

## Reasons for Bike Lanes and Highway Shoulders

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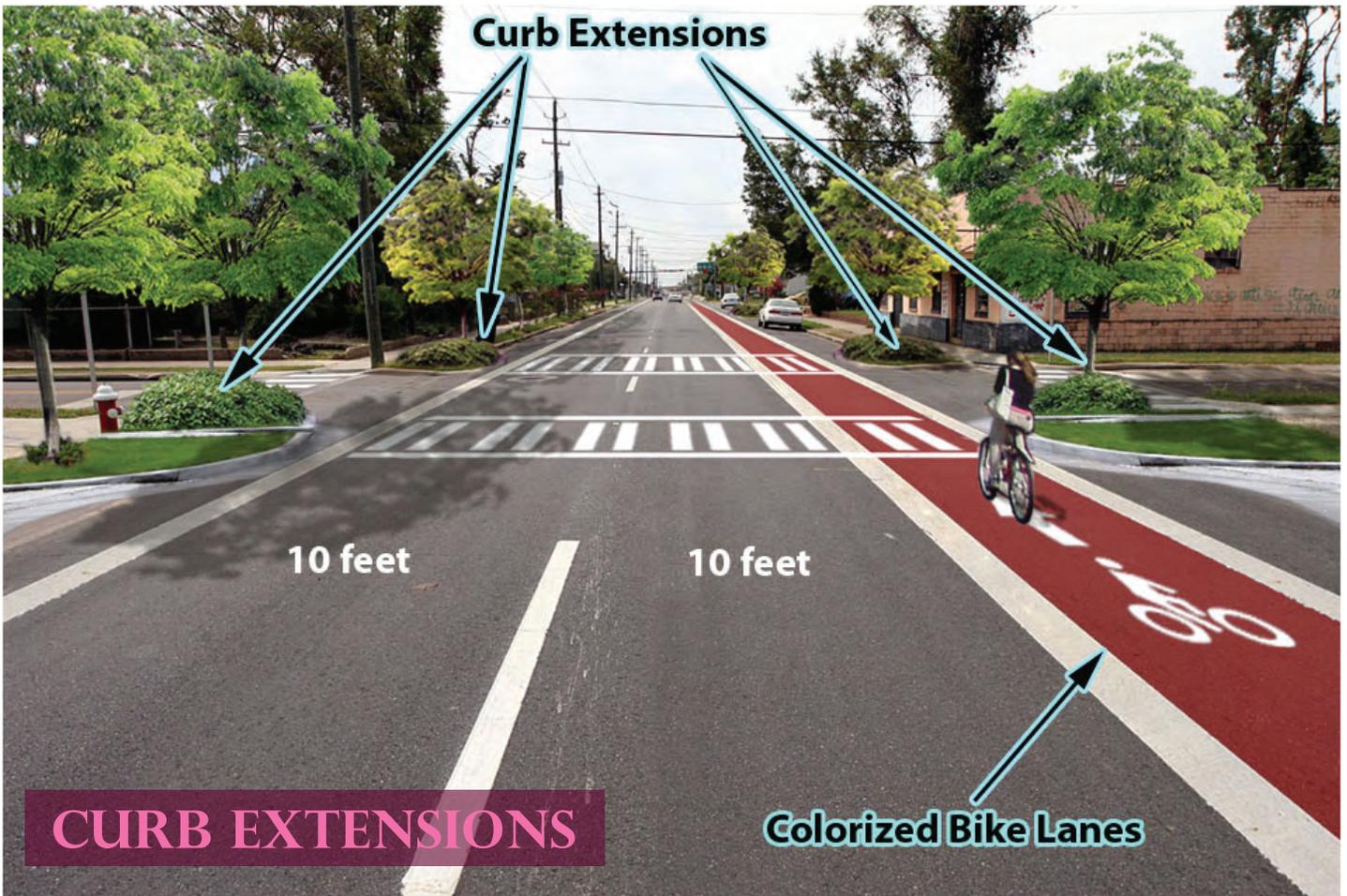
Before the 1971 Oregon “Bike Bill” was passed, and the terms “shoulder bikeways” or “bike lanes” were commonly used, the Oregon Highway Division advocated (1) building paved shoulders when constructing roads and (2) adding paved shoulders to existing roads. These were often referred to as “safety shoulders.” There are good reasons for this term.

The following reasons are what AASHTO (American Association of State Highway Transportation Officials) has to say about the benefits of shoulders in three important areas: safety, capacity/operations and maintenance. Most of these benefits apply to both shoulders on rural highways and to marked, on-street bike lanes on urban roadways. See below for other benefits specific to urban areas.

### **Safety - Highways with paved shoulders have lower accident rates, since paved shoulders:**

1. Provide space to make evasive maneuvers;
2. Accommodate driver error;
3. Add a recovery area to regain control of a vehicle, as well as lateral clearance to roadside objects such as guardrails, signs and poles (highways require a “clear zone,” and paved shoulders give the best recoverable surface);
4. Provide space for disabled vehicles to stop or drive slowly;
5. Provide increased sight distance for through vehicles and for vehicles entering the roadway (rural: in cut sections or brushy areas; urban: in areas with many sight obstructions);
6. Contribute to driving ease and reduced driver strain;
7. Reduce passing conflicts between motor vehicles and bicyclists and pedestrians;
8. Make the crossing pedestrian more visible to motorists;
9. Provide for storm water discharge farther from the travel lanes, reducing hydroplaning, splash and spray to following vehicles, pedestrians and bicyclists, and
10. Provide safety to motorists when getting into and out of parking spaces.





*Curb Extensions, like the large photo shown above in Fairhope, Alabama, will help transform Lower Michigan to a more attractive, natural, functional and prosperous town and center. Curb extensions are designed to capture all space not used by autos. By adding curb extensions, Lower Michigan will turn these vital spaces into civic and retail uses.*



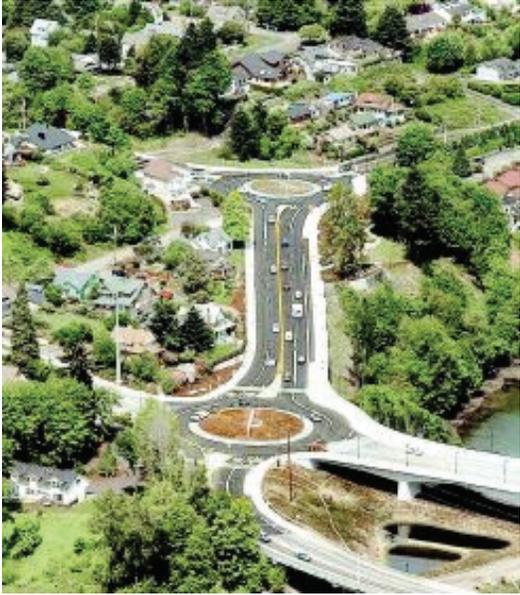
*Left panel: All work performed in transforming the town and center should be performed in a way that it least disrupts local businesses. Winter Park, and Sanford, Florida replaced sewers, water lines and other infrastructure as part of its reconstruction. Streets were worked on at night, then covered during the day to maximize retail success.*



Above: Brighton, Michigan's roundabout handles 21,000 vehicles per day. Placement of roundabouts facilitates through traffic and turning movements without requiring signal control. Roundabouts are made up of a circulating roadway with an island that is often used for landscaping or other decorative features. The circulating roadway is typically wider than the approach roadways and features an additional 'apron' against the edges of the island; both of these features allow for operating contingencies, especially with trucks, emergency response vehicles, and other large vehicles.

Roundabouts have been demonstrated to increase intersection volume by up to 30 percent. As the only requirement for yielding the right-of-way is to traffic already in the circulating roadway, vehicles can continue moving through intersections carrying a light volume, requiring no queue at the approach roadways and potentially allowing all intersecting streets to use the intersection at once. Due to their low speed (15-20 mph in and out on each leg), roundabouts also drop every personal injury crashes by 80-90%. Roundabouts reduce delay to all types of movement, which reduces idling engines, air pollution, noise and lost time.

Roundabouts provide safer and more comfortable pedestrian crossings. Splitter islands serve as a pedestrian refuge. Allowing one car length between the crossing and circulating lane(s) optimizes roundabout efficiency for vehicles. Roundabouts reduce conflicts in multiple ways: when crossing, pedestrians face only one potential conflict (traffic either entering or exiting the roundabout, divided by the splitter island), and not the six conflicts per crossing leg in full-crossing intersections. In properly designed roundabouts, all conflicts are at low speeds for both entering and exiting traffic (15-22 mph). Roundabouts also create the least delay to pedestrians wishing to cross a street. Instead of waiting for up to two minutes to cross (common with a signal), the pedestrian reaching a roundabout rarely has more than a 2-8 second delay for each leg that they cross. Most bicyclists circulate with traffic (since it is now going their speed).





*Bradenton Beach, Florida, once exposed pedestrians to high speeds at this crossing. On average, one pedestrian was killed each year. Walking for exercise, pleasure or transportation was suppressed. Following the construction of the roundabout, all crashes disappeared, and a new stage was set for mixed use development. After fourteen years of operation, there have been no reported crashes of any type. New economic life has set a mood of prosperity to the entire shopping district. Today, there is an abundance of pedestrian life.*





*Above: Example of attractive, gateway mini-circles. Top photo, Holland, Michigan. Bottom Photo, Orlando, Florida. Both mini-circles manage traffic quietly, maximize on street parking by bringing speeds down, and offer attractive corners in the commercial districts they occupy. A mini-circle or two on key streets on gateway approaches to town, in downtowns and other locations will add charm, beauty and movement.*

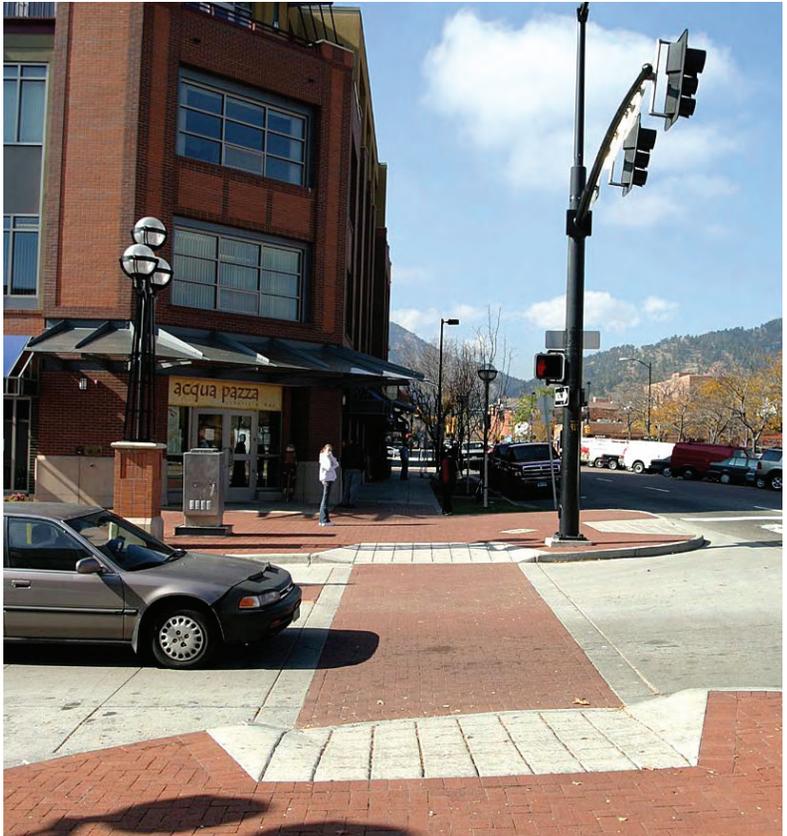
By helping rescale a roadway, roundabouts help set the stage for more successful retail trade and social life. The roundabout below transformed an ugly strip street in Golden, Michigan, into a much better proportioned street. Four roundabouts were built; all signals were removed. One surprising result: retail trade in the corridor outperformed all other streets in the state of Michigan during the last recession.

*Mini-circles are low cost and attractive traffic management tools that can be easily designed and installed. Although costs can be as low as \$15-25k, much more attractive circles are recommended for a number of historic roads where speeds are too high. A cost range of \$75-125k would be appropriate for central locations, while modest price circles can be used elsewhere in the community.*



*Mini-circles reduce the potential for crashes by 90%. Yield controls are used on all approaches. Seattle, Washington has placed over 1,000 mini-circles.*





*Additional tools can be used to aid pedestrians in crossing streets safely. Curb extensions reduce crossing distances. Landscaping helps channel pedestrians to ramps. Using two ramps per corner simplifies crossings. Color contrast is an aid for older pedestrians and pedestrians with visual problems. Countdown timers are now recommended as a soft replacement for all urban area signalized crossings.*

