

# Ohio's County Highways

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# 2003

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# Introduction

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*Simply put,  
Ohio's 30,000  
miles of county  
highways and  
27,000 bridges  
are wearing out  
and deteriorating  
at a pace beyond  
the fiscal  
capabilities of its  
County Engineers.*

The foundation for Ohio's transportation infrastructure is its nearly 30,000 miles of county highways — a system whose maintenance, repair and reconstruction fall within the jurisdiction of the state's 88 County Engineers. Like the highways and bridges they are responsible for maintaining, County Engineers are today facing a challenge that goes to the core of their budgetary ability to meet Ohioans' transportation needs as our state approaches its third century — 2003.

***Simply put, Ohio's 30,000 miles of county highways and 27,000 bridges are wearing out and deteriorating at a pace beyond the fiscal capabilities of its County Engineers to respond.***

Traditional sources and levels of transportation maintenance revenue are not allowing counties to keep up — let alone get ahead — of the skyrocketing repair and reconstruction demands of its highways and bridges. ***The fact is, simply maintaining current levels of support for county highway maintenance actually means that counties fall even further behind,*** given new demands being placed upon county highways as well as the high cost of “playing catch up” on long overdue repairs and replacements.

As a consequence, the challenge in overcoming such monumental obstacles to Ohio's county highway maintenance dilemma is twofold, encompassing critical needs for the safety of travelers and the new economic realities driving business and industry to demand more from county transportation systems.

# Introduction

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Safety, Jobs  
& Local  
Economies

**Safety** — Aging county highways and bridges that cannot keep up with their own repair and reconstruction needs have become hazardous for travelers in many locations. Only 25% of all county highways meet generally accepted standards for safe roadway width. More than 40% of county bridges have been posted for lower weight limits and growing numbers are now classified as functionally obsolete or structurally deficient. Hundreds of miles of needed guardrails go uninstalled. Signage is terribly inadequate.

**Jobs and the Economy** — Some of the most important implications of the global economy for counties are increasing demands being placed on their transportation infrastructures. More complex patterns of industry and commerce have meant spreading commercial activity and relocations in suburban and rural areas. Commercial preference today for “just-in-time” manufacturing, for instance, has meant even greater business reliance on county highways.

As a consequence, the reliability of county highways clearly impacts local efforts to retain and create jobs. Yet despite a direct cause-and-effect relationship between good roads and local economic success, Ohio's County Engineers do not have the resources or support to fulfill their maintenance needs. Average resurfacing schedules exceed 17 years in many counties — compared to a 10-year recommended maximum. And the conditions of bridges, guardrails and signage that so greatly impacts safety have important economic consequences as well.

# Introduction

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Rough Road

Ahead: Gap

Analysis &

Benchmarks

for the Future

***Rough Road Ahead: Ohio's County Highways: 2003***, provides a brief but revealing gap analysis of the conditions of our county highways and bridges. It also is a primer on the losing battle that most County Engineers face every day in trying to keep their highways and bridges safe and reliable for all travelers.

At the same time, this publication provides data and criteria for judging the most important areas of concern when it comes to county highway maintenance. It offers recommendations and a policy agenda to members of the Ohio General Assembly and the Administration about what steps are available — and what steps need to be taken — to give County Engineers the resources to halt the slide in the condition of our county highways and bridges.

Since achieving statehood in 1803, Ohio has generated its own economic success and a high quality of life through a reliance on a dependable network of county bridges and highways. As Ohio approaches its bicentennial in 2003, reliance on our county highways, and on our County Engineers, will become more important than ever.

# The Facts

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*The numbers tell*

*the story about*

*the massive*

*responsibility*

*that County*

*Engineers*

*routinely face*

*in maintaining*

*and upgrading*

*Ohio's county*

*transportation*

*infrastructure.*

## **County Highways**

County Engineers are responsible for the repair, maintenance and upgrading of all county highways. This includes responsibility for widening and repaving, temporary repair, signage, guardrail placement and repair, ditch maintenance, road striping, clearing road hazards, snow plowing and mowing. County Engineers also are required to serve as engineering consultants to their township trustees.

**29,477** Total number of miles of county highways in Ohio.

This compares to the 24,536 miles of highways under the jurisdiction of municipal government throughout the state, and the 19,277 miles of highways maintained by the Ohio Department of Transportation.

## **Bridges**

Inspecting and maintaining bridges is one of County Engineers' most critical responsibilities. A majority of all bridges in Ohio fall within their jurisdiction, and County Engineers are responsible for inspecting all spans over 10 feet in length each year.

**26,848** Total number of bridges maintained by County Engineers.

Percentage of all of Ohio's 41,677 bridges for which County Engineers are responsible.

**50 years and older** The age of more than 11,000 of Ohio's county maintained bridges.

Ohio has one of the largest bridge inventories in the United States, and our County Engineers have the responsibility for keeping an overwhelming majority of them in safe and reliable condition.

## **Accidents and Safety**

Fatalities, injuries and property damage on Ohio's county highways remain unacceptably high, and in many cases have worsened in recent years.

### ***Total Crashes***

- Total number of vehicle crashes taking place on county highways increased by 17.5% from 1991 through 1995, with increases posted for each of those years.

# The Facts

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## *Injuries & Fatalities*

- Injury accidents on county highways have increased steadily since 1991 — from 17,475 injuries that year to 19,706 in 1995.
- From 1990 through 1995, more than 1,800 people have died on Ohio's county highway network.

## *Property Damage & Economic Loss*

- Since 1990, total financial losses due to crashes on county highways have surpassed **\$13 BILLION**, with those losses climbing each year from 1992 to 1995.
- The 38,043 property damage crashes that took place on county highways in 1995 represented nearly a 21% increase over that for 1991.

## **Staffing**

Ohio's 88 County Engineers rely on about 4,000 professional engineers, professional surveyors, technical and supervisory highway and bridge maintenance employees. Yet, consider...

**22%** Reduction in overall staff levels for County Engineers statewide during the last 10 to 15 years — many times in areas that directly impact road and bridge maintenance.

**8%** Reduction in clerical, office and technical staff levels for Ohio's County Engineers during the same period of time.

By and large, these cuts in personnel have been made by County Engineers to free up scarce resources that can be used on maintenance of their highways and bridges.

## **Support for Ohio's County Highways and Bridges**

*County Engineers receive \$14.24 of every \$20.00 in license fees collected each year for motor vehicle registration. In 1996, this amounted to \$202,833,770.*

In addition, County Engineers receive the equivalent of 2.02 cents

for each 22 cents per gallon in state motor vehicle fuel taxes collected in Ohio. In 1996, this gasoline tax formula generated \$112,916,140.

For an Ohio family — owning two cars and driving an average of 24,900 miles per year — these revenue figures mean...

- They contribute \$28.48 annually in state license fees and \$25.12 in state gasoline taxes toward the maintenance of nearly 27,000 county bridges and more than 29,000 miles of county highways.
- Their annual per mile contribution to the maintenance of Ohio's entire county highway and bridge network is 1/4 cents.



*The County Engineers Association of Ohio, and each of the state's 88 County Engineers, are seriously concerned about the future of Ohio's county maintained highways and bridges. Here are a few of the most important reasons why...*

*Of Ohio's 26,848 county maintained bridges... [some figures duplicated]*

- 11,292 are 50 years old or older — meeting or exceeding their maximum design lives.
- 4,860 are posted for lower weight limits.
- 4,095 are structurally deficient.
- 4,495 are functionally obsolete.
- 4,261 structurally qualify for replacement.
- 8,061 structurally qualify for rehabilitation.
- 6,064 are one-lane in width.

*Of Ohio's 29,477 miles of county-maintained highways...*

- The average resurfacing schedule now averages 17 years — seven years past the recommended maximum of 10 years.
- Only 31% — 9,294 miles — meet or exceed the 20-foot minimum width for ensuring driving and passing safety. Most county highways are too narrow, and as a consequence, pose safety hazards to motorists.

*Of Ohio's county highway safety infrastructure*

## RECOMMENDATIONS

*Based on the preceeding data and other information provided in this publication, the County Engineers Association of Ohio offers the following recommendations to the Ohio General Assembly.*

**#1** *Make a commitment — beginning with the 1998-1999 biennium budget — to provide County Engineers with the resources to recover, stabilize and improve county maintained highways and bridges to minimum levels of safety and reliability.*

*Specifically, this means:*

✓ A 10-year completion schedule to replace and rehabilitate all county-maintained bridges that qualify. *Estimated cost for full completion: \$126,861,000 per year.*

✓ A 10-year completion schedule to reduce from 17 years to no more than 10 years the average resurfacing schedule for county maintained highways. *Estimated cost for full completion: \$85,771,000 per year.*

✓ A 20-year program allowing County Engineers to widen all qualifying county highways to 20 feet. *Estimated cost for full completion: \$74,479,000 per year.*

✓ Additional resources for ongoing county-based programs to upgrade and improve safety infrastructure — sign replacement, guardrail installation and other measures. *Estimated ongoing cost for full completion: \$17,686,000 per year.*

*infrastructure...*

- More than 12 million feet of new guardrail needs to be installed.
- More than 51,500 safety and warning signs need to be replaced, with an equal number of new signs needing to be installed.

✓ A three-year effort allowing County Engineers to undertake all necessary road markings. *Estimated cost for full completion: \$5,977,000 per year.*

*Cont.*

## RECOMMENDATIONS (Cont.)

*Altogether, these estimates for full funding of county highway and bridge improvements total just over \$310 million annually — approximately \$194 million more each year than is currently available for these projects in Ohio's 88 counties.*

The County Engineers Association of Ohio does not offer this recommendation lightly. As much as any other group of public officials, County Engineers appreciate the responsibility of responding to critical needs with limited financial resources.

*At the same time, simply maintaining current levels of support for county highway maintenance actually means that counties fall even further behind.* These recommendations are not a "wish list" for the best county transportation network imaginable. Instead, they speak to what must be accomplished — *minimally* — to provide for traveling safety.

In addition, the recommended completion schedules — some as lengthy as 20 years — recognize that Ohio does not have the financial means or ability to correct these problems overnight. The County Engineers Association of Ohio has stretched time estimations as far as possible to allow Ohio to catch up to these obligations as painlessly as possible — *yet catch up nonetheless.*

**#2** *Ensure that new capital improvement dollars, as a result of additional appropriations or new revenue enhancements, are distributed equally among Ohio's 88 counties.*

The fact is, many of the most serious and unsafe county highway and bridge conditions exist in suburban and rural counties. Consequently, additional revenue should not be limited strictly to locations with higher volumes of registered vehicles. All of Ohio's 88 counties are in critical need of county highway and bridge improvements, and all deserve an equal opportunity to protect the safety of motorists locally.

# Assessment Criteria

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*These criteria provide a baseline for examining the conditions of our county transportation infrastructure — and determining how far they fall below accepted standards for maintenance and repair.*

What is the functional life-span of a bridge? How much should a county highway be widened to reasonably improve safety for motorists? What is the longest an asphalt highway can go before it should be resurfaced?

Ohio's County Engineers take the guess work out of questions like these, and apply experience, industry standards and even science to the job of guaranteeing that our county highways and bridges are both safe and reliable. Criteria used to determine, for instance, if a bridge needs to be replaced or rehabilitated are critical considerations that must be assessed and dealt with on a routine basis.

These same criteria are presented on the following pages as part of the assessment and gap analysis of county highways and bridges contained in *Ohio's County Highways: 2003*. They are a base line for examining the conditions of our county transportation infrastructure — and determining how far they fall below accepted standards for maintenance and repair. Based on these criteria, the gap analysis that follows clearly shows that there is *rough road ahead* for Ohio's county highways and bridges.

# Assessment Criteria

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## County Highways

### *Standard #1* **Highway Width**

*“All highways should be at least 20 feet in width to provide minimal safety.”*

Studies have shown that widening the driving lane by just two feet reduces accident rates by 20%. Twenty (20) foot road widths give most motor vehicles reasonable driving clearances, *yet as the assessment of Ohio's county highways will show in the next chapter, most county highways do not meet this standard.*

In establishing the 20-foot benchmark, Ohio's County Engineers have reduced optimal federal highway administration standards that call for even wider highways. For purposes of this report and their budget projections for bringing all county highways up to this safety standard, County Engineers also are recommending a 20-year construction schedule for widening all county highways to 20 feet.

### *Standard #2* **Highway Resurfacing**

*“All highways should be resurfaced at least every 10 years.”*

Generally accepted maintenance standards recognized by road engineers nationally call for highways to be resurfaced at least every 10 years. Ohio's County Engineers apply that standard to their assessment of county highways in combination with a 2 inch surface thickness requirement. For purposes of this assessment and their budget projections, County Engineers are recommending a 10-year schedule for bringing all county highways up to necessary surface standards. *As the assessment in the next chapter illustrates, financial realities have pushed the average resurfacing schedule for all county highways to 17 years.*

# Assessment Criteria

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## County Bridges

*“The average design life of a bridge, as verified by the Ohio Department of Transportation, is 50 years. Of Ohio's 26,848 county maintained bridges, 11,292 are 50 years old or older. By 2006, more than 16,000 county bridges will be at least 50 years old.*

Ohio's County Engineers utilize a nationally recognized formula developed by the Federal Highway Administration for rating the condition of bridges. That formula, called the Bridge Sufficiency Rating, determines whether bridges should be *replaced* or *rehabilitated*. Quite simply, bridges with “sufficiency ratings” of 50 to 80 should be rehabilitated. A sufficiency rating of 50 or less means a bridge should be replaced.

Based in part on these standards, a survey of County Engineers statewide has produced totals for the number of bridges in Ohio which are closed, posted for lower weight limits, are functionally obsolete or structurally deficient. *As the gap analysis that follows indicates, many bridges across Ohio fall within these latter categories.*

## Safety

### *Signs, Guardrails & Pavement Markings*

Safety measures — traffic and road condition signs, guardrails, pavement striping and other items — are critical to motorists. Their placement and installation are governed in large part by Ohio's Location & Design Standards as well as by the Ohio Manual of Uniform Traffic Control Devices for Streets & Highways. For purposes of this assessment, a three-year maintenance schedule was used to calculate needs and costs related to pavement markings. Installation and replacement of road signage and guardrails, on the other hand, is based on individual assessments by local County Engineers.

# Assessment Criteria

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## Assessment & Gap Analysis

**“One third of  
state's bridges  
are crumbling”**  
The Plain Dealer  
Front Page  
December 23, 1996

As alarming as that headline appeared in *The Plain Dealer's* investigation of bridge conditions in 1996, the full story about the safety and maintenance of Ohio's county highways, bridges and safety infrastructure is even worse.

Thousands of county bridges are classified as either functionally obsolete or structurally deficient. Just as many bridges have been posted for lower weight limits, or remain one-lane bridges built generations ago.

But safety and reliability deficiencies in Ohio's county transportation infrastructure go far beyond the condition of its bridges. County highways in many locations are in serious disrepair. Resurfacing schedules for county highways now average 17 years. Highway widths and passing lanes in most locations are far too narrow. Most existing guardrails are inadequate and millions of feet of new guardrail are needed. There is a critical need for thousands of new and replacement safety and warning signs.

The assessment, or gap analysis, that follows is presented by the County Engineers Association of Ohio as a way of establishing benchmarks that define what must be accomplished to better provide for the safety of motorists regardless of the county highway or bridge they travel upon. With regard to the projected costs and recommended completion schedules that are provided, two points must be emphasized.

# Gap Analysis

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*The County*

*Engineers*

*Association of*

*Ohio has stretched*

*time estimations as*

*far as possible,*

*and offer*

*completion*

*schedules that*

*allow Ohio to*

*catch up to these*

*obligations as*

*painlessly as*

*possible — yet*

*catch up*

*nonetheless.*

**#1** *Costs are projected for achieving a minimal threshold of safety and reliability on Ohio's county highways and bridges.*

Benchmarks presented in this analysis are not a "wish list" of items that would achieve the best county transportation network imaginable. Instead, they speak to what must be accomplished — ***minimally*** — to improve traffic safety.

**#2** Recommended completion schedules — some as lengthy as 20 years for certain projects — are presented in recognition that Ohio does not have the financial means or ability to correct these problems overnight. The County Engineers Association of Ohio has stretched time estimations as far as possible, and offer completion schedules that allow Ohio to catch up to these obligations as painlessly as possible — ***yet catch up nonetheless.***



# Gap Analysis

## Gap Analysis - Road Width Safety

<b>OBJECTIVE</b>	Bring all 29,477 miles of county maintained highways up to 20-foot minimum width for driver safety.
<b>ASSESSMENT CRITERIA</b>	All highways should be at least 20 feet in width to provide minimal safety.
<b>CURRENT CONDITIONS</b>	<p><i>Seriously inadequate, as evidenced by the small percentage of highways more than 20 feet in width.</i></p> <p>Only 31% of Ohio's county highways — 9,294 miles — meet or exceed the 20-foot minimum width benchmark to better provide for driving and passing safety. Of the remaining miles:</p> <ul style="list-style-type: none"> <li>• 6,114 miles — 21% are 16 feet or less in width.</li> <li>• 12,109 miles — 41% — are 16 to 18 feet in width.</li> <li>• 7,759 miles — 26% — are 18 to 20 feet in width.</li> </ul> <p>More than 2,300 miles of county highways — 8% — are unpaved.</p>
<b>RECOMMENDED COMPLETION SCHEDULE</b>	20 years.
<b>PROJECTED COSTS</b>	Ohio's County Engineers estimate the full local cost of widening all necessary county highways to the 20-foot safety minimum — over a 20-year construction and maintenance schedule — to be \$74,479,000 per year.

# Gap Analysis

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## Gap Analysis - Road Resurfacing

<b>OBJECTIVE</b>	Catch up with long-delayed resurfacing needs of most county highways; Cut average resurfacing schedules in half.
<b>ASSESSMENT CRITERIA</b>	All highways should be resurfaced at least every 10 years.
<b>CURRENT CONDITIONS</b>	<i>Well behind schedule. The resurfacing schedule for county highways is now averaging 17 years statewide.</i>
<b>RECOMMENDED COMPLETION SCHEDULE</b>	10 years for proper surface upgrades. Maintain 10-year average resurfacing schedule.
<b>PROJECTED COSTS</b>	Ohio's County Engineers estimate the full local cost of resurfacing all necessary county highways and highways — over a 10-year schedule — to be \$85,771,000 per year.

# Gap Analysis

## Gap Analysis - Bridge Repair & Replacement

<p><b>OBJECTIVE</b></p>	<p>Greatly reduce the number of bridges now posted for lower weight limits; Drastically cut the number whose bridge sufficiency ratings call for them to be replaced or rehabilitated.</p>
<p><b>ASSESSMENT CRITERIA</b></p>	<p>Bridges should be replaced before they complete their average life expectancy.</p>
<p><b>CURRENT CONDITIONS</b></p>	<p><i>Thousands of county bridges are crumbling — calling their safety and commercial reliability into question.</i></p> <p>The generally accepted life expectancy of bridges is 50 years. Of Ohio's 26,848 county maintained bridges, 11,292 are 50 years old or older. By 2006, more than 16,000 county bridges will be 50 years old or older.</p> <p>Of all county maintained bridges:  <i>[Some figures duplicated]</i></p> <ul style="list-style-type: none"> <li>•4,860 are posted for lower weight limits</li> <li>•4,095 are structurally deficient</li> <li>•4,495 are functionally obsolete</li> <li>•4,261 structurally qualify for replacement</li> <li>•8,061 structurally qualify for rehabilitation</li> <li>•6,064 are one-lane in width</li> </ul>
<p><b>RECOMMENDED COMPLETION SCHEDULE</b></p>	<p>10 years for bridges that qualify for replacement and rehabilitation.</p>
<p><b>PROJECTED COSTS</b></p>	<p>Ohio's County Engineers estimate the full local cost of replacing and rehabilitating all county bridges that qualify — over a 10-year construction and maintenance schedule — to be \$126,861,000 per year.</p>

# Gap Analysis

## Gap Analysis - Repair Safety Infrastructure

<b>OBJECTIVE</b>	Upgrade millions of feet of inadequate guardrail, replace thousands of deteriorating safety and directional signs, replace and repair hundreds of culverts. Step up pavement striping to a three-year schedule.
<b>CURRENT CONDITIONS</b>	<p><i>Sometimes less apparent to the driving public than road surface conditions or bridge safety, signs, guardrails and other safety infrastructure are seriously lacking in thousands of locations in every county in Ohio.</i></p> <ul style="list-style-type: none"> <li>• More than 12 million feet of new guardrail need to be installed along county highways statewide.</li> <li>• Only 1/3 of existing guardrail on county highways meet state standards.</li> <li>• More than 51,500 additional safety and directional signs along county highways need to be replaced. About the same number of additional signs need to be installed.</li> </ul>
<b>RECOMMENDED COMPLETION SCHEDULE</b>	Unlike road and bridge repairs, project time lines for sign replacement, guardrail installation, culvert replacement and ditch reconstruction is more difficult to calculate. Yet certainly, ongoing maintenance is critical in each of these categories.
<b>PROJECTED COSTS</b>	Ohio's County Engineers estimate the full local cost of these necessary safety upgrades — on an ongoing schedule — to be \$17,686,000 per year. The full annualized cost of necessary road striping on county highways throughout Ohio — over a three-year schedule — is estimated at \$5,977,000.