

A photograph of two cyclists riding on a paved road. The cyclist on the left is on a red bike, and the cyclist on the right is on a silver bike with a basket. They are riding on a smooth asphalt surface. In the foreground, there is a cobblestone crosswalk. The scene is brightly lit, suggesting a sunny day.

OUR APPROACH TO HEALTH AND ROAD SAFETY

Re-thinking the way we move in cities

www.embarq.org

 **EMBARQ®**



Sustainable urban transport and development **saves lives and improves quality of life.**

EMBARQ's mission is to catalyze and help implement environmentally and financially sustainable transport solutions to improve quality of life in cities—working to improve road safety and health, including:

- Mass transport: bus rapid transit and high quality bus systems.
- Walking and biking: segregated lanes, bike sharing, quality sidewalks or footpaths and safe access to mass transit.
- Public space: street pedestrianization, creation of vibrant plazas.
- Urban development: road safety auditing, prioritizing safe walking and biking, mass transport, mixed uses and street connectivity.
- Traffic safety design and operations: safe design and operations through auditing, inspections and research on best practices.
- Other solutions: auto-rickshaws, travel demand, freeway removal, etc.

Our three-part strategy to address traffic safety and health:

➤ **AVOID** motorized travel through the integration of sustainable land use and transport planning—increasing accessibility, saving lives and protecting the environment.

➤ **SHIFT** to safer, healthier and more environmentally friendly modes, such as public and non-motorized transport, or preserve the current share of these modes, particularly in developing countries.

➤ **IMPROVE** vehicle and fuel technology of all modes of transport, and ensure safe system design and operations, to maximize the health and environmental efficiency of each kilometer traveled.



1.2 million deaths

annually related to traffic crashes worldwide, over half of which are pedestrians, bicyclists and motorcyclists.

DID YOU KNOW?

“No loss of life is acceptable.” This statement is the core of Vision Zero, a policy framework created in Sweden that has been highly effective in reducing crashes through safer system design, to avoid human error and protect road users. Fatalities involving unprotected pedestrians in Sweden have fallen by almost 50 percent in the last five years.



OUR GOAL:

REDUCE INJURIES AND FATALITIES

According to the World Health Organization, 1.2 million people die every year in traffic crashes worldwide and 90 percent of deaths happen in low- and middle-income countries. Almost half of these deaths are pedestrians, bicyclists and motorcyclists. Road fatalities are expected to become the fifth leading cause of death by 2030—coming at a time when worldwide car ownership is booming, passing one billion vehicles in 2011.

OUR APPROACH:

Mobility can be made safer by reducing car travel and moving people through safely designed mass transport, walking and biking infrastructure. Thoughtful design that protects all road users is emphasized, especially pedestrians and bicyclists, from improved crossings and intersections to traffic calming that reduces high impact crashes.



Pleasant cities can be natural places for physical activity, witnessed in Istanbul's lively streets.



**OUR GOAL:**

INCREASE PHYSICAL ACTIVITY

A lack of physical activity can increase the risk of cardiovascular diseases, diabetes, colon and breast cancer and depression, and it is a key factor in weight control. Physical inactivity is linked to as many as 3.2 million deaths per year, according to the World Health Organization. The solution is simple: Just 150 minutes of physical activity throughout the week—including things like walking and biking—can improve health and reduce the risk of disease.

OUR APPROACH:

Physical activity can be promoted in neighborhoods through access to mass transport, bike and pedestrian paths, safe streets, connectivity, and a compact mix of housing, retail, parks and offices.



3.2 million deaths

annually related to lack of physical activity. Just 150 minutes of physical activity per week can improve health and reduce the risk of disease.

DID YOU KNOW?

One study showed that Barcelona's Bicing bike sharing system saved an estimated 12 lives per year, mostly by getting people out of their cars and active on the streets.



annually related to the effects of urban outdoor air pollution.

DID YOU KNOW?

New York City made great strides in improving air quality by creating people-friendly public spaces. In Times Square, concentrations of nitrogen oxide (NO) and nitrogen dioxide (NO₂), two pollutants closely associated with traffic, were among the highest in the city. After the conversion to a pedestrian plaza, NO pollution levels in Times Square went down by 63 percent, while NO₂ levels went down by 41 percent.




OUR GOAL:

REDUCE AIR POLLUTION

According to the World Health Organization, 1.3 million deaths occur each year from the effects of urban outdoor air pollution, with vehicles being one of the major emitters of deadly pollutants, such as fine particulate matter (PM_{2.5}). This dirty air can irritate lungs, worsen asthma and emphysema, and increase the risk of heart attacks and premature death.

OUR APPROACH:

Shifting trips to mass transit, biking and walking, as well as improving vehicle and fuel technologies, can reduce exposure to air pollution and lengthen life span.

An aerial photograph of Mexico City, showing a dense urban landscape with numerous buildings and a hazy sky. A white text box is overlaid on the right side of the image.

Progress has been made in improving Mexico City's notorious air quality through several measures, including the introduction of bus rapid transit on a major transport corridor, making the city healthier and more vibrant.

Less vehicle distance traveled means fewer traffic fatalities

Evidence from within countries has shown that with more vehicle travel, there are more traffic fatalities, as shown in this graph from the United States. Moving people through mass transport, walking and biking can limit vehicle travel, reducing crashes and traffic fatalities.

The relationship between vehicle travel and traffic fatalities in United States urban areas



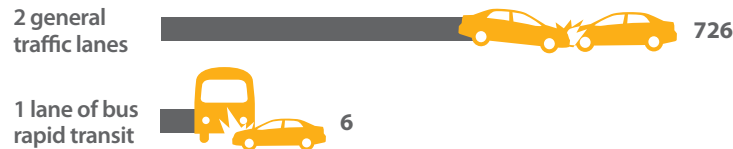
SOURCE: US FHWA 2008, EMBARQ analysis

MACROBUS BRT CORRIDOR IN GUADALAJARA, MEXICO

Passengers per hour per direction (peak)



Crashes per year



SOURCE: Jalisco State 2011, E.P.S. 2011, EMBARQ analysis

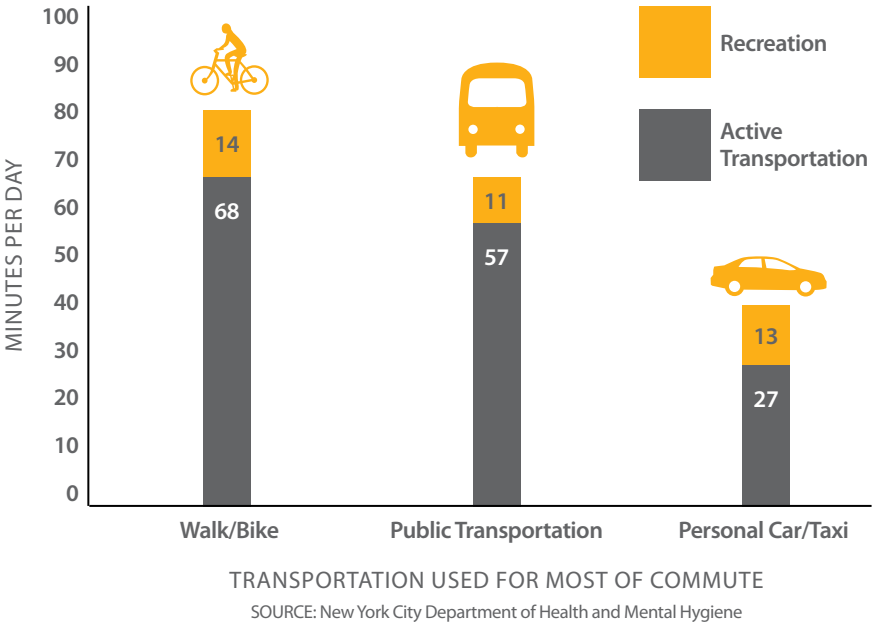
**Moving people
through high quality
mass transport saves
lives while providing
mobility**

The safety of mass transit is evident from a BRT corridor in Guadalajara, Mexico, with buses carrying many times more passengers than a private car yet seeing many times fewer crashes.

Sustainable transport fosters walking and biking, leading to fewer deaths linked to physical inactivity

Walking and biking for transport provides health benefits through physical activity. A study by the New York City Department of Health showed that those who take mass transport, bicycling and walking as their main form of transport receive more physical activity than those who rely on private vehicles.

Average daily transportation and recreation activity among New Yorkers who work outside the home



**POLICY**

CONNECTING HEALTH AND ROAD SAFETY IN SUSTAINABLE TRANSPORT TO POLICY

At the core of its road safety work, EMBARQ has undertaken policy initiatives bridging high-level declarations to real change in cities. In 2010, as a member of the United Nations Road Safety Collaboration Group, EMBARQ worked to include mobility and sustainable transport in the Global Plan for the Decade of Action on Road Safety while working with national to local governments to put these international goals on the ground in countries.



A global program for reducing road fatalities and injuries

EMBARQ, together with the Association for Safe International Travel, Global Road Safety Partnership, Johns Hopkins School of Public Health, World Bank Global Road Safety Facility, and World Health Organization, is part of the Bloomberg Global Road Safety Program, which works to improve road safety in the ten countries that make up almost 50 percent of all road traffic fatalities.

**Bloomberg
Philanthropies**



HEALTHIER URBAN DEVELOPMENT

The current pattern of urban development in Mexico too often promotes an unequal distribution of land: too many roads, not enough public spaces, and small homes in low-density areas. Through capacity-building and technical guidance, EMBARQ Mexico is working with communities to create developments and regulations that consider health, including revising site plans for a 40,000-person low-income housing development in Aguascalientes, creating a guide on transit-oriented development and working with cities to modify urban codes to foster walking and biking, safe urban design and vibrant public space.



SAFE AND HIGH QUALITY BRT IN MAJOR CITIES

With auto and motorcycle ownership tripling over the last decade in Brazil and traffic crashes on the rise, providing high quality mass transit and a safe environment for walking has come to the forefront. Though they are huge metropolises, Rio de Janeiro and Belo Horizonte have very little high capacity transit lines. In anticipation of the 2014 World Cup and 2016 Olympics, EMBARQ Brazil is working to help these cities through road safety auditing, engineering simulations, technical support and planning on five BRT corridors that will cover 138 kilometers and safely carry more than 2 million passengers per day.





A MORE EFFICIENT RICKSHAW SECTOR

In India the production of auto rickshaws has doubled between 2003 and 2010. With a significant share of trips, rickshaws help feed public transit, provide mobility and are less a threat to pedestrians than heavier cars flooding the roads. Strategies to improve urban transport cannot overlook this increasingly important sector—reorganizing to provide fleet service, improving safety of rickshaw vehicles, training drivers, alleviating air pollution from engines, and providing infrastructure, such as stands at high demand locations. EMBARQ India has been researching solutions for rickshaws and is partnering with the city of Rajkot and others to reform this important form of transport uncommon in the developed world.



BICYCLING AND STREET PEDESTRIANIZATION

Infrastructure that provides a safer environment for biking, in reality and perception, can increase biking rates, allowing residents to be active and safe. EMBARQ Turkey is working with cities like Sakarya, Antalya and Eskisehir to recapture the bicycle as a mode of transport. This work has included capacity-building workshops, technical guidance, and helping to implement high quality bicycling lanes and infrastructure. Striving to make more walkable and vibrant cities, EMBARQ Turkey has also played a role in the pedestrianization of Istanbul's Historic Peninsula, a United Nations World Heritage site home to thousands of residents, workers and tourists. EMBARQ is now helping to plan and program the areas to ensure their vibrancy.





INTEGRATION OF HEALTH AND TRANSPORT

Emphasizing the impact of transport on health includes addressing it at the genesis of projects, a step EMBARQ Andino has taken since being established in 2008. EMBARQ Andino has provided technical assistance and guidance for the creation of a new integrated transport system that includes a 23 kilometer BRT and restructured bus routes in Arequipa, Peru. Within this, it conducted baseline assessments of walking and biking levels among the city residents, measured air pollution levels along the BRT corridor and reviewed traffic crashes in the city and BRT corridor. By measuring these factors, issues can be addressed more effectively. In addition, as with BRT corridors around the EMBARQ network, it conducted a road safety audit to improve conditions for all road users, especially pedestrians who will walk to and from mass transport.



TOOLS AND RESEARCH TO IMPROVE HEALTH & SAFETY

Many cities around the world lack sufficient information and capacity in how to design streets, public transport, urban development, bicycling and walking infrastructure to increase safety for all road users—especially pedestrians and bicyclists. Collaborating with its network, EMBARQ is providing cutting edge research and information. This includes traffic safety guidelines for bus systems that cities can use to create the highest quality mass transport on safe streets. In addition, with a lack of data on health, EMBARQ is conducting health impact assessments on several projects around the world, that can lead to solutions in fostering fewer traffic crashes, physically active residents and reduced air pollution. Meanwhile, it is releasing a series of issue briefs summarizing the research connecting sustainable transport to health in traffic safety, physical activity and air pollution.





Since 2002, the EMBARQ network has expanded to Mexico, Brazil, China, India, Turkey and the Andean Region, collaborating with local transport authorities to reduce pollution, improve public health, and create safe, accessible and attractive urban public spaces. The network employs more than 120 experts in fields ranging from architecture to air quality management; geography to journalism; and sociology to civil and transport engineering.

Photo Credits

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