MEMORANDUM

Missouri Department of Transportation
Administration
Central District

TO: Joseph Jones
Engineering Policy Administrator

FROM: Nicole Kolb Hood
Transportation Project Manager

DATE: December 5, 2008

SUBJECT: Camden County, Route 5
Job No. J5P0592A
Practical Design 2009 Awards for Excellence

District 5 is proud to present the Route 5 Shared Four-Lane project as a consideration for the 2009 Practical Design Awards for Excellence. This innovative highway design, the first project of its kind to be constructed in Missouri, provides a cost-effective solution to ease traffic flow, improve safety and reduce driver frustration. The Route 5 Shared Four-Lane project is an effective design alternative to a four-lane road with a much lower cost. This project will be built at one third less costs than a four-lane divided highway.

The project will relocate eight miles of Route 5 from just north of Route 7 near Camdenton to south of the Laclede/Camden County line. During the fall of 2009, additional passing lanes will be added to the remaining 10-mile section of existing Route 5, between the Laclede/Camden County line and the City of Lebanon. The grading portion for the northern section is currently under construction.

This innovative design is very fitting with MoDOT's change in philosophy and our use of practical design over the past few years. Route 5 is a critical link to moving people and goods and keeping its surrounding communities economically viable. The existing route has become more and more congested as the volume of traffic continues to grow. The highway currently averages 8,000 vehicles a day, which is enough to justify a four-lane road under MoDOT's historical benchmarks. In fact, a four-lane road was promised as part of the state's 15-year road plan adopted in 1992, but it never was built due to lack of funding.

Experience in other countries has shown these highways can safely carry up to 20,000 cars a day, just by giving drivers in each direction periodic opportunities to pass. Studies have confirmed the addition of passing lanes on our shared four-lane project will provide close to the same level of service as a four-lane divided highway.

Not only does this project provide a practical and innovative alternative to a four-lane highway, the design team also implemented the following practical design measures:

- Narrowed full depth pavement width by 2' ($460,000 savings)
- Used 7' shoulders instead of 10' ($250,000 savings)
- Reduced pavement thickness (15" AC & 10" PCCP to 13 & 9" ($1,000,000 savings)

- Thinned paved shoulder to 3 ¾” ($199,000 savings)
- Reduced minimum ditch depth & steepened repose angle ($2,008,000 savings)
- Rolled the grade (saved 1 mill. cubic yards) ($3,317,000 savings
- Sized crossroad culverts for 25 year design storm instead of 50 year

With limited resources available for highway improvements, safe, practical and lower-cost operational improvements are a benefit to everyone. The Route 5 Shared Four-Lane project is consistent with MoDOT’s philosophy of building good – not great – projects. Building a four-lane divided highway simply because the historic volumes in our manuals say it should be a four-lane would be similar to indulging ourselves and driving a Cadillac, however, scaling back and building the shared four-lane project meets the transportation needs while improving safety and better accommodating increasing traffic.

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Practical Design

2009 Awards for Excellence

MoDOT

ACEC Missouri

American Council Of Engineering Companies of Missouri

Practical Design

2009 Awards for Excellence

In the face of today's market volatility, increasing public demand and decreasing revenue, state DOTs must deliver the transportation system better, faster and cheaper than ever before. MoDOT's Practical Design effort accomplishes that goal by building "good" projects everywhere instead of "perfect" projects somewhere.

Innovation and creativity are the keys to accomplishing Practical Design. MoDOT, partnering with the American Council of Engineering Companies of Missouri (ACEC-MO), recognizes project teams that challenge traditional engineering standards to efficiently solve today's transportation needs.

The *2009 Awards for Excellence in Practical Design* provide an opportunity for MoDOT, consultant firms, and (for the first year) contractors to compete head-to-head for statewide recognition on MoDOT projects. Cities and counties are also able to compete in an "Off system" Category.

RECOGNITION

Winners will be recognized during the annual TEAM Conference in Branson. Additionally, individual submittals will have the opportunity to be 'showcased' at the meeting.

ELIGIBILITY

- MoDOT, consultant engineering firms, and contractors (needn't be ACEC or AGC member, respectively) having designs completed or started after January 1, 2006 may compete in the MoDOT project categories. Cities, counties and their consulting firms having designs completed or started after January 1, 2006 may compete in the Off-System category. Any MoDOT division with practical design initiatives implemented after January 1, 2006 may compete in the Non-Project category.
- Projects must have been awarded prior to the submittal deadline.
- Projects that won in a previous year are not eligible.

GENERAL CRITERIA

1. Entries must be submitted in accordance with the rules and requirements in this brochure.
2. Submittal must be a Missouri project.
3. The category under which an entry is submitted may not necessarily be the same under which it is judged. The Judges reserve the right to re-categorize projects to ensure even competition.
4. Categories will consist of the following:
   - Small Project (generally under $10M budget)
   - Large Project (generally over $10 M budget)
   - Post-Design Solution (ATC or VECP)
   - Process Improvement
   - Off System Project
   - Chief Engineer's Award
     Note: The Chief Engineer's Award will be selected from among all of the entries. Please do not submit an entry under this category.
5. Submittal: One .pdf file (10 Mb maximum) containing the following items:
   - Cover letter/Summary (2 pages maximum)
   - Completed 2009 Application Form
   - Backup, Plans, etc. – Five pages maximum
   - Minimum of one, maximum of five pertinent photograph(s)
     All information submitted should be project specific and not general firm information.
6. Judges:
   - ACEC Member
   - MoDOT Official(s)
   - FHWA Official
   - City or County Official
   - Contractor Professional
7. Publicity: All winners will be highlighted in MoDOT's *Connections* monthly newspaper and on MoDOT's Web site, ACEC's newsletters and Web site, on the TEAM Web site, and through various news releases following the TEAM meeting. Further benefits may be gained through features presented in firms' brochures, newsletters or other print or broadcast media.
8. The *2009 Awards for Excellence in Practical Design* Committee reserves the right to determine the eligibility and category classification for all entries.
9. Awards: Awards are presented at the 2009 TEAM Conference.
10. Ratings Guidelines: Entries will be judged with respect to the following categories:

Project-Based Submittals	Process Improvement Submittals
• Submittal	• Submittal
• Cost Savings	• Cost Savings
• Innovation	• Improvement in Business Efficiency
• Amount of Improvement	• Improvement of end Result

All entries must be received no later than close of business on December 1, 2008.

2009 APPLICATION FORM

(required for each entry)

Complete this section for (check one): ☐**Small Project** ☑**Large Project**

☐**Post-Design Solution** ☐**Off System Project**

Job No. J5P0592A **Route** 5 **County / LPA** Camden

Description (attach separate sheet if necessary) Construction of the Route 5 Shared Four-Lane project from just north of Route 7 near Camdenton to south of the Laclede/Camden County line.

Complete this section for: **Process Improvement**

Process or Product

Description (attach separate sheet if necessary)

Project Leader Nicole Kolb Hood

Key Team Members (include key personnel irrespective of employer-nine individuals maximum)

Steve Engelbrecht	Trent Brooks	Roger Wolfe
Randall Potts	Anousone Arounpradith	Troy Hughes
Geoffrey Franks	Michael O'Malley	Llans Taylor

Project Budget:

Initial Cost / Estimate $ 36,675,678 **Final Cost / Award** $ 23,223,969

What would make this entry stand out from the rest of the entries when considering MoDOT's practical design philosophy? (In layman's terms - 200 words or fewer-attach separate sheet if necessary) The Route 5 Shared Four-Lane project is an innovative design alternative to a four-lane road with a much lower cost. The environmental and location study for this corridor recommended a four-lane divided highway, however, scaling back and designing this project as a shared four-lane roadway will meet the transportation needs while improving safety and better accommodating increasing traffic.

Send entries to: MoDOT Design Division, ATTN: Joe Jones
1320 Creek Trail Dr., Jefferson City, Missouri 65109

ALL ENTRIES MUST BE RECEIVED NO LATER THAN CLOSE OF BUSINESS ON DECEMBER 1, 2008

Tuesday, July 24
Lake Career and
Technical Center
269 Dare Blvd.
Camdenton, MO

Thursday, July 26
Cowan Civic Center
500 East Elm St.
Lebanon, MO

Open House, 4–7 p.m.

The public may attend either meeting at any time during the advertised hours. For information or accessibility Accommodations, call 1-888-ASK-MoDOT (275-6636) or TDD 1-800-735-2966 for the hearing impaired.

Public Meetings Scheduled

Missouri Department of Transportation
Summer 2007

New Missouri Route 5, Camdenton — Lebanon

Highlights

- Shared-four lane highway to improve safety and traffic flow
- Current traffic volume – Approximately 8,000 vehicles per day
- Project length – 18 miles
- Miles of passing lanes—Approximately 16 miles
- Construction cost – $44 million
- Construction schedule – Work begins summer 2008 and completed mid-2010

Contact us at :

1-888-ASK-MoDOT
(275-6636)

or www.modot.org

Shared Four-Lane Highway

Between Route 7 in Camden Co. and Lebanon in Laclede Co.

What's Being Planned — A shared four-lane highway is being planned for 18 miles of Route 5 in Camden and Laclede counties to improve safety and to better accommodate increasing traffic. This innovative highway design is the first project of its kind to be constructed in Missouri.

The Improvement — A shared four-lane highway consists of alternating passing lanes along a conventional two-lane highway to provide motorists with periodic opportunities to pass other vehicles without having to drive in the opposing lane. The project will relocate eight miles of Route 5 from just north of Route 7 near Camdenton to south of the Laclede/Camden County line. Additional passing lanes will be added to the remaining 10 mile section of existing Route 5, between the Laclede/Camden County line and the City of Lebanon.

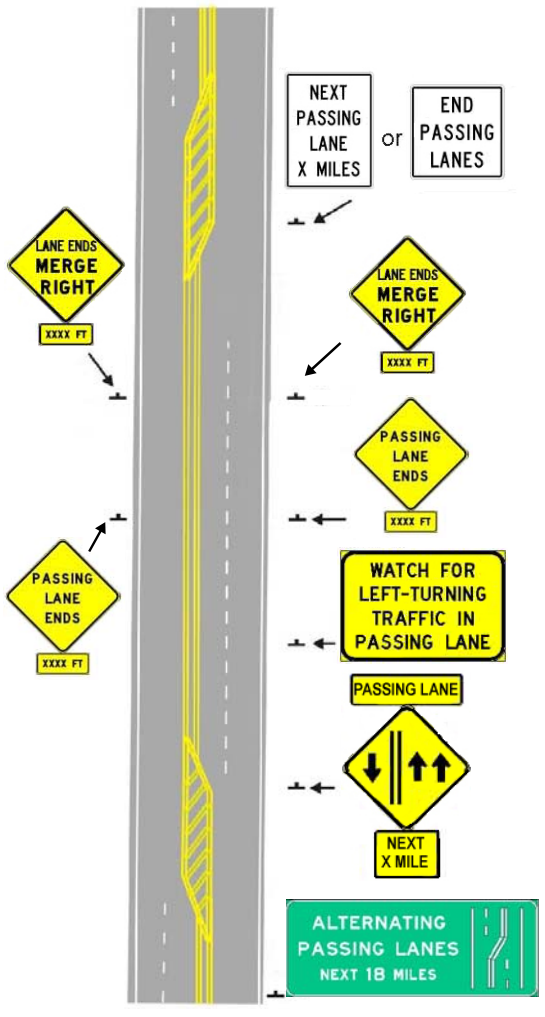
When The Improvement Will Happen — Construction is planned to begin summer 2008 and be completed in mid-2010.

What's Next — Highway designers are working on the project and public information meetings are scheduled in July. (See back page for meeting information.)

What It Will Look Like — The graphic on the inside of this brochure provides an example of how the Route 5 project might look.

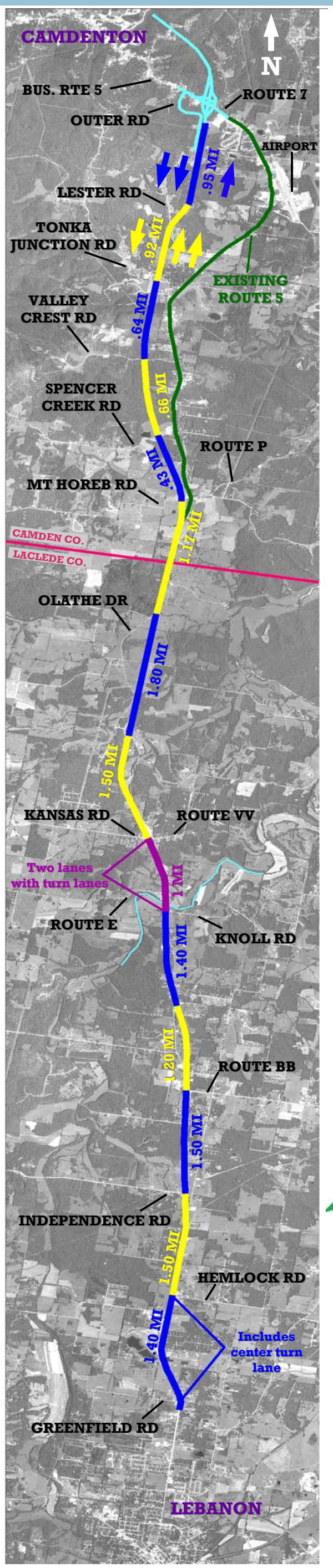
What Property Will Be Acquired for the Improvement — Property will need to be acquired to construct the northern portion of the project on the new alignment. Right of way acquisitions are currently ongoing.

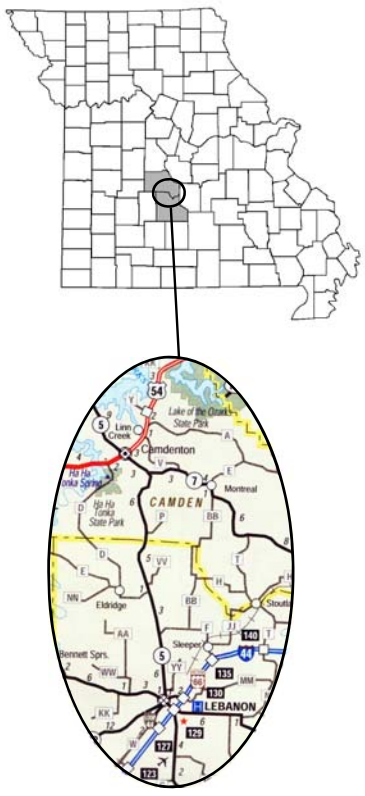
What It Looks Like



Shared Four-Lane Highway

North End of Project at Route 7 near Camdenton





South End of Project at Greenfield Road near Lebanon

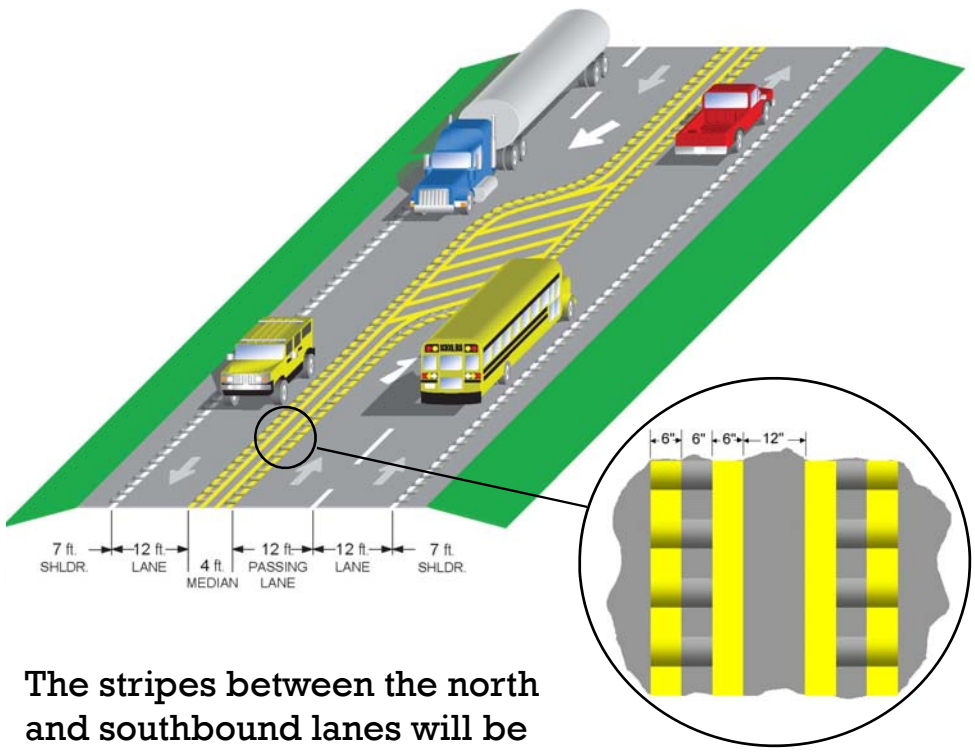
View of Shared Four-Lane Highway

Northbound Passing Lane

Southbound Passing Lane

Drawings and maps not to scale.

Median Rumble Stripes



The stripes between the north and southbound lanes will be placed over milled depressions in the pavement called **rumbles**. An audible noise and vibration alerts drivers when the vehicle tires move over the rumbles. These **rumble stripes** will be used along the shared four-lane highway to encourage motorists to remain safely in their lanes.

Ease
on Down the Road

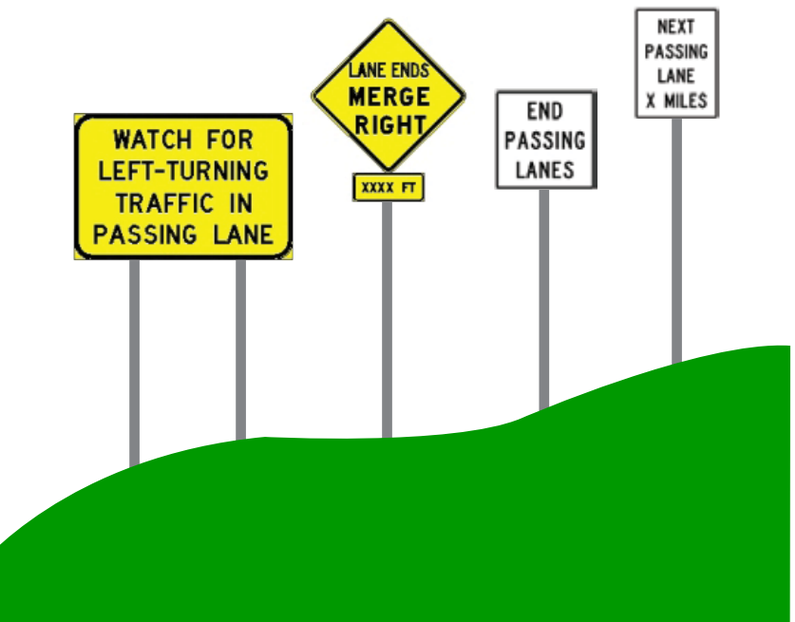
Guiding the Way

Highway markings warn and inform drivers.

- A series of four, six-inch painted stripes in combination with two rumble stripes mark the four-foot separation between opposing traffic directions.
- A six-inch edgeline rumble stripe warns motorists when they are leaving the travel lane on the right.
- Painted arrows inform the driver to change lanes when coming to the end of a passing lane.

New traffic signs:

- Alert drivers of an upcoming passing lane.
- Mark the beginning and length of each passing lane.
- Alert drivers when the passing lane is ending.
- Alert drivers to watch for left-turning traffic in the passing lane, when applicable.



For more information on

Shared Four-Lanes

contact MoDOT at

888-ASK-MODOT

(275-6636)

Misssouri Department of Transportation
PO Box 270
Jefferson City, MO 65102

CR07.055

Driving on a

Shared Four-Lane

Missouri Department of Transportation

Moving Across Missouri

More than 60 percent of Missouri's rural roads are two-lane highways. While these routes are adequate to handle the volume of traffic they serve both now and in the future, drivers often become frustrated with delays caused by the inability to pass a slower moving vehicle. In this situation, a driver must either contend with a travel delay or risk a potentially dangerous passing maneuver. Clearly, there is a real need to improve the safety and functionality of many two-lane routes.

Through innovation, MoDOT has designed an alternative roadway, called a "Shared Four-Lane" highway. This unique design provides a cost-effective solution to ease traffic flow, improve safety and reduce driver frustration.

Defining "Shared Four-Lane"

A shared four-lane highway consists of passing lanes along a conventional two-lane highway to better accommodate traffic volumes and improve safety. The passing lane alternates between both sides of the highway to give drivers periodic opportunities to pass.

Although MoDOT has used similar applications in limited fashion before, the first of these projects is scheduled for Route 5 between Camdenton and Lebanon. Its continuous nature will make it one of the first projects of its type in the U.S. These facilities are very common, and have been very successful, in Europe.

Faster

A shared four-lane helps maintain a consistent traffic flow. It increases passing opportunities over long stretches of highway, reducing the time drivers spend behind a slower-moving vehicle.

Safer

The addition of a passing lane improves safety because it eliminates the need for a driver to cross into the opposing lane of traffic to pass another vehicle. Rumble stripes between opposing lanes encourage drivers to remain safely in their lanes. In Europe fatal and severe injury crashes have been reduced by as much as 55 percent.

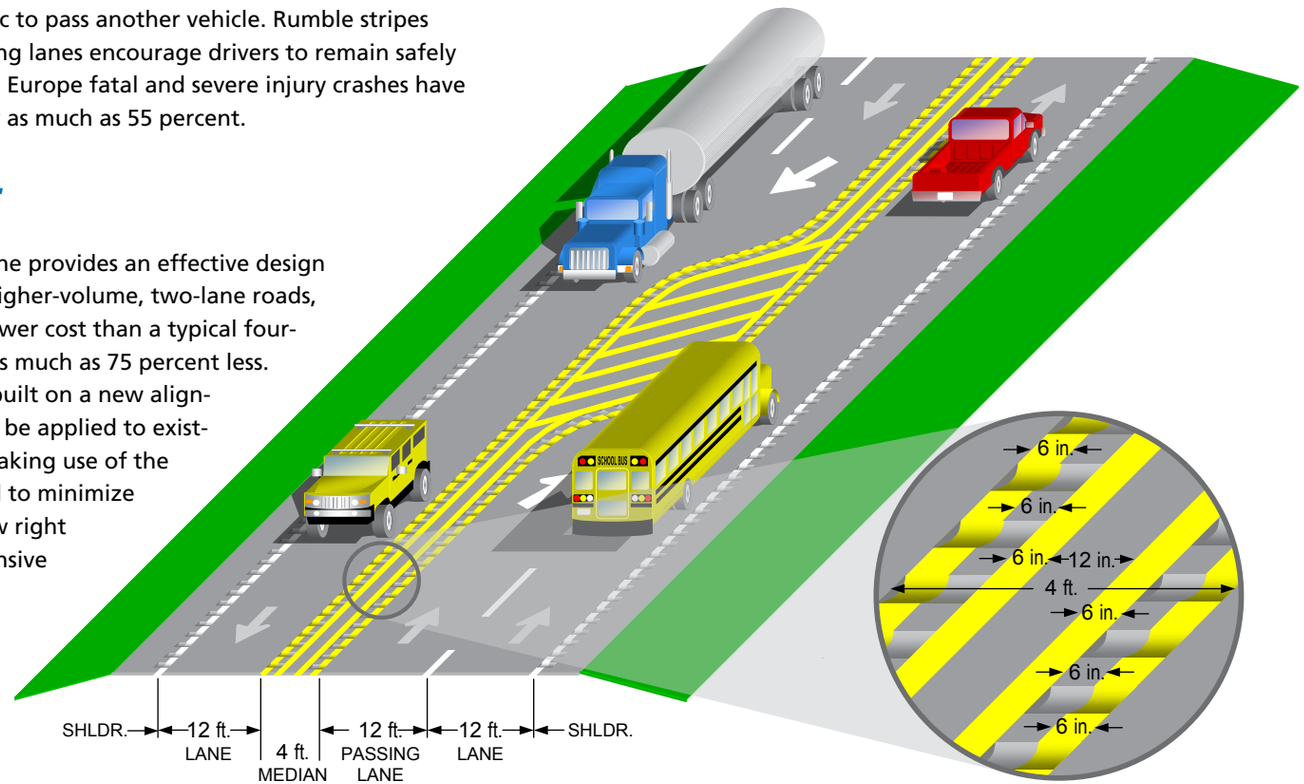
Cheaper

A shared four-lane provides an effective design alternative for higher-volume, two-lane roads, but at a much lower cost than a typical four-lane highway - as much as 75 percent less. While it can be built on a new alignment, it can also be applied to existing highways, making use of the existing roadbed to minimize the need for new right of way and extensive construction.

Wider

In most locations, MoDOT will design shared four-lane highways with:

- 12-foot lane widths, separated by a four-foot buffer
- Variable shoulder widths
- Left-turn lanes at major intersections
- A flexible design to fit the location



This is a plate from the Route 5 EIS showing the recommendation of a four-lane divided highway.