole, on the other hand, occurs when there is traffic in the middle or far lanes in front of the pedestrian, or when a car in a near lane is so close it will pass behind the pedestrian before she completes the crossing. As long as motorists behave as the pedestrian expects, a hole crossing may be made without incident. If conditions change — for example, if a car changes lanes — the expected hole begins to close and a crash may result.

The numbers of pedestrians and bicyclists observed committing behaviors that might put them at risk was compared to the numbers of crashes resulting from comparable behaviors. The risk ratio is defined as the risk of one group divided by the risk of another group. For example, the risk ratio of riding against traffic vs. riding with traffic is simply the risk of riding against traffic divided by the risk of riding with traffic. A risk ratio greater than 1.0 means that the risk of riding against traffic exceeds the risk of riding with traffic. A risk ratio equal to 1.0 means that the risk of riding against traffic equals the risk of riding with traffic. A risk ratio less than 1.0 means that the risk of riding against traffic is less than the risk of riding with traffic.

Result

The pedestrian crash risk for crossing the arterial without a median was 6.48 times higher than for crossing the arterial with a median. The risk for crossing the arterial without lighting was 1.66 times higher than for crossing the arterial with lighting.

Findings for the bicycle lane comparison were problematic. Both study streets serve colleges (the University of Central Florida [UCF] and Full Sail, a video arts school), but initial counts were conducted after students had left in the spring. A subsequent count was conducted for the UCF corridor in the fall, but these numbers were not included in the final report currently available on-line. For the initial count, only 2.5 percent of cyclists (one out of 39) was observed using the bicycle lane. During the combined initial and follow-up counts 15 percent (24 of 162) were in the bicycle lane. While there were two wrong-way-in-the-bicycle-lane crashes recorded during the five years of crash reports, no such behavior was observed in any of 162 cyclists.

A bicyclist traveling on the sidewalk against the flow.

Cycling against the flow of traffic (sidewalk or roadway) was found to be 4.4 times riskier than traveling with the flow. Cycling on the sidewalk (with or against the flow) was found to be 1.6 times riskier than on the roadway, but this is largely attributable to the high number of sidewalk cyclists traveling against the flow.

When the additional counts for the UCF corridor are included, the ratio of crashes to observed cyclists is 0.05 for sidewalk/with the flow, and 0.08 for bicycle lane/with the flow. It should be noted, however, that there were only four sidewalk/with the flow crashes and only two bicycle lane/with the flow crashes (compared to 17 sidewalk/against the flow), and that none of the bicycle lane crashes involved overtaking motorists. Area-wide, there were only 13 crashes (1.5 percent of 885) involving law-abiding cyclists on over 350 miles of bicycle lanes or paved shoulders.

The report made these recommendations:

- Install medians whenever feasible as part of new roadway construction and as part of roadway reconstruction.
- Add lighting to both sides of the street. Eliminate dark gaps with appropriate longitudinal spacing. On divided roadways, consider street lights in the median to properly illuminate the middle of the roadway.
- Designate bicycle lanes with pavement markings and signs so that more bicyclists will recognize them as an area of the roadway set aside for cyclists, and to indicate cyclists are to ride with the flow of traffic.
- Implement educational countermeasures to assure that everyone knows how to and does bicycle safely.

Cost

For the initial mapping study and crash analysis study, the University of Florida mapping portion was funded by the Florida Department of Transportation as part of an on-going crash mapping project focused on high-crash counties. PBCAT analysis was conducted in-house by Metroplan Orlando. The contract for field counts, observations and analysis was $6,000. More money should have been allocated for more observation time along more corridors, particularly for the bicycle lane study.

Web sites

Countermeasures Report: Pedestrian and Bicycle Crash Plotting and Counts and Behaviors Observations http://www.metroplanorlando.com/site/upload/documents/ped_and_bike_risks_and_countermeasures.pdf

Countermeasures Report Appendix (contains aerial photos of study streets, GIS maps of crashes, crash summaries and data collection instruments)
http://www.metroplanorlando.com/site/upload/documents/ped_and_bike_risks_appendix.pdf

Orlando Area Bicyclist Crash Study: A Role-Based Approach to Crash Countermeasures; A study of bicyclist-motorist crashes in the Orlando urban area in 2003 and 2004
http://www.metroplanorlando.com/site/upload/documents/Bicyclist_Crash_Study_OrlandoArea.pdf

PBCAT: http://www.bicyclinginfo.org/facts/pbcat/

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Image sources
Sprinkle Consulting

Saranac Lake River Walk

Pedestrian and Bicycle Information Center

Problem

The Village of Saranac Lake wanted to turn the river that wove through its center into a centerpiece and attraction.

Background

In 1909, Landscape Architect Edward Clark Whiting developed a master plan for this small town of 5,000 residents that relegated the river to the Village's "backyard." It was primarily used as a service area behind buildings lining Main Street. In 1992, dialogue began about how to redesign the river corridor and a study was commissioned to design A Conceptual Plan for River Access.

Solution

With the Conceptual Plan as the guiding force, the community undertook the realization of a river walk that would provide transportation, recreation, environmental, and economic benefits. The corridor was divided into six distinct segments, three of which were constructed entirely by volunteers: the Hydro Point, the Boardwalk, and the Esplanade.

Each point along the walk had its own unique features. The Berkeley Green was a particularly important project, as it was sited at the intersection of two primary roads and serves as the "commercial anchor." The Green was transformed into an outdoor performing arts center that offered tiered seating and prime public space. Other unique amenities installed included canoe launches, fishing sites (some handicap accessible), and even a kayaking course.

Common design elements to each segment included environmental buffering between the river and impervious surfaces, pedestrian bridges and boardwalks, pedestrian scale lighting, benches, signage, and native arboretum-style plantings.

Community involvement was significant in the process. Not only did government agencies, nonprofits, and corporations donate funds, but 700 individual donors did as well. Land donations from local businesses and families were also of great benefit. Many organizations pitched in to construct several of the segments; two Boy Scouts earned their Eagle Certification through enhancing the River Walk. Other volunteers were from middle and high school classes, the Youth Center, the Student Conservation Association, the High School Art Class, residents from the Senior Citizen Center, and work crews from two Adirondack prisons. A great deal of planning work to define goals, obtain funding, and to realize implementation and maintenance was done by members of the River Corridor Commission, the Rotary Club of Saranac Lake, and the Village Improvement Society. In addition, all second grade classes are enlisted to plant annuals within the River Walk corridor each year as they receive instruction on the riverside flora and fauna. As a result of such high community involvement, vandalism is minimized and long term support is assured.

Initial funding of $508,000 came from a TEA-21 Enhancement Program grant. Barton & Loguidice, P.C., Consulting Engineers were hired to design and provide construction inspection and administration.

Results

There were visible economic, social, and environmental benefits from the project. Prior to implementation, there was a 60 percent vacancy rate in the village downtown, while afterwards, only two vacant storefronts remained. Existing businesses reported substantial revenue increases. Socially, the River Walk provided greater access to the river in places where it was inaccessible previously. Walking among residents increased, and more people were attracted to downtown for performances and civic functions.

Environmentally, a vegetative buffer provides a natural filter for run-off from the Village streets and parking areas, while also providing habitat. New retaining walls stabilized shorelines and enhanced deep water habitats. Volunteers now clean the river on a regular basis, and school children are educated on the environment and regional ecology.

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http://www.saranaclake.com/develop.shtml

Images Source

Institute of Transportation Engineers Pedestrian Project Award Application. Saranac Lake Office of Community Development. http://www.ite.org/awards/pedproject/Saranac.pdf

Transit Waiting Environments

Pedestrian and Bicycle Information Center

Background

There are 8,492 bus stops in the Greater Cleveland Regional Transit Authority (GCRTA) system, but less than 20 percent of them have a shelter and many of the rest are equipped with little more than a transit sign fixed to a convenient utility pole. The transit authority solicited suggestions from the Citizen Advisory Board in an effort to increase transit ridership. As quoted in their final report, the Transportation Research Board concluded that, "The quality of the customer experience while waiting for transit vehicles is a crucial determinant of both overall satisfaction and general community attitudes towards transit."

A sketch of the different transit signs for RTA.

Solution

The GCRTA Citizen Advisory Board developed the idea for the Transit Waiting Environment (TWE) initiative that was incorporated into a program to improve the pedestrian environment at and around bus stops. A survey of 746 people from throughout the county representing both regular and infrequent transit riders, determined the types of amenities demanded for different kinds of bus stops. The survey was disseminated online, in hard copy on transit vehicles, and at key community locations. The most important amenities, in order of priority, were:

- Information on bus arrival and the frequency of service
- Lighting
- Shelter
- Seating
- Heating in bus shelters
- Paved waiting surfaces
- Trash cans
- Area maps
- Bike racks
- Landscaping

The survey also confirmed that the clear majority of respondents (more that 70 percent) supported the use of advertising to fund stop improvements. Additionally, a project team conducted field surveys of the character of existing bus stops in the RTA system and reviewed examples of best practices in other systems in the United States and Europe.

Stops were classified according to an analysis based on county-wide Geographic Information System (GIS) data on land use, density, and employment. The analysis also used extensive work previously completed by EcoCity Cleveland in mapping the area within a quarter-mile walk — or "pedsheds" — around each stop. From this information, a hierarchy of five proposed amenity levels was developed as a vision to reach towards.

Basic stops (Type 1) would include information on the route(s) served, a consistently identifiable bus stop utility pole, lighting, a paved waiting pad, and a trash can. Type 1 service was recommended for 43 percent of the stops. Type 2 stops would include seating and bike racks and were applicable for 26 percent of stops based on a calculation of density and school proximity.

A man waits at a more comfortable bus stop.

For type 3, planned for stops near mid- to high-densities, additional amenities would include a shelter with on-demand heating, a more detailed information sleeve, additional seating, and strategies to encourage transit-oriented development in the area. This type was proposed for 20 percent of the total locations.

Type 4, designed for key community destinations, was proposed for 6% of stops, and in addition to all previous amenities, would include public art, a transit system map, and real-time bus arrival display. The final type, reserved for less than 1% of stops that were determined to be regional gateways, would incorporate unique artistic elements to welcome visitors.

Results

Several possible funding sources have been identified. An Adopt-a-Stop program would encourage local community members and businesses to fund bus stops in their area. Developers near transit lines would be required to either fund a stop at their location or to contribute a certain percentage to a transit waiting environment fund. If the project can be worked into the Transportation Improvement Plan (TIP) then municipality, state, and federal funds would become available. Finally, advertising revenues placed on bus shelters or on nearby buildings and fences is feasible and supported by the community.

A process towards implementation was laid out. The resulting "ideabook" will be distributed within the community to stimulate interest in investment, and project members will coordinate with other departments, agencies, and developers to have elements included in streetscape improvements already planned. In addition, the approval process will be streamlined, allowing plans conforming to specific guidelines to bypass cumbersome and time-consuming approval from local authorities.

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http://www.cudc.kent.edu/d-Service-Learning/PDFs/TWE%20screen%20short.pdf

Images Source
Calabrese et al. "Transit Waiting Environments; An Ideabook for Making Better Stops." June 2004.
http://www.cudc.kent.edu/d-Service-Learning/PDFs/TWE%20screen%20short.pdf

Walk Oakland! Map and Guide

Pedestrian and Bicycle Information Center

Problem

Oakland residents lacked a comprehensive guide to walking and biking in their city, making it difficult to know the availability and quality of walking and bicycle routes.

Background

A generous grant from the State of California Office of Traffic Safety mandated an education project targeting the general population of pedestrians. After considering options like a toolkit for pedestrian advocates, the Oakland Pedestrian Safety Project decided on a project that would really promote walking: a map!

Solution

The map highlights walkways, bikeways, landmarks, civic destinations such as schools and libraries, neighborhood names, historic networks of paths, major transit routes, and street grades. On the back of the map are featured bike and pedestrian safety tips, a primer on pedestrian design improvements, recommended walks, and walking tour information. The 18,000 maps printed were distributed to neighborhoods and community organizations, bookstores, bike shops, schools, and recreation centers.

The map was created through a mutual effort between the Oakland Heritage Alliance and local volunteers, who all helped survey existing pathways and staircases. City archivists aided in the effort by finding the names of most of Oakland's old neighborhoods. An experienced designer and publisher was contracted to produce the map.

Funded by the State of California Office of Traffic Safety, total costs came to $48,000 including staff time, street grade surveys, map design, and map printing. The project took 6 months from concept to printing.

Results

Walk Oakland! has generated excitement and positive feedback from neighborhood groups and school kids. It is expected that the map will serve as a starting point for further projects to encourage both walking and better pedestrian-friendly design. Demand has been high, and it is expected that another printing will be necessary in the near future.

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Image Source

Institute Of Transportation Engineers Pedestrian Project Award Application. Community and Economic Development Agency. http://www.ite.org/awards/pedproject/ppa042.pdf

Walk Wise, Drive Smart

Pedestrian and Bicycle Information Center

Problem

As more Americans reach age 65 and older, safety concerns for senior pedestrians are growing. Walking is a key to maintaining physical and mental well being and it enables senior adults to stay connected to their community, but several fears and dangers keep elderly adults from walking. For example, senior pedestrians involved in a crash are much more likely than younger pedestrians to suffer serious or fatal injury. The fear of falling also keeps older adults from walking, for as many as one-third of adults 65 years old and older fall each year.

Background

Over 31% of Hendersonville's population is age 65 and older, which makes it an ideal candidate for a senior pedestrian safety program. Walk Wise, Drive Smart is a program aimed to improve the pedestrian environment in Hendersonville not only for senior adults, but for all residents and visitors alike.

Solution

Walk Wise, Drive Smart is a community-based pedestrian safety program working to build community support for an awareness of senior-pedestrian safety issues. The program holds educational workshops and walking audits of Hendersonville neighborhoods, gathers extensive community feedback through surveys and interviews, and identifies elements that are needed for the implementation of a pedestrian safety plan.

A walk-wise kick off event.
Image courtesy of www.walk-wise.org.

Since the Walk Wise, Drive Smart program started in 2006, several programs have been held to promote senior pedestrian safety. Walk Wise walking routes are recommended walking routes that cater to the needs of older pedestrians. The first Walk Wise route was completed in December 2007 with the help of the Walk Wise, Drive Smart team, representatives of the City of Hendersonville, and the Council on Aging for Henderson County. These volunteers designed a 1.5 mile route while paying particular attention to the needs of older adults. Along the route orange paint was used to mark areas where walkers need to exercise extra care because of potential tripping hazards.

A walk-wise group performs a walking audit.
Image courtesy of www.walk-wise.org.

Another Walk Wise, Drive Smart program was a campaign that was held in the fall of 2007 to educate and reward drivers who stopped at crosswalks for pedestrians. Drivers who yielded properly to a pedestrian in a mid-block crossing, stopped behind the stop bar at an intersection, or correctly made a right-turn-on red turn were handed a postcard that could be entered in a drawing for monthly prizes. Drivers who do not properly stop for pedestrians were reminded of the proper procedure and told about the postcards for future reference.

Results

Walk Wise, Drive Smart has had several successful events and programs. Frequent organized walks aimed at senior citizens but open for all provide a great way to get seniors to exercise at a pace and location that is comfortable for everyone who participates. The Walk Wise, Drive Smart program is a great model for other communities to follow to provide pedestrian facilities that are safe for all age groups.

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