

TABLE OF CONTENTS

	<u>Page</u>
STUDY BACKGROUND	1
THE FIFTEEN ARIZONA COUNTIES	3
EFFECTS OF ECONOMIC TURMOIL	3
The Volatility of Oil Prices	4
Changes in Vehicle Miles Traveled	5
The Economic Outlook for 2009-2010	7
Effects of Economic Turmoil on County Roadway Needs and Revenues....	8
THE ROLE OF COUNTY ROADS.....	11
PROCEDURES.....	12
Maintenance and Operations Needs	14
Bridge Maintenance/Rehabilitation/Replacement Needs	16
Upgrading Roads Needs	16
New Roads Needs	16
New Bridges on Existing Roads Needs	17
Safety Needs.....	17
RESULTS	18
Maintenance and Operations Needs	22
Bridge Maintenance/Rehabilitation/Replacement Needs	22
Upgrading Roads Needs	23
New Roads Needs	25
New Bridges on Existing Roads Needs	25
Safety Needs.....	25
COMPARISON OF RESULTS	26
REVENUE HISTORY AND PROJECTION	27
EFFECT OF REVENUE SHORTFALL ON COUNTY ROADWAYS.....	30

LIST OF TABLES

	<u>Page</u>
1. ARIZONA COUNTIES, 2007 STATISTICS	4
2. VEHICLE-MILES (VM) TRAVELED ON RURAL ARTERIAL ROADS, NOVEMBER AND DECEMBER 2008 VS. 2007	6
3. MAINTENANCE COSTS PER MILE OF ROAD PER YEAR.....	15
4. TOTAL NEEDED EXPENDITURES FOR COUNTY ROADS BY 5-YEAR INCREMENT	18
5. 2009-2013 NEEDED EXPENDITURES BY COUNTY.....	19
6. 2014-2018 NEEDED EXPENDITURES BY COUNTY.....	20
7. 2009-2018 NEEDED EXPENDITURES BY COUNTY.....	21
8. COSTS FOR UPGRADING ROADS NEEDS	23
9. MILES OF DEFICIENCIES ON EXISTING ROADS.....	23
10. COSTS FOR ACQUIRING NON-EXISTING RIGHT-OF-WAY.....	25
11. HURF AND VLT REVENUE HISTORY.....	27
12. HURF REVENUE PROJECTIONS.....	28
13. VLT REVENUE PROJECTIONS	29

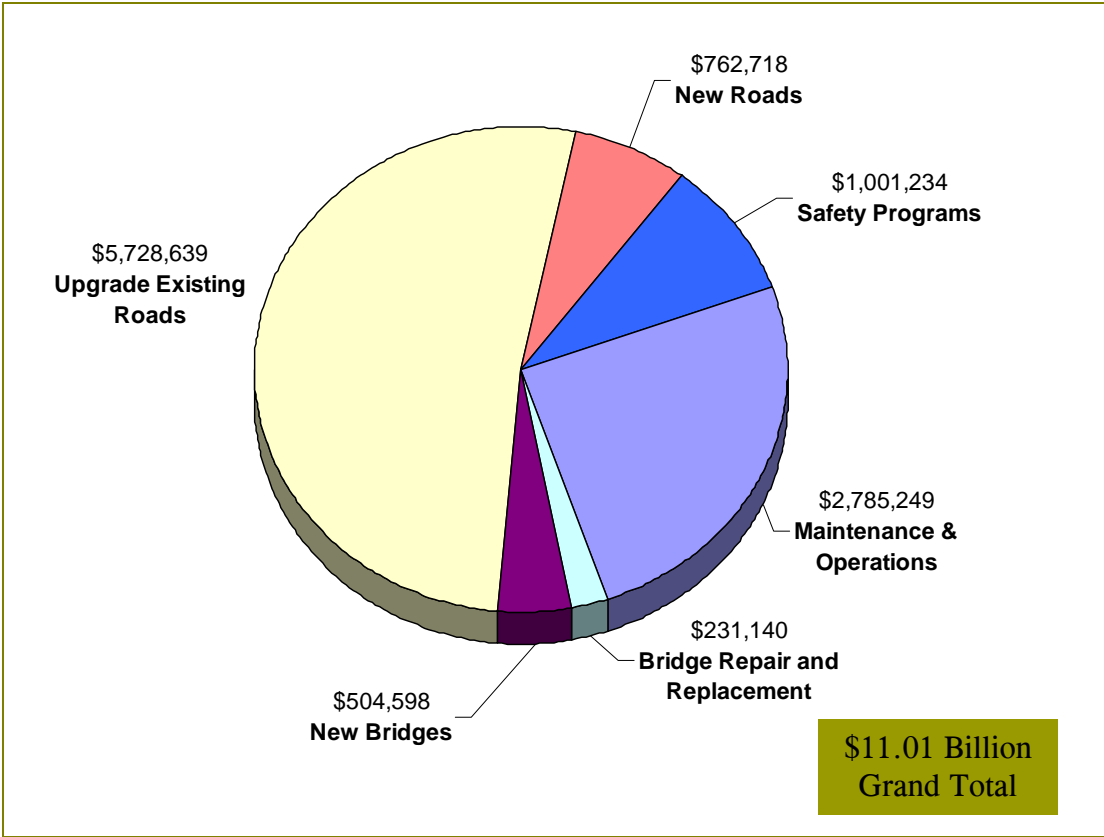
LIST OF FIGURES

	<u>Page</u>
1. TEN-YEAR TOTAL COST ESTIMATE FOR COUNTIES, 2008 AACE STUDY.....	1
2. CHANGE IN VEHICLE-MILES TRAVELED ON RURAL HIGHWAYS, UNITED STATES, 2006-DECEMBER, 2008	5
3. VEHICLE-MILES TRAVELED ON ALL ROADS, UNITED STATES, 1998-2008	6
4. ARIZONA ROADWAY CONSTRUCTION ASPHALT PRODUCTS PRICING 2001-2009	9
5. PROCEDURE FOR CALCULATING ROADWAY NEEDS.....	13
6. COMPARISON BETWEEN AACE STUDIES	26
7. TEN-YEAR SHORTFALL OF REVENUE VS NEEDS.....	30

AACE 2008 ROADWAY NEEDS STUDY

The Arizona Association of County Engineers (AACE) 2008 Roadway Needs Study Update documents \$11.01 billion of needed expenditures on county roadways in Arizona for the time period 2009-2018 (Figure 1). Those expenditures are required if county roads are to meet and to be properly maintained at accepted planning guidelines by January 2019.

**FIGURE 1. TEN-YEAR TOTAL COST ESTIMATE FOR COUNTIES
2008 AACE STUDY
(AMOUNTS SHOWN IN THOUSANDS)**



An additional \$489 million would be needed to purchase right of way where roadways have existed for a period of time, but right of way has not been formalized. Securing the right of way is considered to be an ongoing effort that is less time-dependent than the other needs, so the amount for the right of way is not included in the ten-year needs estimate.

STUDY BACKGROUND

The AACE is an association of the county engineers representing the 15 counties in Arizona. The 2008 Roadway Needs Study Update is the fourth update of a study

first conducted in 1994. The study series began as a result of counties' participation in the ADOT statewide 10-year needs study in 1994. At that time, ADOT was required to provide a statewide transportation needs report to the legislature every five years. ADOT included in its statewide report the counties' responses to a request for a self-assessment of needs.

The county engineers noted that the ADOT requests did not include enough guidelines or details to complete a statewide compilation of needs that would be criteria-based or consistent across jurisdictions. They decided to embark upon a more systematic, in-depth, and consistent needs study for county roadways and performed the first AACE study that same year—1994. The 1994 study was shared with the legislature via AACE representatives' discussions with legislators.

Over the time period 1997 through 2007, state legislation and Executive Orders reshaped the periodic statewide transportation needs reports into processes for statewide transportation planning. Rather than a requirement for ADOT to provide a needs report, ADOT is to include needs as a part of the evolving planning process.

While the statewide transportation planning processes are vital, their objectives with regard to county roadways are different from the objectives of the AACE Roadway Needs Study. For example, the statewide planning processes have included some capital improvement projects for county roadways, but they do not directly calculate the needs for ongoing roadway maintenance.

The county engineers have continued to value the compilation of the investment needed for county roadways throughout the state both to meet and to be properly maintained at accepted planning guidelines. Therefore, study updates have previously occurred in 1997, 2000, and 2004. The 2008 Roadway Needs Study Update is the fourth update of the original 1994 study.

There is a clear difference between the statewide planning processes and the AACE Roadway Needs Studies with regards to transportation modes. The statewide process intends to define multimodal mobility needs. The AACE Roadway Needs Study is to yield roadway (including bridge) needs. The Roadway Needs Study is multimodal only to the extent that heavy vehicles such as freight trucks are included in addition to lighter-weight vehicles.

The Roadway Needs Study does not address transit or rail. Important transit needs and demand in much of the state are addressed in the recently completed Arizona Rural Transit Needs Study. In that study, rural Arizona is defined as all areas that are not within one of the five urbanized areas in Arizona (Phoenix, Tucson, Yuma, Flagstaff, and Prescott). In addition, the urbanized areas and some cities and towns have transit and rail studies.

THE FIFTEEN ARIZONA COUNTIES

The relative roadway needs among the various counties are dependent upon several factors. Several of the factors are:

- ⊕ Population (total and growth rate) in the county overall
- Population (total and growth rate) in the unincorporated county
- Area of the unincorporated county
- ⊕ Physical characteristics of the county (climate, terrain)
- Extent and condition of the current county roadway system

A high recent growth rate in a county is typically connected to a large volume of new roadways in the county's inventory compared to the previous time period, and a large volume of needs both for new road construction and for upgrades to existing roads. Some of the new roadways are constructed by the county while others are subdivision streets built by developers then dedicated to the county.

Some roadways leave counties' roadway inventories, most often because of its annexation by a city or town. Maricopa County has the most cities and towns of any county, and it is the county that typically has the most roadways subtracted from its inventory over time.

Table 1 displays several salient statistics for each of Arizona's fifteen counties. The counties are listed by the number of persons in the unincorporated county population in 2007. Therefore, Pima County is listed first, because it has more persons in its unincorporated areas than does Maricopa County. Each county's total roadway centerline miles appear as well. There are 20,775 miles of county roadways throughout the state.

Some of the factors noted above influence how each roadway's needs are assessed in the calculations of needs. For example, each roadway's information includes details concerning terrain (flat, rolling, or mountainous), and elevation (above or below 5,000 feet), which is closely associated with climate. More information about how the individual roadway information is handled appears in the procedures section.

EFFECTS OF ECONOMIC TURMOIL

The economic turmoil of the past year has affected the entire world. In Arizona counties, there have been decreases in revenue for meeting roadway needs and a decrease in growth in travel demand. Among the many economic trends, some trends are more connected to this needs study than others. The larger geographic context of selected trends and some Arizona findings that place the state in the larger context are reviewed below—first the recent oil price volatility, and then near future trends for the overall economy. The connection to Arizona County roadway needs and revenues is further explored in the final portion of this section.

TABLE 1. ARIZONA COUNTIES, 2007 STATISTICS

Unincorporated Population			Total Population			County Roadways
County	Population	Rank	Population	Rank	Growth Rate 2000-2007	Centerline Miles
Pima	360,365	1	1,003,235	2	18.90%	2,217
Maricopa	249,709	2	3,907,492	1	27.20%	2,461
Pinal	160,437	3	327,670	3	82.30%	2,217
Yavapai	89,841	4	223,934	4	33.70%	1,581
Mohave	75,171	5	204,122	5	31.70%	2,052
Navajo	72,274	6	113,796	9	16.70%	727
Yuma	69,246	7	201,298	6	25.80%	1,971
Apache	64,657	8	75,496	10	8.70%	1,695
Coconino	55,996	9	134,898	8	16.00%	1,031
Cochise	55,583	10	137,200	7	16.50%	1,446
Gila	26,916	11	56,885	11	10.80%	669
Santa Cruz	24,235	12	46,907	12	22.20%	730
Graham	20,410	13	37,338	13	11.50%	732
La Paz	14,457	14	21,529	14	9.20%	964
Greenlee	5,079	15	8,394	15	-1.80%	282

Source: Department of Commerce Estimates, December 15, 2007

American Indian Reservations comprise the roadways and population of large portions of several counties. Many of the roadways on the reservations are not maintained by the county government.

The Volatility of Oil Prices

Retail gasoline prices rose in early 2008 as a result of the increase in crude oil prices. Regular-unleaded grade gasoline prices began January 2008 at \$3.09 per gallon (U.S. average), rose to a July 14 peak of \$4.11 per gallon, declined to \$1.61 per gallon at the end of December 2008, and rose to \$1.96 per gallon on February 16, 2009.

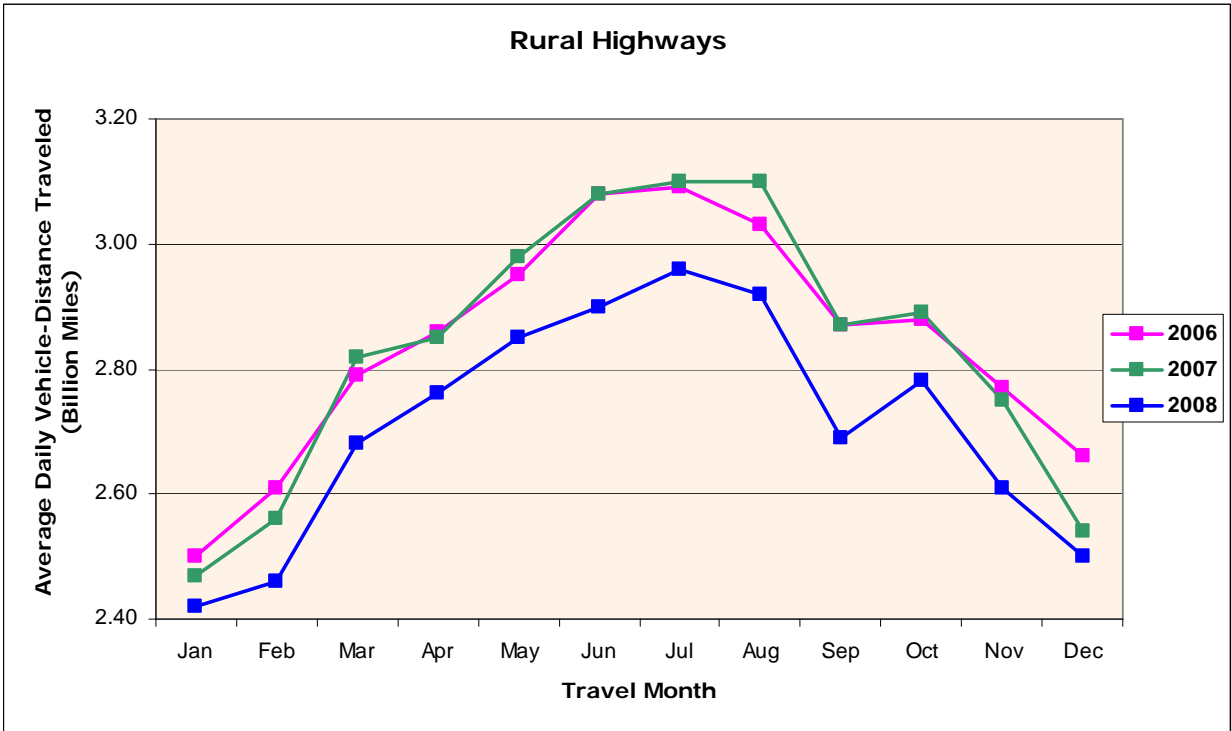
According to the federal Energy Information Administration in February, 2009, retail gasoline prices were projected to average \$1.95 per gallon in 2009 and \$2.19 per gallon in 2010.

Changes in Vehicle Miles Traveled

Travel declined in early 2008 in response to the increase in gasoline prices. Meanwhile, in the spring and summer of 2008, the value of the dollar declined against foreign currency to one of its weakest points in history and three of the five large Wall Street investment banks were acquired or filed for bankruptcy. By the time that gasoline prices peaked in July, other indicators, in addition to the weak dollar and the troubled banks, suggested a weakening economy.

During the fall of 2008 the credit crunch expanded into a major crisis on Wall Street and for ordinary consumers. Gasoline prices began to decline, but travel did not rebound to earlier volumes. By the end of December 2008, although retail gasoline had dipped to \$1.61 per gallon, vehicle-miles traveled (VMT) continued to decline. The comparison of VMT for selected months in 2008, 2007, and 2006 is shown in Figure 2 for all Rural Highways in the nation, and in Table 2 for Rural Arterial Roadways in Arizona, the Western United States, and the nation. Comparisons of the same months from year to year remove the effects of seasonal variation.

FIGURE 2. CHANGE IN VEHICLE-MILES TRAVELED ON RURAL HIGHWAYS, UNITED STATES, 2006-DECEMBER, 2008



Source: USDOT, FHWA, Policy Information, Travel Monitoring

TABLE 2. VEHICLE-MILES (VM) TRAVELED ON RURAL ARTERIAL ROADS, NOVEMBER AND DECEMBER 2008 VS. 2007

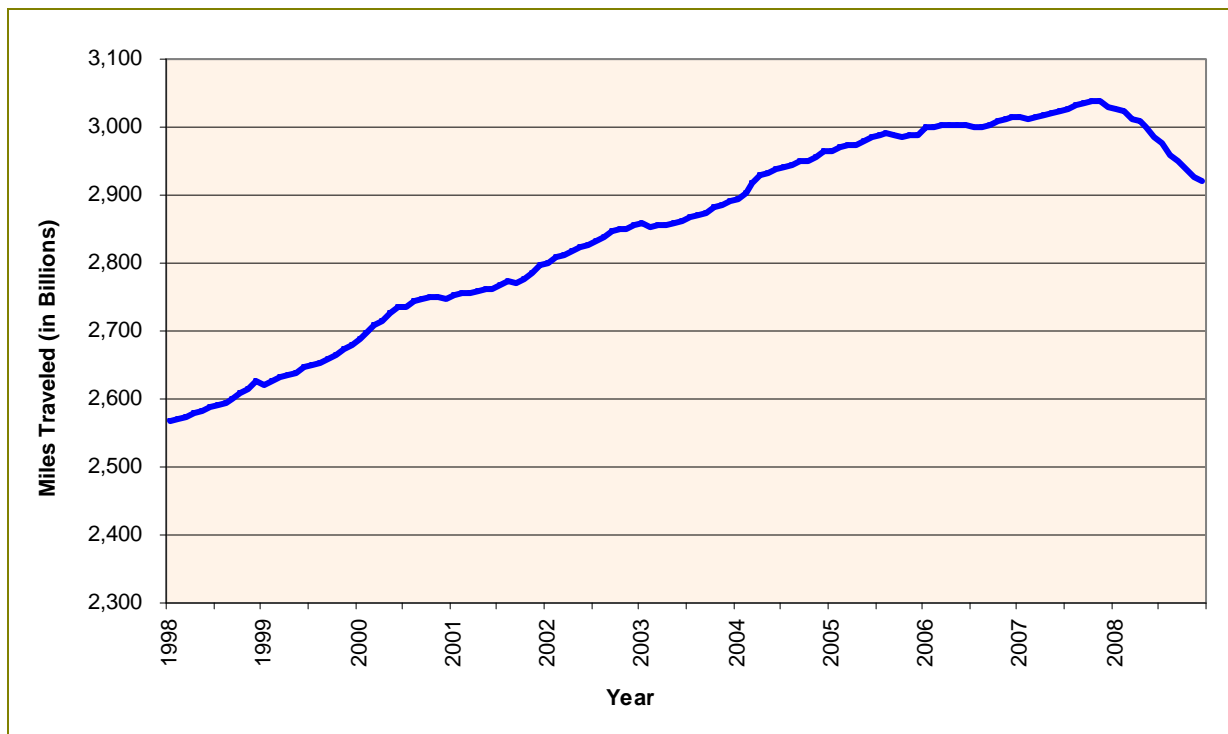
Area	December VM (Millions)			November VM (Millions)		
	2008 (Preliminary)	2007	Percent Change	2008 (Revised)	2007	Percent Change
Arizona	1,047	1,082	-3.2	934	1,022	-8.6
Western United States*	10,044	10,487	-4.2	10,102	10,730	-5.9
United States	49,208	50,043	-1.7	49,483	52,327	-5.4

Source: USDOT, FHWA, Policy Information, Travel Monitoring

*Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

The past year's trend in VMT is likely a temporary trend during the economic downturn. There has been long-term growth trend in VMT in the United States. In twenty-five years—since 1983—there have been few consecutive months of declining VMT. The growth trend in VMT from 1998 through June, 2008 appears in Figure 3.

FIGURE 3. VEHICLE-MILES TRAVELED ON ALL ROADS, UNITED STATES, 1998-2008 (MOVING 12-MONTH TOTAL)



The Economic Outlook for 2009-2010

The December 2008 report “Economic Outlook for 2009-2010: Riding Out the Storm,” by Marshall J. Vest of the University of Arizona, briefly noted the worldwide crisis, then continued to describe the situation in the United States and at the state level in Arizona in this excerpt:

On December 1, the National Bureau of Economic Research (NBER) officially declared that December of 2007 marked the peak of the last expansion, which spanned 73 months (just over six years). Arizona’s economy peaked a few months earlier.

Vest then described some negative 08-09 nationwide trends in consumer behavior, unemployment, and homebuilding. He also described four positive factors, including the late-2008 decline in oil prices, government action to stabilize financial markets, increasing liquidity in financial markets, and an expected fiscal stimulus package from Washington that would count infrastructure funding among its significant investment categories.

Vest continued with a listing of some particular characteristics of the economic decline in the Arizona economy. Several of the economic indicators correlate with declining revenue for meeting roadway needs and also correlate with a decline in travel demand:

Whereas the nation’s economy didn’t begin to drop significantly until this August, Arizona’s economy has been rapidly losing ground throughout 2008. Arizona’s economy has been contracting since the third quarter of 2007 – a few months before the nation’s economy topped out. Arizona normally enters recessions later but this time it’s leading the rest of the country, along with California, Nevada, and Florida — states that also participated in the recent housing bubble. Malaise has spread far beyond homebuilding, affecting nearly every sector of the economy.

Since peaking one year ago (September 2007), nonfarm employment has dropped by more than 85,000 statewide. The construction industry accounts for almost half of those losses (44,000), but effects of the housing debacle are widely felt throughout the economy. The trade, transportation, and utilities (TTU) sector has trimmed 20,200 jobs, followed by professional and business services at 18,000.

Aggregate nonfarm employment statewide is expected to continue falling through most of 2009 and perhaps into early 2010. Roughly 6.5% or 170,000 jobs will be lost from peak to trough. That will make this the longest and deepest recession in Arizona history.

Retail spending [including gasoline, restaurant, other food, and other retail] will decline 1.6% next year, following a drop of 2.5% this year. That’s in current dollars. In real terms (after adjusting for inflation),

sales will drop 2.9% following an outsized 6.6% decline this year. Next year's decline will be smaller as inflation subsides and as autos and home related components stabilize.

Population growth, a major prop under Arizona's economy, slowed significantly in recent months as potential residents found that they were unable to sell their houses back home. According to U.S. Census Bureau estimates, annual population growth peaked at 3.6% in 2005 and 2006. We expect growth in the 1.2-1.3% range during the next two years, only slightly faster than nationwide. With reduced population growth, it will take longer to fill now-vacant houses.

The recession in Arizona began earlier and will last longer than the national recession. The main reason is that credit conditions must first improve and then Arizona's large inventory of houses must be absorbed. That must happen before homebuilding can commence once again. Unless another source of growth surprises us, homebuilding will need to get back on track before economy-wide growth returns.

While revenues are diminished in the current economic environment, the maintenance demand remains high.

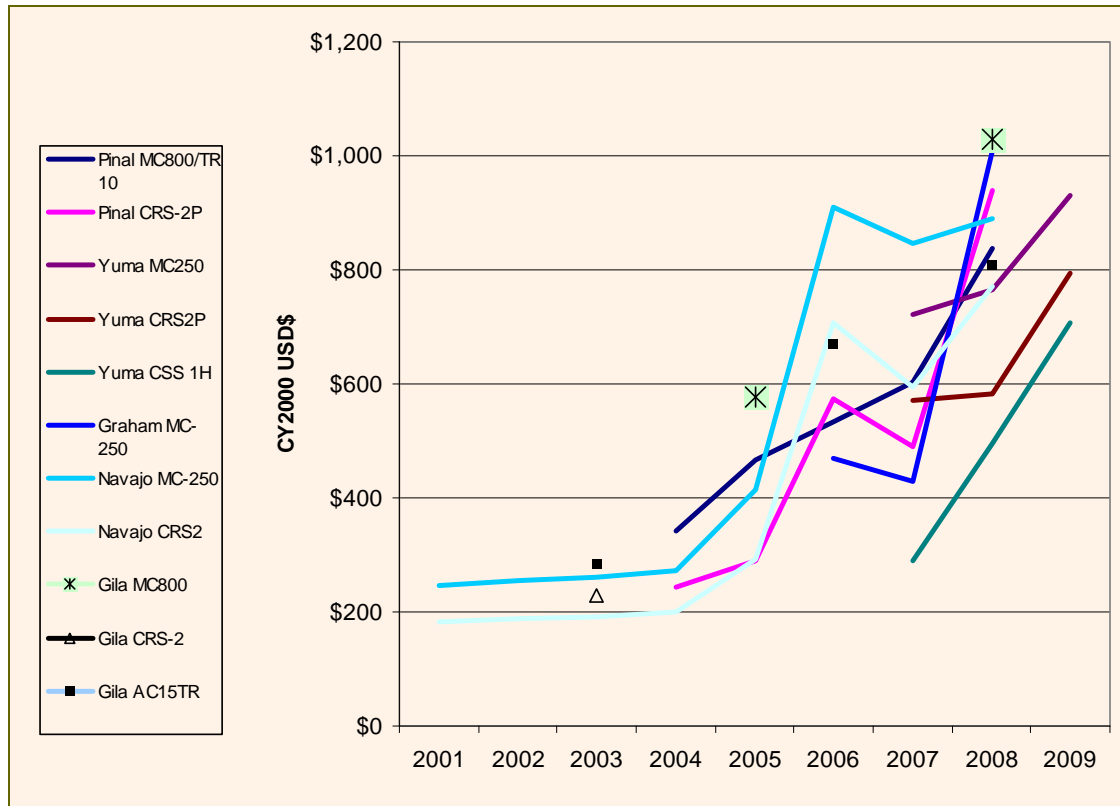
Effects of Economic Turmoil on Arizona County Roadway Needs and Revenues

Counties experienced the shock of the petroleum price increase throughout 2008. Earlier in the year gasoline and diesel prices increased faster than asphalt product prices. Asphalt price increases were substantial; the asphalt price increase is featured in this paper partly because various types of asphalt are a large portion of the materials costs for roadway maintenance (Figure 4). The asphalt prices are also featured as an example of recent general commodity price trends, which included large increases in portland cement and steel prices.

The oil price increases affected how the county transportation departments met roadway needs. Each department adjusted its business practices in one or more of the following ways with regard to spending:

- High prices caused deficits in budgets for fuels and asphalt products.
- ⊕ Maintenance projects were delayed.
- New construction and improvement projects were delayed.
- Staff hours were adjusted to reduce fuels-related commuting and building costs.

FIGURE 4. ARIZONA ROADWAY CONSTRUCTION ASPHALT PRODUCTS PRICING 2001-2009



The increase in retail gasoline prices did not increase government revenues from gasoline taxes. That is because both state and federal gasoline taxes are applied per gallon, rather than per dollar. With travel (VMT) declining, as described above, the proceeds from gasoline taxes declined.

By the time that petroleum prices declined rapidly in the second half of 2008, the recession had deepened in Arizona, and VMT continued to decline. Therefore, gasoline tax revenue, vehicle license taxes, and other vehicle and fuels-related revenues continue to be reduced through January 2009. By inferring that all state and county revenues may follow a pattern similar to the sales tax revenue prediction made by Vest (above), one might conclude that revenues available to counties from state and local sources will likely further decline throughout 2009, although not to the degree experienced in 2008. By similar inference, one might conclude that state and local revenues will begin to rebound sometime in 2010. Forecasts of Highway User Revenue Fund (HURF) proceeds and Vehicle License Tax (VLT) proceeds appear in the Revenue Projection section.

Near future trends in asphalt and other petroleum product prices are unknown at this time. When the counties' goal to maintain roadways on a regular basis is considered, the effects of some deferred maintenance during 2008 must be

remembered. The counties are beginning the 2009-2018 study time period with a backlog in maintenance programs, compared to what could have been predicted as recently as the beginning of 2008.

The expected fiscal stimulus package from Washington described in the Vest article evolved into the American Recovery and Reinvestment Act (ARRA) signed by President Obama on February 17, 2009. The ARRA includes \$111 billion nationwide for infrastructure, with \$522 million distributed to Arizona for state and local highway and bridge projects. Because the stimulus package is a type of federal-aid funding, the funding brings with it federal regulatory requirements—particularly environmental regulations. Those requirements are more time-consuming and costly than the Arizona regulatory requirements that would apply if no Federal funding were involved. A project is considered “ready to go,” in Federal (FHWA) terms if it already has cleared the pre-construction Federal requirements. Arizona county officials have been told that projects most likely to be eligible for funding by the economic stimulus package of 2009 will be of one of the following types:

- Roadway Construction and Upgrade Programs “ready to go” within 90 days.
- Pavement Preservation Programs, with streamlined environmental regulatory clearance procedures.

There was no guarantee in the ARRA that counties would receive any of the revenue. The ARRA is not a recurring funding stream, but a one-time infusion of money that is less than the cost of one year of roadway needs for Arizona counties.

Another important effect on Arizona during the economic downturn is the likely decline in population growth. For many years many more households moved into Arizona than moved out of Arizona. The Vest article above expresses the expectation that annual population growth will decline from the 3.6% peak in 2005 and 2006 to the 1.2%-1.3% range in 2009-2010. If fewer persons move to Arizona over the two-year period, the rate of increase in average daily traffic may be less than has been the case over any two-year period since the time before World War II. The various revenue sources that are associated with new homes, such as impact fees for transportation, will also be less.

In this needs study, projects are identified to increase roadway capacity by upgrading existing roadways. Calculations to identify such projects make use of an official set of Arizona population projections. Those projections have not been updated to reflect the recent and current economic downturn.

The present circumstances demand that the needs study give more attention to a comparison of needs and revenues than ever before.

While all components of roadway needs included in previous studies are present in the 2008 study, county engineers recognize that the effort to assure adequate maintenance may overcome the possibility of initiating most new road construction for the next few years.

THE ROLE OF COUNTY ROADS

The county roadway system plays an important role in Arizona's integrated transportation system. The state highway system consists of the high-speed, high-volume connections between cities as well as urban freeway systems. Cities and towns maintain most local roads in urbanized areas. Counties also maintain Arizona's vital network of rural local and collector roads, and some arterials, in unincorporated areas. Roadway jurisdiction in areas of suburban development is a matter of whether the development is in an incorporated area or an unincorporated area.

Arizona Revised Statutes Title 28 sets out each County's fundamental role in transportation to be stewardship of roads in the unincorporated areas. Counties in Arizona maintain a total of 20,775 miles of road. Traffic on county roads was nine percent of total statewide traffic in the early 1990s. While traffic on many individual county roads has increased substantially since then, the proportion of statewide traffic that is on county roads has declined slightly. That decline is partly due to the construction and use of freeways and roads in cities and towns has increased more quickly than in counties. For trips of extended length, county roads are often the location of trip origins and destinations and state highways serve the long, high-speed middle segment of the trips.

The county roads typically serve local needs such as the trips made by Arizona's growing number of rural households to unincorporated county office centers and retail centers, ranch and farming areas, and industrial areas such as mines. County roads serve increasing numbers of visitors by providing access to vacation homes, other lodging, and access to day-use recreational areas. Finally, County roads serve a limited amount of pass-through traffic.

Around the state's metropolitan areas, counties maintain large networks of suburban local and arterial streets. Many subdivisions are approved and develop (partly or fully) in unincorporated counties, with many annexed later into cities or towns. Subdivision street networks are built by developers, and then dedicated to the county, city, or town in which they are located.

Counties maintain about a third of the total miles of public roads in Arizona. Arizona counties maintain some American Indian reservation and national forest roads by agreement with the owners of these lands. According to one common type of agreement, some counties maintain Arizona school district routes on some American Indian reservations.

Federal laws may require county roadways to be upgraded. For example, Maricopa County is committed to paving some unpaved roads each year in order to contribute to a reduction in airborne particulate matter (PM_{10}). The area determined to be in violation of the national ambient air quality standard for PM_{10} under the federal Clean Air Act must reduce its PM_{10} emissions by 5 percent each year until the area meets the standard.

PROCEDURES

The Roadway Needs study arrived at its estimate of county roadway needs by calculating five and ten-year totals of needed expenditures in six operational categories that encompass the range of county road responsibilities. The six categories are upgrades to existing roads, road maintenance and routine operations, safety programs, construction of new roads, repair and replacement of existing bridges, and construction of new bridges on existing roads.

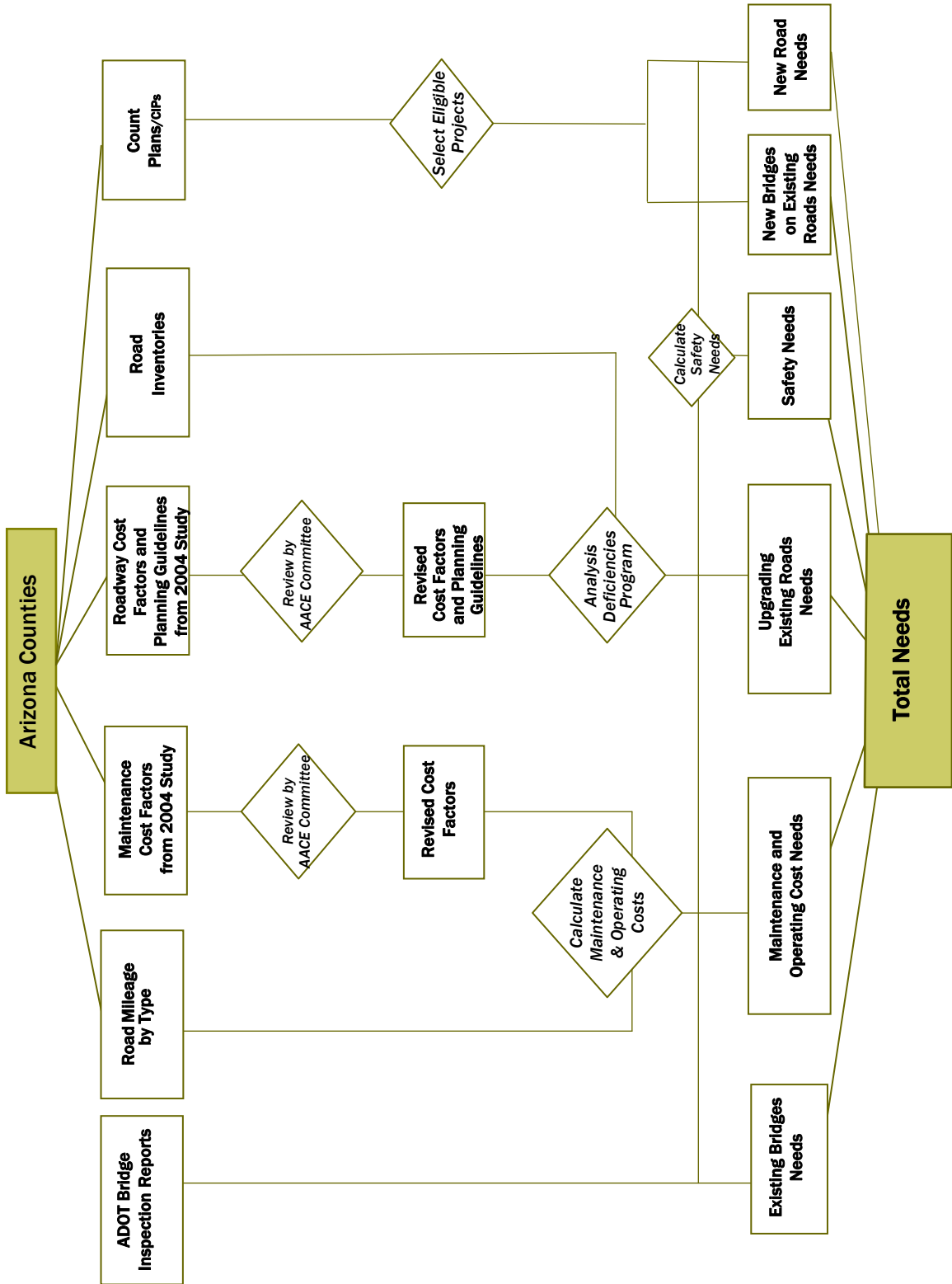
The methods for calculating the needs totals in five of the six categories are identical to the procedures used in the 1994, 1997, 2000, and 2004 studies. In the sixth category, safety needs, a new strategy was employed in the 2004 study and that method is used in the 2008 study as well.

Each county provided its roadway inventory to the AACE consultant. Two of the needs categories, Maintenance and Operations and Upgrading Existing Roads, are calculated from the roadway inventories, with different items used for each of the two categories. In each county inventory, some roadways were not divided into segments, so one record represented the entire roadway, while other roadways had multiple records—one per roadway segment. Every county was given a copy of the final inventory that was used for the 2004 study calculations, and was given the opportunity to replace the 2004 inventory with a 2008 updated inventory, to provide consistent information for all items used in needs study calculations. Nearly all counties supplied the following information in a standard format: The County Name, and for each segment, the Length of the segment in miles, the On Street Name, From Street Name, and To Street Name.

Figure 5 describes the procedure for conducting the County Roadway Needs Study update. The Counties are the primary data source, supplying roadway inventories, adopted transportation plans and capital improvement programs, and information on costs. ADOT and some counties supplied bridge inspection reports as a source of cost estimates for bringing individual bridges up to accepted standards. County needs for new roads and bridges are taken from the latest county planning documents or from county capital improvement programs.

Across the bottom of Figure 5 are the various categories of roadway needs that are summarized in this report. Needs are calculated separately for each county, and then summed together for a total dollar amount, measured in 2008 dollars. In Figure 5, the rectangles are the bodies of input data and the results, while the diamonds represent major processing steps. Details concerning the input data and processing steps appear in the subsections that follow for each category of need.

FIGURE 5. PROCEDURE FOR CALCULATING ROADWAY NEEDS



Safety deficiencies on county roads are estimated to be 10 percent of the total of the other roadway needs. That percentage corresponds to the proportion of Surface Transportation Program (STP) funds the federal government allocates to hazard elimination systems.

Maintenance and Operations Needs

Maintenance costs were calculated based on the rates in Table 3. Higher elevation counties have higher maintenance costs per mile than do lower elevation counties, reflecting the effects of winter weather on the roadways. Urban roadways have higher maintenance costs per mile than do rural roadways because of the effects of higher volumes of traffic. Maintenance costs are assumed for an acceptable level of maintenance, one that allows drivers to drive comfortably and safely at the posted speed limit. The maintenance cost procedure was devised for the original 1994 study based partly upon ADOT's *Manual of Highway Improvement & Maintenance Costs, December 1993*, and partly upon actual county experience throughout the state. Each study year an inflator has been applied to the previous study year's unit costs to bring the unit costs to current year dollars. The value of the inflator to revise 2004 unit costs for use in the 2008 study was 1.308.

Note that in the 1994 study, only Maricopa and Pima Counties were considered to have "urban" roadways (at least for purposes of calculating maintenance costs). Therefore, the urban cost schedule was considered to be "not applicable" for areas of greater than 5,000' elevation. Beginning in 2000, when the designation of roadways allowed for urban and rural roadways in all counties, no unit cost component was added for urban roadway snow removal in areas of greater than 5,000' elevation. It is recommended that such a snow removal cost component should be added, but one has not yet been applied in the 2008 study.

The general maintenance costs include such items as:

- Paved and Unpaved Roads: Maintenance of road markings, signs, signals, landscaping, guardrails; and weed control.
- Unpaved Roads: Grading on average four times per year. Watering and chemical dust palliative use in some cases.
- Paved Roads (regardless of functional class): Patching, preservative sealing, and crack sealing as needed.

To perform the maintenance calculations in each county, the roadways are selected that belong in each of the categories shown in Table 3 and the total length of roadways in the county is summed for each category. That total length per category is multiplied by the unit costs shown in Table 3.

TABLE 3. MAINTENANCE COSTS PER MILE OF ROAD PER YEAR

Rural: Surface Type	Less than 5,000' Elevation		Greater than 5,000' Elevation	
	Cost	Cost Includes	Cost	Cost Includes
Paved	\$12,030	Chip seal every 7 years; Overlay every 40 years; General Maintenance more than once/year	\$19,110	Chip seal every 5 years; Overlay every 20 years; General Maintenance more than once/year Snow Removal
Unpaved	\$4,910	General Maintenance more than once/year	\$12,470	General Maintenance more than once/year Snow Removal

Urban: Functional Class	(Regardless of Elevation)	
	Cost	Cost Includes
Arterial	\$69,940	Chip seal every 7 years; Overlay every 20 years; General Maintenance more than once/year
Collector	\$40,740	Chip seal every 7 years; Overlay every 20 years; General Maintenance more than once/year
Local	\$10,860	Chip seal every 14 years; Overlay every 40 years; General Maintenance more than once/year

Operating costs are the transportation system support costs that are not attributable to specific road segments, and comprise the following:

- Administrative Costs
- Transportation Planning
- Education Programs
- Citizen Involvement
- ⊕ Civil Engineering
- ⊕ Maintenance Yards
 - ⊕ (Upkeep/Expansion)
- Other System-wide Expenses
- Services:
 - ⊕ Biological Assessment
 - ⊕ Archaeological
 - ⊕ Geotechnical
 - ⊕ Real Estate Appraisal

Operating costs are calculated by applying a multiplier to maintenance costs. The county engineers agreed to use a multiplier based upon reviewing, for recent years, the ratio of maintenance costs to total operating costs in several Arizona counties. The average ratio was about 10:1.

Bridge Maintenance/Rehabilitation/Replacement Needs

The ADOT Bridge inspection program is another important source of information, providing inspection reports and estimates of needed repairs for many county bridges. The Bridge inspection program follows FHWA guidelines. A general rule is that bridge Sufficiency Ratings (SR) indicate maintenance that is needed. Out of a maximum SR rating of 100, a bridge should be replaced or reconstructed if its SR is less than 50, and should be rehabilitated if its SR is between 50 and 80. In some cases ADOT estimates bridge replacement and rehabilitation costs, and indicates the year of the estimate. Where ADOT costs were present, the estimates were updated to year 2008 dollars. The ADOT information was compared with a limited amount of information available from some counties where recent county evaluations and cost estimates for particular bridges replaced the ADOT estimates. Finally, the cost estimates of needed repairs were totaled for each county.

Upgrading Roads Needs

County roadway inventories were evaluated in order to estimate deficiencies on existing roads, using planning guidelines. The planning guidelines were first agreed upon by AACE for the 1994 study and specified width, shoulders, surface type, etc. as a function of road classification, urban or rural location, and average daily traffic. Planning guidelines are generalized sets of desirable roadway conditions. Counties may use specific standards different from the guidelines used in this study to meet unique local characteristics. Future traffic levels were treated as a factor of population growth.

Each County provided road inventories in a standard format. Each road segment in the inventory was checked against the set of planning guidelines to determine if it met these desirable criteria. If it did not, an estimate of the needed improvement cost was made using the "Analysis of Deficiencies Program" that was specifically written for this purpose. A road deficiency exists whenever a critical item on a roadway section deteriorates to a point below the level of its minimum tolerable condition, or when an existing or proposed roadway fails to meet an established planning guideline. The 2004 planning guidelines for estimating improvements were reviewed by a subcommittee of AACE and were found to be suitable for use in the 2008 study.

New Roads Needs

New roads meet the needs brought about by population and employment growth. Most new roads are new alignments in areas where development is replacing large acreages of vacant land. Occasionally new roads are new alignments in areas where there has been much previous development. For a new road to be listed as a county need, it must be projected to be under county jurisdiction when it is built.

The new roads information provided by the counties for use in the AACE Roadway Needs Study is from two sources. First, in some counties there were five-year capital improvement programs (CIPs) for the first five-year period (2009-2013). In counties with both a long-range plan and a CIP, the CIP is a later step in the planning process for any given project and is intended to be used for budgeting purposes, so the CIP is used for the AACE study's first five-year period (2009-2013).

Second, formal long-range transportation plans were sometimes available for various planning periods, ranging from 10 to 25 years into the future. Some long-range plans are the unincorporated county sections of the transportation plans of metropolitan planning organizations, while others are small area transportation studies (SATS), or circulation elements of county comprehensive plans. If long-range plans are available they are used for the AACE study's second five-year period (2013-2018). Often counties do not plan the likely time of construction for projects further than five years into the future. The AACE consultants therefore requested that the county engineers select projects from the long-range plans that would be likely slated for 2013-2018.

New Bridges on Existing Roads Needs

The new bridges on existing roads projects come from the same data sources as the new roads projects, and the projects were listed and summed as for new roads projects.

Safety Needs

Safety needs are calculated by multiplying each of the other six categories of costs by 10 percent. The county engineers agreed to use that multiplier for the 2004 study update, based upon an allocation of 10% of Surface Transportation Program (STP) funds to hazard elimination systems in the federal funding formula of that time period. The county engineers' awareness of SAFETEA-LU provisions and their realization that there is no definitive compilation of safety needs caused them to keep the method the same in 2008. A brief summary of the federal, state, and local government priorities for safety appears below.

The federal-aid authorizing act that has governed federal-aid funding during FY 2005-2009 is the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). As its name implies, SAFETEA-LU has an increased emphasis upon safety programs, including the elimination of safety hazards on all public roads, a particular program for high-risk rural roads, and driver safety education. SAFETEA-LU also created the federal-aid Safe Routes to School (SRTS) program. SRTS, by way of developing safe routes for children to walk or bike to school, is used for safety projects on lower functional-class local and minor collector streets than the streets that have traditionally been eligible for federal aid.

The above description indicates a wide variety of federal programs and funding purposes that include a safety component. State- and locally-generated funds are also used for roadway safety purposes. Therefore, a mix of funding from all levels of government might be applied to safety projects on county roadways.

RESULTS

The AACE 2008 Roadway Needs Study Update documents \$11.01 billion of needed expenditures on county roadways in Arizona for the time period 2009-2018 (Figure 1). Those expenditures are required if county roads are to meet and be properly maintained at accepted planning guidelines by January 2019. The total expenditure by category of need per 5-year increment appears in Table 4.

**TABLE 4. TOTAL NEEDED EXPENDITURES FOR COUNTY ROADS
BY 5-YEAR INCREMENT**

Category of Need	2009-2013	2014-2018	2009-2018
Existing Bridges	\$115,570	\$115,570	\$231,140
Maintenance & Operations	\$1,392,625	\$1,392,625	\$2,785,249
Upgrading Roads	\$5,542,271	\$186,368	\$5,728,639
New Roads	\$437,016	\$325,702	\$762,718
New Bridges	\$252,299	\$252,299	\$504,598
Safety	\$773,978	\$227,256	\$1,001,234
Total	\$8,513,759	\$2,499,820	\$11,013,579

Tables 5 through 7 show detailed costs for each county for the next 10 years: Table 5, for 2009 through 2013, Table 6, for 2014 through 2018, and Table 7, for the ten years, 2009 through 2018. All costs are given in year 2008 dollars.

TABLE 5. 2009-2013 NEEDED EXPENDITURES BY COUNTY
(Amounts Shown in Thousands)

County	Maintenance & Operations	Existing Bridges	New Bridges on Existing Roads	Upgrade Existing Roads	New Roads	Safety	Total
Apache	\$117,623	\$871	\$0	\$70,030	\$7,200	\$19,572	\$215,297
Cochise	\$69,211	\$3,959	\$2,619	\$190,340	\$1,308	\$26,744	\$294,181
Coconino	\$85,179	\$50	\$0	\$357,386	\$14,217	\$45,683	\$502,515
Gila	\$33,778	\$770	\$6,809	\$62,851	\$38,842	\$14,305	\$157,356
Graham	\$27,377	\$4,167	\$11,853	\$47,248	\$2,552	\$9,320	\$102,517
Greenlee	\$8,608	\$6,574	\$164	\$6,754	\$0	\$2,210	\$24,309
La Paz	\$36,796	\$1,442	\$0	\$63,083	\$0	\$10,132	\$111,453
Maricopa	\$255,894	\$31,232	\$152,456	\$1,394,123	\$73,821	\$190,753	\$2,098,279
Mohave	\$95,169	\$1,153	\$900	\$524,210	\$7,700	\$62,913	\$692,045
Navajo	\$59,246	\$3,777	\$6,000	\$123,299	\$7,750	\$20,007	\$220,080
Pima	\$264,904	\$19,118	\$71,498	\$1,261,431	\$224,374	\$184,133	\$2,025,458
Pinal	\$130,646	\$9,937	\$0	\$636,972	\$1,303	\$77,886	\$856,744
Santa Cruz	\$29,938	\$5,969	\$0	\$50,644	\$11,263	\$9,781	\$107,595
Yavapai	\$99,402	\$25,388	\$0	\$380,449	\$20,376	\$52,561	\$578,176
Yuma	\$78,854	\$1,162	\$0	\$373,451	\$26,310	\$47,978	\$527,755
Total	\$1,392,625	\$115,570	\$252,299	\$5,542,271	\$437,016	\$773,978	\$8,513,759

TABLE 6. 2014-2018 NEEDED EXPENDITURES BY COUNTY
(Amounts Shown in Thousands)

County	Maintenance & Operations	Existing Bridges	New Bridges on Existing Roads	Upgrade Existing Roads	New Roads	Safety	Total
Apache	\$117,623	\$871	\$0	\$5,398	\$0	\$12,389	\$136,282
Cochise	\$69,211	\$3,959	\$2,619	\$8,762	\$0	\$8,455	\$93,007
Coconino	\$85,179	\$50	\$0	\$24,218	\$12,297	\$12,174	\$133,918
Gila	\$33,778	\$770	\$6,809	\$753	\$14,030	\$5,614	\$61,754
Graham	\$27,377	\$4,167	\$11,853	\$11,478	\$9,802	\$6,468	\$71,145
Greenlee	\$8,608	\$6,574	\$164	\$0	\$0	\$1,535	\$16,880
La Paz	\$36,796	\$1,442	\$0	\$89	\$0	\$3,833	\$42,160
Maricopa	\$255,894	\$31,232	\$152,456	\$24,019	\$93,910	\$55,751	\$613,262
Mohave	\$95,169	\$1,153	\$900	\$4,977	\$0	\$10,220	\$112,419
Navajo	\$59,246	\$3,777	\$6,000	\$9,823	\$21,082	\$9,993	\$109,921
Pima	\$264,904	\$19,118	\$71,498	\$33,639	\$156,008	\$54,517	\$599,684
Pinal	\$130,646	\$9,937	\$0	\$24,549	\$0	\$16,513	\$181,645
Santa Cruz	\$29,938	\$5,969	\$0	\$0	\$13,342	\$4,925	\$54,173
Yavapai	\$99,402	\$25,388	\$0	\$16,273	\$0	\$14,106	\$155,168
Yuma	\$78,854	\$1,162	\$0	\$22,390	\$5,232	\$10,764	\$118,402
Total	\$1,392,625	\$115,570	\$252,299	\$186,368	\$325,702	\$227,256	\$2,499,820

TABLE 7. 2009-2018 NEEDED EXPENDITURES BY COUNTY
(Amounts Shown in Thousands)

County	Maintenance & Operations	Existing Bridges	New Bridges on Existing Roads	Upgrade Existing Roads	New Roads	Safety	Total
Apache	\$235,247	\$1,742	\$0	\$75,428	\$7,200	\$31,962	\$351,579
Cochise	\$138,423	\$7,919	\$5,238	\$199,102	\$1,308	\$35,199	\$387,188
Coconino	\$170,358	\$100	\$0	\$381,604	\$26,513	\$57,858	\$636,433
Gila	\$67,556	\$1,540	\$13,618	\$63,604	\$52,872	\$19,919	\$219,110
Graham	\$54,754	\$8,334	\$23,706	\$58,726	\$12,354	\$15,787	\$173,662
Greenlee	\$17,215	\$13,148	\$328	\$6,754	\$0	\$3,745	\$41,190
La Paz	\$73,593	\$2,883	\$0	\$63,172	\$0	\$13,965	\$153,613
Maricopa	\$511,787	\$62,465	\$304,912	\$1,418,142	\$167,731	\$246,504	\$2,711,541
Mohave	\$190,339	\$2,306	\$1,800	\$529,187	\$7,700	\$73,133	\$804,464
Navajo	\$118,493	\$7,554	\$12,000	\$133,122	\$28,832	\$30,000	\$330,001
Pima	\$529,807	\$38,237	\$142,996	\$1,295,070	\$380,382	\$238,649	\$2,625,141
Pinal	\$261,291	\$19,875	\$0	\$661,521	\$1,303	\$94,399	\$1,038,389
Santa Cruz	\$59,876	\$11,938	\$0	\$50,644	\$24,605	\$14,706	\$161,768
Yavapai	\$198,803	\$50,775	\$0	\$396,722	\$20,376	\$66,668	\$733,344
Yuma	\$157,707	\$2,325	\$0	\$395,841	\$31,542	\$58,742	\$646,157
Total	\$2,785,249	\$231,140	\$504,598	\$5,728,639	\$762,718	\$1,001,234	\$11,013,579

Costs are broken down by the following categories:

- Maintenance and Operations Needs
- Bridge Maintenance/Rehabilitation/Replacement Needs
- ⊕ Upgrading Roads Needs
- New Roads Needs
- New Bridges On Existing Roads Needs
- Safety Needs

The largest categories are Upgrading Roads Needs and Maintenance and Operations Needs.

Maricopa County has the largest ten-year needs, totaling about \$2.71 billion, while Pima County's needs are slightly less at about \$2.63 billion.

Maintenance and Operations Needs

Total maintenance and operations needs for the roadways in the fifteen counties for 2009-2018 are estimated at \$2,785,249,000. This figure is based upon the maintenance cost schedule that was described in the procedures section (Table 3), and the 10:1 ratio of maintenance costs to operations costs, applied to the updated roadway inventory for 2008. The distribution of maintenance and operations costs per county appears above in Tables 5 through 7. Given the approach, whereby it is assumed that maintenance and operations needs should be addressed at a steady pace, the needs are calculated to be 50 percent of the ten-year cost for each of the five-year time periods.

Bridge Maintenance/Rehabilitation/Replacement Needs

Complete ADOT bridge inspection records were received for all of the counties. For bridges whose sufficiency ratios were such that replacement was recommended, costs were provided for some bridges. However, costs did not always appear in the case of counties who do their own bridge inspections—they report inspection results, but not always costs, to ADOT.

Some of the counties provided supplemental information on costs for some of the bridges in cases where ADOT does not compute the costs.

Upgrading Roads Needs

The total estimated cost of eliminating deficiencies on existing roads is broken down into improvement categories in Table 8. Mileages by type of deficiency are shown in Table 9.

TABLE 8. COSTS FOR UPGRADING ROADS NEEDS

Improvement Type	2009-2013	2014-2018	2009-2018
Minor Widening	\$1,065,040,674	\$16,669,990	\$1,081,710,664
Reconstruct: Divided Roadway	\$58,634,226	\$17,959,912	\$76,594,138
Reconstruct: Correct Number of Lanes	\$120,382,445	\$25,909,675	\$146,292,120
Reconstruct: Correct Surface Type	\$4,298,212,852	\$125,829,231	\$4,424,042,083
Total	\$5,542,270,197	\$186,368,808	\$5,728,639,005

TABLE 9. MILES OF DEFICIENCIES ON EXISTING ROADS

Improvement Type	2009-2013	2014-2018	2009-2018
Minor Widening	1,948.6	116.0	2,064.6
Reconstruct: Divided Roadway	22.8	6.4	29.2
Reconstruct: Correct Number of Lanes	71.1	20.7	91.7
Reconstruct: Correct Surface Type	6,274.5	188.8	6,463.3
Total	8,316.9	331.9	8,648.8

The deficiencies listed are those that would exist at the end of the five and ten-year periods were no further improvements done. Needs for the first five years are much greater than the second five years because all existing roadway deficiencies are assumed to be current needs. Improvements listed in the second five-year period result from projected traffic growth, though there are traffic increases factored in the first five-year period.

The type of needed improvement that affects the largest number of miles of roadways and that would require the largest expenditure is reconstruction to correct surface type. This includes paving unpaved roads and upgrading chip seal pavements on roadways that experience a high volume of truck traffic. The type of improvement that is second in both respects (expenditure and miles) is minor widening, mostly because of inadequate shoulder width. Reconstruction to add a median is a relatively uncommon need as it is a part of the planning guidelines only for high ADT arterials (both rural and urban).

Improvements to bring existing roads up to guidelines enhance the safety of roadway users. For instance, widening to add shoulders or to widen lanes reduces the probability that a vehicle will crash into roadside obstacles. Shoulders, in particular, provide for a safe haven in case a vehicle must stop on the road.

About 8,648 centerline miles of road need the improvements included in the upgrade existing roads category (about 41% of the total county roadway inventory). The average cost for these improvements is about \$660,000 per mile. This includes urban high-capacity roadways in rapidly developing parts of the state, averaged with many miles of lower cost rural improvements on two lane roads.

The costs of purchasing of right-of-way for new roads or road widening needs are included as a part of each improvement type (categories listed in Table 9).

Some existing County roads, especially in rural areas, have never had formal right-of-way established. Many County roads date back many years to a time when a legal right-of-way was rarely established before building a road or upgrading a wagon or horse trail. The Analysis of Deficiencies program estimated the cost of acquiring rights-of-way for these roads at about \$489.0 million (Table 10). Because of the unique nature of the nonexistent right-of-way problem, this cost is not included in the total estimate of needed roadway costs.

Some Counties are actively acquiring right-of-way for these rural roads, usually by donation. However, some right-of-way cannot be donated. This may become a problem as rural land develops and land values increase. The costs shown on Table 10 include the costs of obtaining survey, title, and appraisal, which amount to 25 percent of the total costs.

TABLE 10. COSTS FOR ACQUIRING NON-EXISTING RIGHT-OF-WAY

County	Right-of-Way
Apache	\$31,476,537
Cochise	\$48,087,136
Coconino	\$27,131,756
Gila	\$25,231,690
Graham	\$10,997,395
Greenlee	\$308,801
La Paz	\$9,099,089
Maricopa	\$68,500,405
Mohave	\$51,621,608
Navajo	\$16,165,691
Pima	\$127,090,003
Pinal	\$33,302,340
Santa Cruz	\$4,933,893
Yavapai	\$31,434,497
Yuma	\$3,639,844
Total	\$489,020,685

New Roads Needs

Total new roads needs are estimated at \$762.7 million. The procedure section indicates how new roads needs were compiled from CIPs and long-range plans.

New Bridges on Existing Roads Needs

Total new bridges on existing roads needs are estimated at \$504.6 million. As indicated in the procedure section, needs for new bridges on existing roads are compiled from the same data sources as are new roads needs.

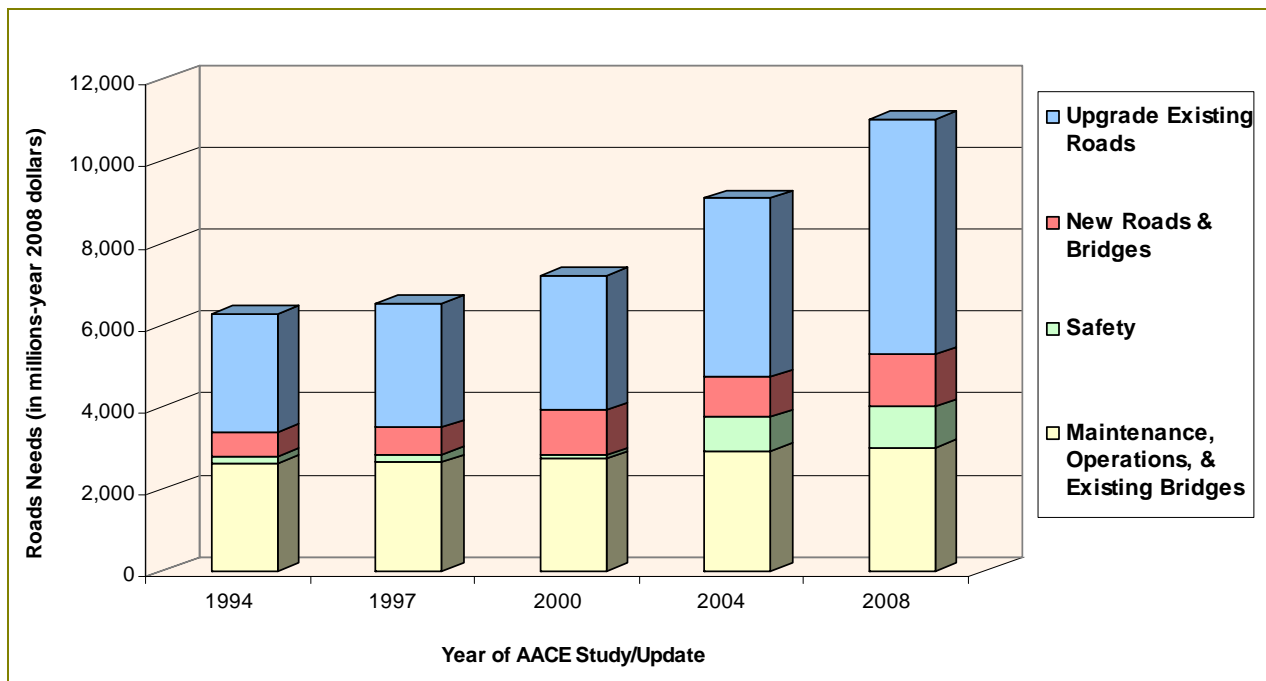
Safety Needs

Total safety needs are estimated at \$1.001 billion. The safety needs estimates are in proportion to each county's needs estimates in all other categories, because the estimate is made by multiplying each other category of need by 10 percent. The rationale for that procedure is described in the Safety Needs procedure section, above.

COMPARISON OF RESULTS

Figure 6 shows a comparison of the results of this year's Roadway Needs Study with the study's four earlier installments. To make a valid comparison of estimated needed expenditures, the results of the earlier reports were converted to current dollars. Once converted to current dollars, roadway needs add up to \$6.3 billion for the 1994 study, \$6.5 billion for the 1997 study, \$7.2 billion for the 2000 study, and \$9.1 billion for the 2004 study.

FIGURE 6. COMPARISON BETWEEN AACE STUDIES



The \$11.01 billion of needs calculated in this study clearly marks a significant increase over the other studies. With each subsequent study update, the relative amount of county road needs has been increasing. The rate of increase accelerated between 2000 and 2004 because of a recognition of safety needs, and consequently a new method for calculating those needs that yielded higher results.

The increase between 2004 and 2008 is because of several factors. The number of miles of roadways statewide is higher in 2008, due in large part to a more complete roadway inventory in Pima County.

Next, several counties maintain their roadway databases in a more detailed fashion than previously and use more sophisticated geographic information systems (GIS) to do so than previously. That factor tends to increase the needs because simpler inventories had some grouped records (records for more than one entire roadway), and those grouped records tended to show many more miles of roadway as very

low volume, low ADT, local roadways. It may be that the more finely segmented records in the 2008 inventory include details that represent unrecognized needs in previous inventories. Another explanation might be that the growth and development in 2004-2008 has been such that those keeping detailed inventories have made some conscious decisions to increase the functional class of many segments. For example Mohave County and Pinal County are two high-growth counties where some roadway segments may have been reassigned from local to collector status.

REVENUE HISTORY AND PROJECTION

The history of HURF revenue distribution to Arizona's counties is in Table 11.

TABLE 11. HURF AND VLT REVENUE HISTORY (\$Millions)

	HURF, Counties	VLT, Counties
1999	\$183.40	\$14.00
2000	\$191.10	\$30.00
2001	\$192.20	\$32.60
2002	\$194.40	\$35.10
2003	\$200.50	\$36.70
2004	\$214.60	\$40.60
2005	\$226.50	\$42.70
2006	\$240.50	\$48.70
2007	\$260.50	\$51.30
2008	\$251.90	\$50.20
Total	\$2,155.60	\$381.90

Source: ADOT, Highway User Revenue Fund Fiscal Year 2008, July, 2008.

The consultant made revised HURF Revenue Projections (Table 12) and Vehicle License Tax (VLT) Projections (Table 13) after considering the prospective declines in tax revenues cited in the Vest article (page 6), discussions with ADOT financial analysts, and consideration of the continuing downward revisions in economic forecasts in the past month. For the entire 10 year period, the total HURF projected for counties by the consultant is down from \$3,236,900,000 to \$2,887,300,000, a decrease of \$349,600,000 from the official forecast as adopted by the State Transportation Board in September, 2008.

The forecasted county HURF revenue for 2009 is 6 percent less than the official forecast. While HURF growth is forecast to resume in 2010 and 2011, it is at lower growth rates than had been predicted in 2008. Finally, the growth rates predicted in the September, 2008 forecasts are predicted to resume in 2012.

TABLE 12. HURF REVENUE PROJECTIONS (\$Millions)

Year	September 2008			January 2009	
	HURF Revenue Projection, Official Forecast ¹	Net HURF ²	Net HURF Counties ³	Revised Net HURF ⁴	Revised Net HURF ⁴ , Counties
2009	\$1,387.0	\$1,300.4	\$247.1	\$1,222.4	\$232.3
2010	\$1,441.4	\$1,430.4	\$271.8	\$1,283.5	\$243.9
2011	\$1,509.3	\$1,498.3	\$284.7	\$1,329.2	\$252.5
2012	\$1,584.8	\$1,573.8	\$299.0	\$1,396.1	\$265.3
2013	\$1,666.4	\$1,655.4	\$314.5	\$1,468.5	\$279.0
2014	\$1,746.7	\$1,735.7	\$329.8	\$1,539.8	\$292.6
2015	\$1,835.0	\$1,824.0	\$346.6	\$1,618.1	\$307.4
2016	\$1,926.9	\$1,915.9	\$364.0	\$1,699.6	\$322.9
2017	\$2,014.4	\$2,003.4	\$380.6	\$1,777.3	\$337.7
2018	\$2,110.0	\$2,099.0	\$398.8	\$1,862.1	\$353.8
Total	\$17,221.9	\$17,036.3	\$3,236.9	\$15,196.5	\$2,887.3

¹ From AZDOT Arizona Highway User Revenue Fund Forecasting Process & Results FY 2009-2018, September 2008.

² Ibid, page 6 where Net HURF is the difference between forecasted HURF and allocation for DPS/Economic Strength Program

³ 19% of Net HURF

⁴ Calculated based on Net HURF: where 2009 is reduced by 6% compared to Net HURF; 2010 resumes growth, but at 1/2 of Official Forecast year to year growth rate; 2010 is at 3/4 of Official Forecast year to year growth rate; later years follow Official Forecast growth rate

TABLE 13. VLT REVENUE PROJECTIONS (\$Millions)

Year	VLT Revenue Projection, Official Forecast, September 2008, Counties	VLT Revenue Projection, Revised, January 2009, Counties
2009	\$53.0	\$48.7
2010	\$56.9	\$50.6
2011	\$62.0	\$52.8
2012	\$67.4	\$57.4
2013	\$73.5	\$62.6
2014	\$79.6	\$67.8
2015	\$86.1	\$73.4
2016	\$93.4	\$79.6
2017	\$100.3	\$85.5
2018	\$108.4	\$92.4
Total	\$780.7	\$670.6

The forecasted county VLT revenue for 2009 is 8 percent less than the official forecast. The decline in VLT in FY 2008 and the last few months of calendar year 2008 was greater than the decline in HURF. While VLT growth is forecasted to resume in 2010 and 2011, it is at lower growth rates than had been predicted in 2008. Finally, the growth rates predicted in the September 2008 forecasts are predicted to resume in 2012. For the entire 10-year period, the total HURF projected for counties by the consultant is down from \$780,700,000 to \$670,600,000, a decrease of \$110,100,000 from the official forecast as adopted by the state transportation board in September 2008.

EFFECT OF REVENUE SHORTFALL ON COUNTY ROADWAYS

County engineers recognize that maintaining existing roads and other facilities may overcome the possibility of most new road construction for the next few years. The preservation of existing facilities includes the Maintenance and Operations category, and also includes most of the work done in the categories of Existing Bridges and Safety. The ten-year total needs for those three categories combined (Figure 7) over the time period 2009-2018, for the fifteen Arizona counties overall is \$4.02 billion

Meanwhile, the revised net HURF and VLT projections, together, are \$3.56 billion. The HURF plus VLT projection falls short of Maintenance and Operations, Safety, and Existing Bridges needs projection by \$ 459.7 million for 10 years, or by \$46.0 million per year.

The net HURF projection alone falls short of Maintenance and Operations, Safety, and Existing Bridges needs projection by \$ 1.130 billion for 10 years, or by \$113.0 million per year.

Therefore, HURF and VLT revenue sources would need to be supplemented by other revenues just to meet the existing facilities needs for 2009-2018.

**FIGURE 7. TEN-YEAR SHORTFALL OF REVENUE VS NEEDS
(Revenue of \$3.56 Billion; Needs of \$11.01 Billion)**

