



Washington State
County Road Administration Board

2016 Annual Report

Prepared for the
Legislative Transportation Committee and
the Washington State Transportation Commission

Special thanks to Adams, Benton, Clallam, Columbia, Grant, Kitsap, Lewis, Skamania, Whitman and Yakima Counties for their contributions to this report.



January 1, 2017

The Honorable Curtis King
Washington State Senator
Chair, Senate Transportation Committee

The Honorable Judy Clibborn
Washington State Representative
Chair, House Transportation Committee

Dear Senator King and Representative Clibborn:

In accordance with the requirement of law, the Washington State County Road Administration Board presents to the legislature this report of the activities of the agency for the year 2016. CRAB staff continues to promote the integration of engineering, information technology, and grants administration among the counties of the state. We believe this report will accurately indicate to you, and to the people of the State of Washington, the effectiveness of that effort.

As the complexity of the times in which we live continues to present greater and greater challenges to all modes of transportation service, it will become increasingly important that these challenges be met by an integrated effort by all the providers within the transportation service system. This report indicates to us, and, we trust, to you, that CRAB is well suited and positioned to meet these challenges.

The Board and its staff remain steadfast in their commitment to achieving your legislative mandates to provide statutory oversight of the state's thirty-nine county road departments, and in so doing, to provide to you the assurance that these counties' operations remain accountable in their stewardship of public assets and public trust.

Respectfully submitted,


Dale Snyder, Chairman


Joy Weber, Executive Director

County Road Administration Board

<u>CRABoard Members</u>	<u>Term Expires</u>
Chairman Dale Snyder, Douglas County Commissioner	2019
Vice-Chairman Brian Stacy, P.E., Pierce County Engineer	2018
Second Vice-Chair Andrew Woods, P.E., Columbia County Engineer	2017
Bill Schulte, Lewis County Commissioner	2017
Al French, Spokane County Commissioner	2017
Kathy Lambert, King County Council Member	2018
Lisa Janicki, Skagit County Commissioner	2018
Rob Coffman, Lincoln County Commissioner	2019
Mark Storey, P.E., Whitman County Engineer	2019

County Road Administration Board Staff

Executive Director	Jay Weber
Executive Assistant Administration	Karen Pendleton Toni Cox, Engineering Technician Rhonda Mayner, Secretary
Deputy Director	Walter Olsen, P.E. Jeff Monsen, P.E., Intergovernmental Policy Manager Randy Hart, P.E., Grant Programs Manager Mike Clark, Road Systems Inventory Manager Derek Pohle, P.E., Compliance & Data Manager Bob Davis, IT Systems Manager Jim Ayres, P.E., Design Systems Engineer Jim Oyler, Support and Training Manager Kathy O'Shea, Database Development Specialist Eric Hagenlock, Chief Applications Architect

Table of Contents

From the Executive Director	1
Engineering Services	3-6
Information Services	7-11
Grant Programs	12-15
2015/2016 Grant Program Projects.....	16-25
Tables.....	27
A: County Bridge Data.....	28
County Bridge Condition at a Glance	29
B: Actual County Road Related Revenues.....	30
C: Actual County Road Related Expenditures	31
D: Anticipated County Road Fund Revenues.....	32
E: Anticipated County Road Fund Expenditures.....	33
F: County Road Levy Summary	34
G: County Road Mileage	35
H: County Arterial Preservation Program	36
I: County Freight and Goods System	37
J: County Forces Summary	38
Maintenance Management.....	39-42

From the Executive Director

An annual report such as this always requires a look back to assess what has worked well and to determine what needs improvement. Having been involved with county road issues for nearly thirty years, I find it helpful as well as instructive to look at more than just an annual snapshot. A longer view is necessary to see the emergence of trends which affect, and will continue to affect, our county surface transportation system and the state/county funding partnership which has produced it.

As we look back to the year 2000, let's focus on four numbers: (1) the counties' share of the fuel tax distribution; (2) total county road property tax collection; (3) expenditures for county road construction; and (4) expenditures for county road maintenance. In the year 2000, county receipts of fuel tax from all sources amounted to \$190,549,000. This figure fell slightly to \$189,569,000 in 2015. During the same period of time, county road property taxes rose from \$274,709,000 to \$451,637,000. In short, the fuel tax remained relatively flat while reliance on the property tax had risen by over \$176,928,000. It needs to be remembered that while the fuel tax is equitably distributed among the counties, primarily based upon needs, costs, and population, the property tax is not. Property values vary dramatically across the state and there are some counties where the majority of the property is held in untaxable ownership.

County road expenditures center on two principal items, which are the remaining two numbers of our focus . . . road construction and maintenance. In 2000 the counties collectively spent \$294,296,000 on construction, and \$247,585,000 on maintenance. By the year 2015 this ratio had been largely reversed to \$227,002,000 for construction while the maintenance effort rose to \$359,366,000. Keeping in mind that these are trends of annual expenditures, they are not small numbers, representing no small change.

Over this period, it can be seen that two major shifts have occurred. First, there was a shift away from a nearly 50/50 funding partnership between the state and the counties toward a greater share of the funding burden being carried by the counties. Second, there was a large shift of emphasis from county road construction toward maintenance activities. While it cannot be argued that maintenance of the system should be neglected, it also cannot be argued that the counties' capacity to accommodate growth and change by means of construction should suffer either. . . . not if the system is to remain both safe and responsive to the needs of the public who travel it.

The existing system has been historically, and it might be added, successfully, constructed and maintained by means of a balanced funding partnership between the state and its counties. It has resulted in a seamless inter-regional system which is now threatened with fracture at county lines if the burden of funding remains primarily upon the county road property tax. The historic balance of distribution of the state-wide fuel tax to the counties with a matching effort by the county property tax must be achieved again. I urge the legislature and the governor to consider this important issue while there is still time to do it reasonably and well. History shows that we can do it, and the future of the system indicates that we should. The County Road Administration Board is ready at any time to assist in any way we can to accomplish that goal.

Engineering Services

As the County Road Administration Board moves into its next 50 years as a state regulatory agency, the Engineering Services Division continues to provide a diverse mix of specialists who provide quality training and assistance across a wide spectrum of subject matter. With that duty looming larger every year, CRAB retired two valuable members in 2016.

The Engineering Services division of the County Road Administration Board is without the services of Bob Moorhead, PE, who retired April 30; and Don Zimmer, who retired on September 30. Bob served CRAB since April of 2008, when he was hired as the Compliance & Data Analysis Manager. In 2013, Bob stepped in to fill the Maintenance Manager position at CRAB and has served the Board with distinction for the final eight years of his career. Don served CRAB since March of 2004 as the Road Systems Inventory Manager and was involved in a great number of projects and information gathering efforts that have proven to be of great value to the counties of Washington State.

The Engineering Services division welcomed Michael Clark, formerly of Thurston County, on April 18, 2016 to fill Don Zimmer's upcoming vacancy. Mike's experience and expertise in the field are a great addition to CRAB staff, as well as providing an opportunity to explore new ways to provide assistance and information on county road maintenance and environmental compliance. Mike's primary duties include reviewing annual county Mobility updates, calculating Motor Vehicle Fuel Tax factors, providing assistance with Pavement Management and the Regional Road Maintenance Forum, and providing an on-going resource to County Engineers and their staff members.

In no place is the diversity of the engineering field more evident than in the complexity and intricacy of the duties of the 39 County Engineers statewide. Each year, CRAB recognizes engineers and staff who have made significant contributions to the engineering community and their county.

In June of 2016, at the Washington State Association of County Engineers' annual conference, two awards were presented by Jay Weber, Executive Director of the County Road Administration Board. The County Engineer of the Year award was given to Bill Oakes, PE, Island County Public Works Director/County Engineer. Jim Karcher, Whatcom County, received the Program Manager of the Year Award. Congratulations to this year's winners for their outstanding service and excellent program delivery to their communities.

Much of the Engineering Services division efforts in early 2016 were directed toward the development of a new Standard of Good Practice that provides guidance for the use of County Road Fund for Traffic Law Enforcement. This is a subject that has received increased scrutiny from the Office of the State Auditor in recent years and has generated much discussion amongst the engineering and law enforcement communities. While a proposed WAC was given a hearing at the October 2015 CRABoard meeting, a decision was deferred until a review committee of law enforcement, CRABoard members and CRAB staff could fully evaluate the effects of the rule. A workgroup met on January 8, 2016 to discuss the issues of

concern and develop compromise language for the proposed WAC, which was adopted on April 14, 2016.

Another area of venture for Engineering Services staff, led primarily by Maintenance Manager Bob Moorhead, was an update to the 1997 Gravel Roads Study. In 1996, CRAB was directed by the Legislature to prepare the “County Gravel Roads in Washington State” report, which developed a scope of work to upgrade all county gravel roads on the Freight and Goods Transportation System (FGTS) and in urban areas to hard surfaced roads. The report identified estimated costs and various potential sources of new revenue to address the upgrades. The 1997 “County Gravel Roads in Washington State” report provided cost estimates to upgrade all gravel county roads to paved roads, but in the 18 years since the report was presented, no direct legislative action has been enacted on this topic.

In March of 2014, an outline for a potential “Gravel Roads Work Plan” was developed by CRAB Staff, with the intended purpose of identifying a range of estimated costs to maintain the county FGTS gravel roads, and potential funding sources that may be available to perform that maintenance on an on-going basis. Drawing from existing data in CRAB Mobility, a county-by-county inventory of gravel FGTS routes on arterials and local access routes was compiled, and data collection on county maintenance practices has been ongoing. The final report was released at the April 2016 CRABoard meeting.

The National Association of County Engineers held their national conference in Tacoma in April of 2016 and CRAB staff was very active in the planning and preparation for this event. CRAB was able to share the expertise of our staff members with the entire Association, bringing the state and local perspective to the sessions that were presented at the conference.

The primary responsibility of the Engineering Services Division is the maintenance and updating of summary reports, guidance materials, and model documents, and the provision of training to County Engineers and their staffs. Through a combination of county visits and CRAB sponsored training held in Olympia and around the state, the Engineering Services Division, under the direction of Deputy Director Walt Olsen, PE, has brought 700 hours of informative training to the members of the Washington State Association of Counties and the Washington State Association of County Engineers.

For many years, CRAB has provided County Engineers and other county Public Works staff a variety of information resources. One of these is the County Engineers’ and Public Works Directors’ Manual, which contains guidance on a variety of technical and administrative issues affecting county engineering functions. In addition to providing this Manual as a hardcopy reference document, a major re-design of the Manual was released November 2010 which takes advantage of current internet technology through inclusion of over 1,500 internet “hotlinks” embedded within the document’s text. While the revised Manual may contain less written detail on most topics, and is only half the number of pages from the previous version, the total number of topics covered has actually expanded. When the

document is open as an electronic file on a computer connected to the internet, the embedded “hotlinks” significantly expand the amount of information immediately available to the user. In order to ensure current information is provided, seven updates have been released, including the most recent in October 2016.

CRAB continued the County Engineer/Public Works Director training sessions this year and conducted two 3-day training sessions on May 17-19 and December 6-8, 2016, at the CRAB office, totaling 450 training contact person-hours. This training is constantly being revised to reflect the ever-changing climate of engineering, social, political, and environmental concerns. These intense sessions review the duties and responsibilities of the counties and the County Engineer. Another aspect of this training has been developed to allow modules of this training package to be provided directly to a county or gathering of multiple counties at their site, and customized for their specific needs. Three of these customized sessions were conducted during 2016 in Asotin, Pierce, and Lincoln Counties, totaling 260 training contact person-hours. CRAB has also delivered condensed three-hour trainings at the WSAC County Leaders Conferences in the past that were attended by county commissioners and councilmembers, county engineers, and senior staff. Comments were very positive and CRAB looks forward to future opportunities to continue this forum.

The Engineering Services staff, most of whom hold Professional Engineer licenses, is comprised of Compliance and Data Analysis Manager Derek Pohle, Intergovernmental Policy Manager Jeff Monsen, Grant Programs Manager Randy Hart, and Road Systems Inventory Manager Mike Clark, and is directly responsible for the following functions:

- Administration of the Rural Arterial Program, the County Arterial Preservation Program, and the County Ferry Capital Improvement Program;
- Maintenance of the County Road Log and the computations and updates to the distribution of the counties’ share of the motor vehicle fuel tax;
- Management of the reports and other information necessary for recommendations related to the Annual Certificate of Good Practice for each county;
- Guidance and research on statutory and regulatory issues affecting county road and public works departments;
- Comprehensive and in depth training for County Commissioners, County Engineers, and their staff;
- Assistance in representation of county engineer interests on a variety of state-level committees and task forces;
- Design and traffic engineering assistance to counties, as requested, including consultant selection assistance;

-
- Liaison services on behalf of county engineers with various state agencies, especially the State Auditor's Office and Local Programs Division of WSDOT.

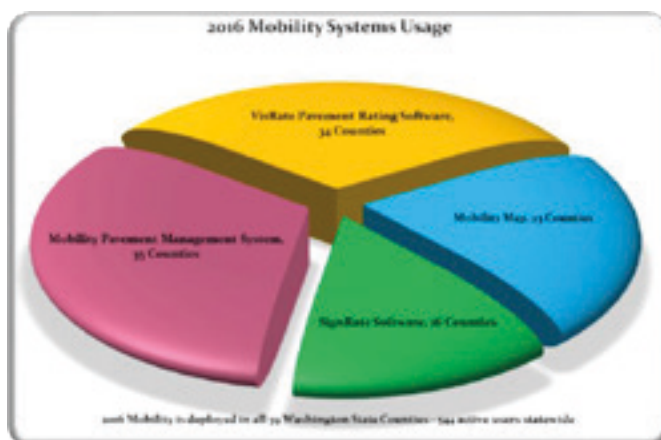
CRAB acts as a clearinghouse for information requests, questions, and the exchange of ideas. With an emphasis on good communication, Engineering Services staff has worked with state transportation officials, resource agencies personnel, and public works departments as they strive to meet the transportation needs of their counties.

Information Services

The Information Services Division at CRAB is a team of IT professionals dedicated to programs and initiatives, both at CRAB and in our counties, which protect and improve the public's investment in our transportation infrastructure.

The IT Division was led by Steve Hillesland for over thirty years and his accomplishments are too numerous to mention in this short report. Steve's retirement in April of 2016 has left a sizable void in our historic knowledge of the legacy systems he and his teams designed and built during his tenure at CRAB. The concepts and processes he and his teams have developed over the years are still employed every day by the counties of Washington. CRAB will forever be indebted to Steve for his visionary leadership during the formative years of the information technology field. Thank you, Steve, for all your efforts.

Three primary goals of the IT team are: the continued smooth and efficient operation of this agency; ensuring that Washington's counties continue to effectively apply current and emerging technology; and assisting our counties in their compliance with the WAC rules of this agency. The first goal is accomplished by providing a progressive, stable and secure computing environment for agency staff. The second and third goals are accomplished by developing and providing software, training, support and consulting services specific to the needs of county road departments in Washington State. CRAB IT products and systems leverage latest technologies such as virtualization, cloud computing, remote desktop services, web services and text-to-speech to enhance the computing experience of the staff of this agency and our counties. In 2016 the Information Services team again made significant, unique and creative contributions to the initiatives of CRAB staff and to the design and management efforts of Washington counties. The following paragraphs illustrate some of the benefits and efficiencies provided by CRAB Information Services this past year.



The flagship product developed by CRAB Information Services is **Mobility**®, a comprehensive transportation asset management system which enhances a county's ability to make quality decisions through consistent, equitable, and defensible management plans and operations. The systematic application of sound business logic, embedded in *Mobility*, ensures accountability in county road departments and assists county personnel in their compliance

with reporting requirements to CRAB, the State Legislature, and federal entities. *Mobility* is a prime example of the economy-of-scale for which CRAB is well known, in that it saves the counties from individually spending millions of dollars on management systems that are neither as responsive, nor as specific to their needs as *Mobility*. Beyond the twenty-plus asset

modules that inventory the county road system and its pertinent features, such as signs and guardrails, *Mobility* includes expert systems such as a Safety Management System (SMS) and a Pavement Management System (PMS). Several upgrade deployments were accomplished during the year with minimal disruptions in service.

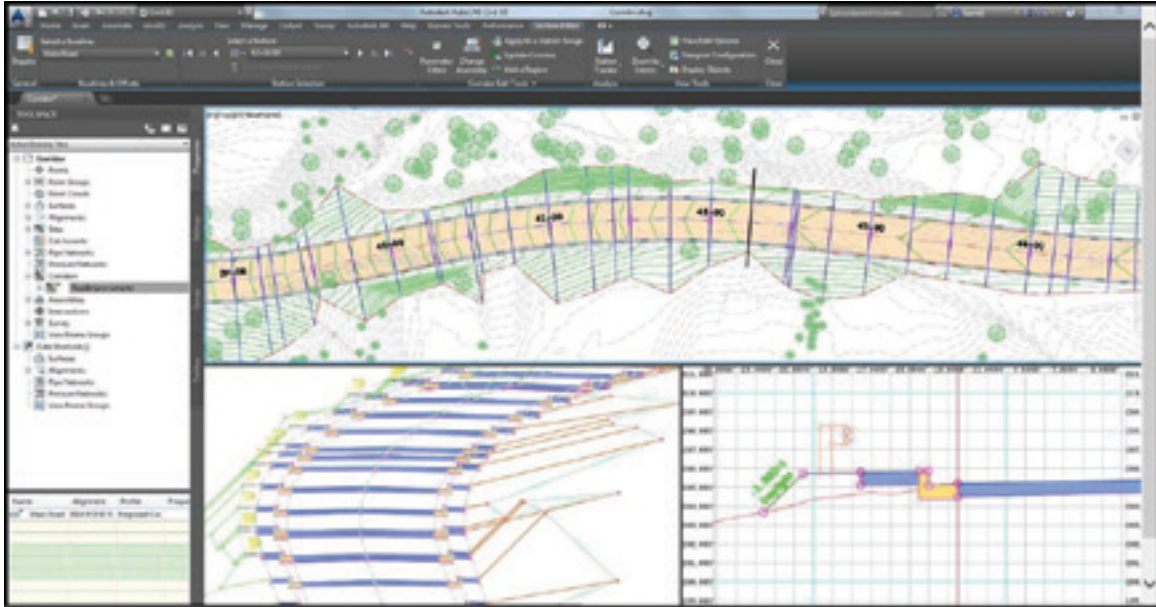
The single largest initiative accomplished in 2016 is the migration of the annual county reporting system to a web-based application after many years of paper based reporting. This new reporting tool was quickly dubbed CARS (County Annual Reporting System) and has been deployed in all 39 counties for the December 2016 reporting period. Along with making the reporting process easier for counties to complete in a timely manner, CARS allows CRAB staff to more effectively and efficiently collate and analyze data for studies, legislative information requests and for display on the CRAB Dashboard.



Much of the information contained in the reports has been collected and transcribed to other forms of media for dissemination. The forms fell into three basic classifications which allowed for much of the original work to be adapted to other forms of a similar nature used for a different reporting purpose. For example, the Annual Construction Program (ACP) form, used to provide the information of the upcoming year's construction activities, was quickly transformed into the Annual Construction Report (ACR) that could be used to supply information about the actual accomplishments and expenditures from the past year. Much of the data from the ACP can be imported to the ACR in order to save time and avoid errors.



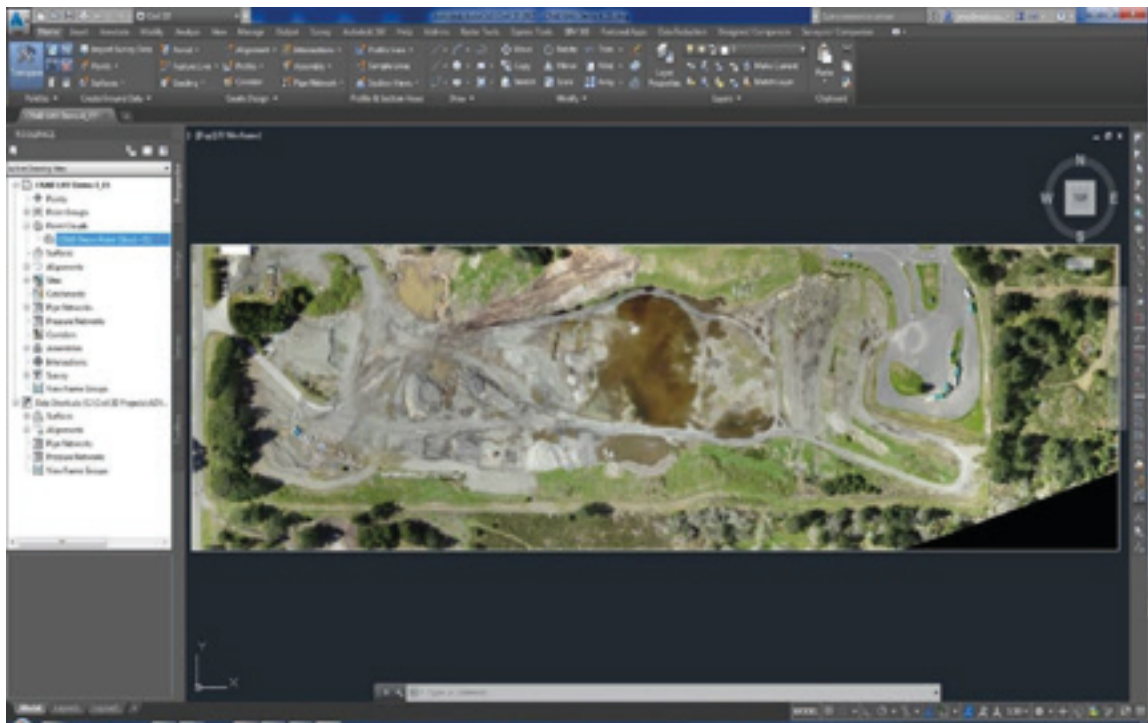
The CRAB Design Systems Program has consistently provided Washington county personnel with state-of-the-art engineering road design software including support and training since 1985. This program has enabled county design staff to effectively collect, develop and



manipulate the geometric information necessary for site design and construction planning which has contained costs and improved productivity throughout the life of road projects. In addition to improved design and project savings, the savings to counties for user licensing, support, and training in design software by CRAB is hundreds of thousands of dollars each year. Because of CRAB support, our county designers maintain a sophistication and competence which enables multiple forms of analysis of surface models in 3D that allows a more realistic geometric representation of the project area, volumes involved and quantities to be moved, and promotes a better design. Training classes are continuously provided to county design staff at CRAB or in their county for a savings of at least \$1295 per student. Other savings and increased competence are accomplished through a county's use of the Design Systems Program website, the Design Forum, and the annual Road Design Conference.

A continuing initiative of the Design Systems Program in 2016 was the addition of field demonstrations of the use of Unmanned Aerial Vehicles (UAVs) by the road design staff in Washington counties. A UAV, sometimes called a drone, is a type of aircraft which has no onboard crew or passengers and includes both remotely piloted and autonomous aerial vehicles. Previously UAVs were only known to be used by the military and hobbyists but today they are being adapted to many other high-tech uses such as engineering design.

CRAB has a history of evaluating emerging technology such as GPS, data collectors, handheld devices and LiDAR for their possible use by county engineering or survey departments rather than having each county make that costly evaluation individually. CRAB staff researched both FAA requirements and current developments of UAVs and found numerous applications of value to survey and engineering such as mapping, photogrammetry (including the generation of ortho-images, mosaics, and digital terrain models), preliminary site mapping, land management, remote sensing and much more. The potential of these systems seems almost unlimited. CRAB staff has evaluated the systems that were appropriate to county use and negotiated a reduced price purchase of a UAV for educational demonstration to counties.



CRAB is now flying the UAV, demonstrating it to county staff, importing photos and data into design software and holding training classes on its use. The above screenshot, which appears to display a single aerial photo, is in reality thousands of photos stitched together representing millions of points with accuracy comparable to precision GPS.

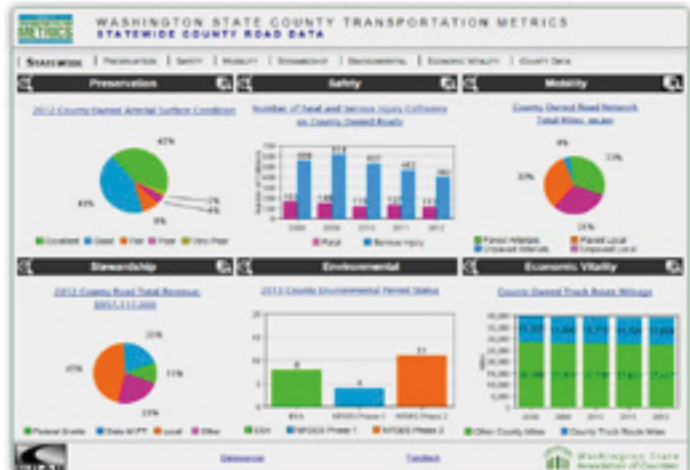
UAV data can be seamlessly shared with a variety of design software which allows engineers to take advantage of accelerated design processes that produce data-rich 3D models for high-end visualizations.

While the UAV will not replace traditional surveying or engineering, UAV photogrammetry is unmatched in terms of efficiency for surfaces more than a few acres, providing equivalent accuracy and being faster, safer and less expensive. In addition, using the UAV surveying method not only produces a digital terrain model but also a geo-referenced and highly



detailed ortho-mosaic, important to project site documentation and visualization. Given favorable FAA conditions this technology looks to play a large part in the survey, mapping and design efforts of many Washington counties.

The CRAB website effectively responds to citizens and government, informing and educating users in the initiatives of CRAB and the counties with content such as the CTM Dashboard shown here. County personnel can find assistance for the effective operation and management of their road systems and assistance in compliance with law and regulation, along with schedules and forms necessary to that compliance. Citizens can find great detail on their county's road system, its road department, that department's funding, operations, construction and maintenance. Legislators can observe the breadth and detail of the accountability ensured by CRAB, as well as the good road work being done in their district. Please take time to visit this site at <http://www.crab.wa.gov> where you can learn much more about CRAB and the counties. After touring the general site, you may want to spend some time perusing a wealth of active road project information under the **Grant Programs** tab or the massive amount of information under the **Reference** tab in the **Library** section.



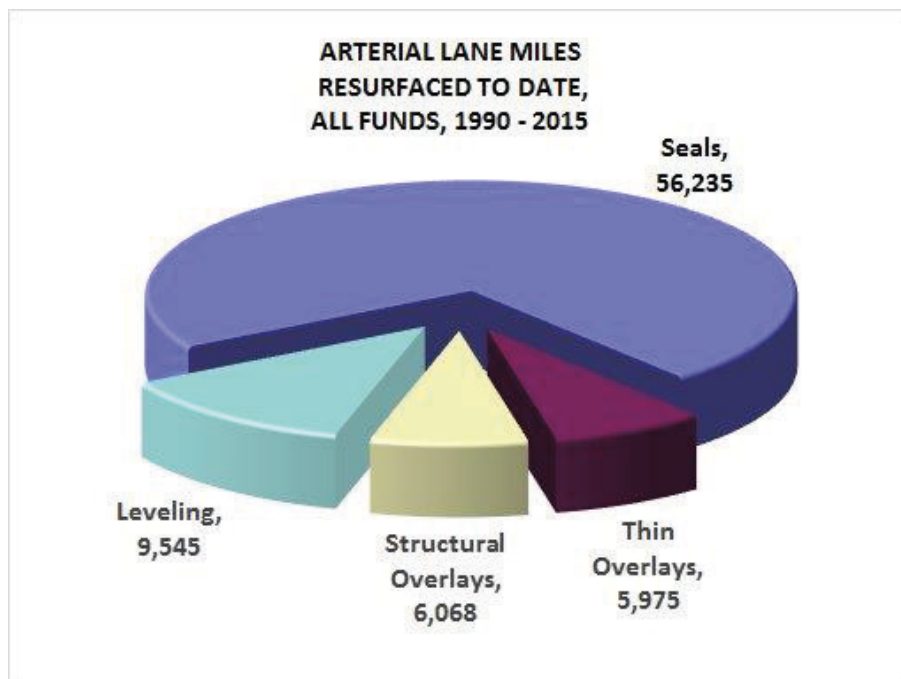
Grant Programs

County Arterial Preservation Program (CAPP) and Rural Arterial Program (RAP)

The counties of Washington State used \$35.7 million in grant funds administered by the County Road Administration in 2015 to accomplish much of the total road, bridge and drainage maintenance and construction work they performed during the year. CAPP funds are distributed directly to counties each month after fuel tax revenue is deposited, allowing them to give continuous attention to their ongoing pavement preservation needs. RAP, on the other hand, is a competitive biennial program requiring significant program and budgeting management by CRAB, as it oversees project application, priority ranking, funding allocation and spending of Rural Arterial Trust Account (RATA) funds over a two-year biennial cycle.

County Arterial Preservation Program (CAPP)

The 2015 funding made available to counties for Pavement Preservation via the CAPP came from three separate fuel tax accounts; the County Arterial Preservation Account (CAPA) – \$14.2 million, the Transportation Partnership Account (TPA) - \$1.5 million, and the Motor Vehicle Account (MVA) - \$5.0 million. Together these provided the total \$20.7 million to counties in 2015 (see table H). Adding county funds, the total expended on pavement preservation in 2015 was \$75 million. This level of funding represents the statewide county effort to limit higher cost pavement reconstruction in the future. Counties report details of their CAPP usage annually. The chart below shows the total miles of resurfacing work the counties have accomplished since the program began in 1990.



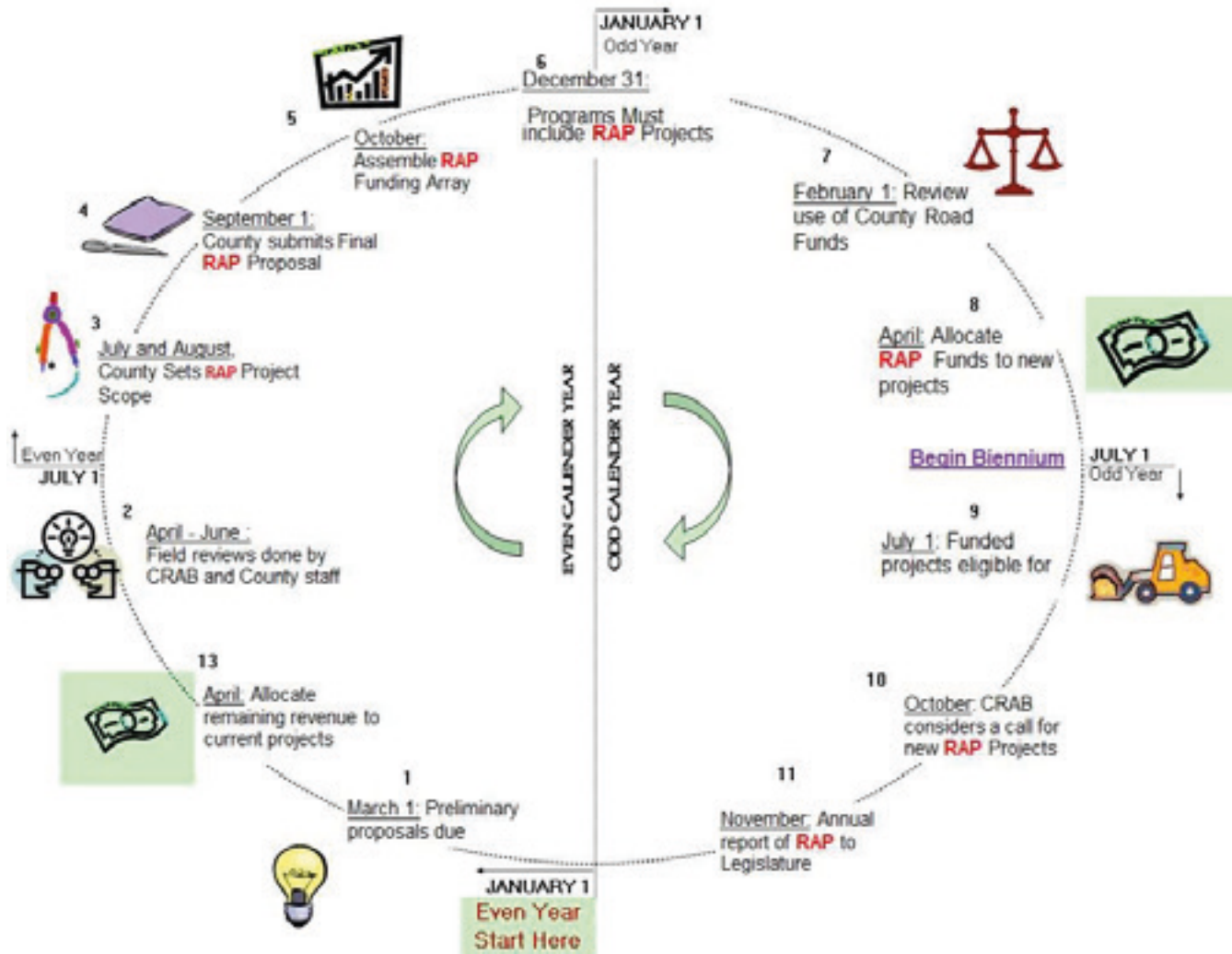
Rural Arterial Program (RAP)

Counties manage and maintain 12,400 miles of Rural Arterial Roads throughout Washington State. These are the roads that access rural agricultural, commercial and recreational regions and provide an initial link to population centers and ports. They are often also the main commuter route to and from work in local areas. The impacts of growth and freight haul degrade the roads until they become too weak, narrow, steep and crooked to be safe. Fortunately, the Rural Arterial Program provides funding to help counties address these same width, alignment, safety and structural issues (RAP - [RCW 36.79.080](#)). The counties used \$16 million of these funds in 2015 (see table C) to improve haul and traffic capacity, and safety.

RURAL ARTERIAL PROGRAM EXPENDITURES BY COUNTY AND LEGISLATIVE DISTRICT IN 2015

COUNTY	LEG DIST	RATA \$'s RECEIVED	COUNTY	LEG DIST	RATA \$'s RECEIVED
Adams	09	117,985	Lincoln	07	630,301
Asotin	09	189,154	Lincoln	13	8,206
Benton	16	1,447,451	Mason	35	231,801
Chelan	04	163,356	Okanogan	07	6,611
Chelan	12	33,419	Pacific	19	8,297
Clallam	24	1,102,190	Pend Oreille	07	638,315
Clark	18	195,150	Pierce	26	1,071
Columbia	16	75,346	Pierce	31	496,151
Cowlitz	19	79,250	San Juan	40	213,059
Cowlitz	20	16,679	Skagit	40	20,844
Douglas	12	670,454	Skamania	05	490,180
Ferry	07	245,154	Skamania	15	(17,463)
Franklin	09	1,559	Snohomish	39	139,921
Garfield	09	98,576	Spokane	04	(1,500,000)
Grant	13	749,715	Stevens	07	1,312,857
Grays Harbor	19	514	Thurston	20	346,681
Island	10	396,288	Thurston	22	47,021
Jefferson	24	1,278,483	Thurston	35	44,175
King	45	77,913	Wahkiakum	19	307,526
Kitsap	35	1,490,000	Walla Walla	16	1,522,578
Kittitas	13	80,733	Whitman	09	34,780
Klickitat	15	34,822	Yakima	14	85,336
Lewis	18	106,877	Yakima	15	1,944,294
Lewis	20	358,384			
			TOTAL		16,021,993

RURAL ARTERIAL PROGRAM BIENNIUM CYCLE



History of RATA Funds per County:

<u>REGION</u> <u>COUNTY</u>	<u>TOTAL RATA</u> <u>APPROVED</u>	<u>TOTAL RATA</u> <u>SPENT</u>	<u>%</u> <u>SPENT</u>	<u>MILES</u> <u>BUILT</u>
NE Adams	20,877,284	18,421,505	88%	97
NE Chelan	24,887,900	19,592,042	79%	53
NE Douglas	26,496,535	23,639,713	89%	50
NE Ferry	21,308,330	14,862,755	70%	63
NE Grant	29,359,268	25,214,571	86%	168
NE Lincoln	26,453,720	22,174,489	84%	120
NE Okanogan	20,837,082	15,205,469	73%	54
NE Pend Oreille	16,027,378	12,912,931	81%	80
NE Spokane	32,466,191	20,241,081	62%	51
NE Stevens	27,838,885	26,549,254	95%	115
NE Whitman	26,970,512	21,018,440	78%	100
NE REGION TOTALS	\$ 273,523,085	\$ 219,832,252		950
NW Clallam	10,335,085	8,673,613	84%	15
NW Island	15,067,621	11,394,786	76%	20
NW Jefferson	6,499,840	4,620,871	71%	11
NW Kitsap	12,026,520	9,122,146	76%	29
NW San Juan	8,332,508	6,501,283	78%	19
NW Skagit	9,338,733	6,076,502	65%	21
NW Whatcom	11,932,182	11,872,001	99%	38
NW REGION TOTALS	\$ 73,532,489	\$ 58,261,203		154
PS King	15,334,725	11,713,263	76%	26
PS Pierce	15,302,266	12,576,282	82%	22
PS Snohomish	13,710,591	11,743,300	86%	20
PS REGION TOTALS	\$ 44,347,582	\$ 36,032,844		68
SE Asotin	14,128,911	10,028,124	71%	27
SE Benton	19,022,553	16,149,910	85%	51
SE Columbia	14,613,271	9,964,507	68%	39
SE Franklin	13,575,886	12,429,370	92%	43
SE Garfield	13,797,743	13,281,083	96%	45
SE Kittitas	16,198,270	14,451,233	89%	32
SE Klickitat	20,416,853	17,445,701	85%	84
SE Walla Walla	18,147,590	15,874,114	87%	37
SE Yakima	22,887,791	18,351,272	80%	51
SE REGION TOTALS	\$ 152,788,868	\$ 127,975,313		407
SW Clark	11,713,718	9,601,710	82%	13
SW Cowlitz	13,478,406	11,939,199	89%	29
SW Grays Harbor	14,623,668	13,358,393	91%	20
SW Lewis	10,140,905	7,837,790	77%	25
SW Mason	11,880,425	9,291,300	78%	37
SW Pacific	11,335,933	8,869,756	78%	53
SW Skamania	2,675,868	2,580,927	96%	14
SW Thurston	15,129,268	12,159,327	80%	30
SW Wahkiakum	7,291,126	4,725,297	65%	38
SW REGION TOTALS	\$ 98,269,317	\$ 80,363,700		259
STATEWIDE TOTAL	\$ 642,461,341	\$ 522,465,313	81%	1,839

2015/2016 Grant Program Projects

Adams County Rebuilds Another Section of its Danekas Road Freight-Haul System



The latest RAP-Funded Danekas Road project is located 5.75 miles Northeast of Ritzville. The road is a major arterial linking the City of Ritzville with portions of Adams and Lincoln Counties. The road serves to transport grain to storage facilities in the Ritzville area and livestock through Adams County to the Davenport Livestock sale yard. The road is also near a fertilizer plant, a natural gas plant and a grain transfer station.

Safety on Danekas became seriously compromised as 31% of the traffic is attributed to heavy trucks. The narrow 22-foot-wide road surface was failing in structural support.

The road was reconstructed by removing the existing surfacing, widening to 30 feet and flattening slopes. Good quality rock was placed as road base, and portions were strengthened with cement treated base. Asphalt pavement was applied for the final surface. Drainage structures were replaced as well. Minor adjustments were made to the vertical alignment to restore smoothness and improve ride quality.

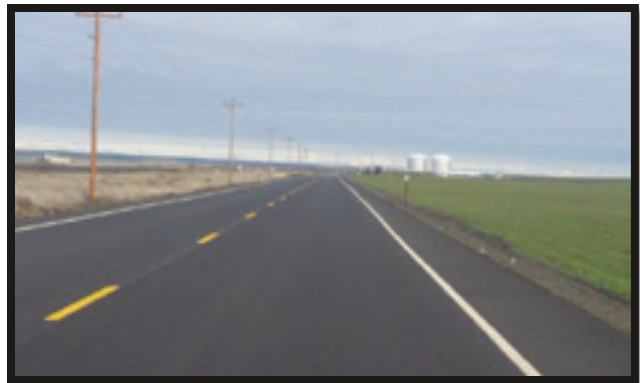


A combination of county forces and competitive bid contracting was used to complete the project in stages: DeAtley Crushing Company, Lewiston, ID; AGR Contracting, Monroe, WA; Central Washington Asphalt, Inc., Moses Lake, WA; and Adams County.

Total Project Cost: \$2,034,677

RAP Funds: \$1,831,209

County Funds: \$203,468



RAP Funded Thorn Creek Road Works Well with Whitman County's Annual Preservation Program

Thorn Creek Road is the main route connecting unincorporated Pine City and Thornton in Whitman County. It serves as the collector of local area agricultural commodities, delivering them south to SR 195. The roadway was showing signs of base failure and had narrow width.



These conditions made Thorn Creek Road a perfect candidate for the pavement preservation and safety improvements that a RAP resurfacing and restoration (2R) project is ideal.

The project was delivered quickly which prevented loss of the full structural integrity of the roadway. This greatly reduces maintenance costs in this area for several years. Local residents have expressed that they are pleased with the results.

Contractor:

Poe Asphalt Paving, Lewiston, ID

Total Project Cost: \$829,119

RAP Funds: \$586,000

Federal Funds: \$236,258

County Funds: \$6,861



Kitsap County Incorporates a Number of Improvement Features To Upgrade Seabeck Highway with RAP Funds



Located in the northwest portion of Kitsap county, Seabeck Highway started out as a “Farm to Market” 85 years ago. It is now an important heavily traveled route for residents living in the Seabeck area and provides access to the eastern side of the Hood Canal. The terrain adjacent to the canal limits the number of other access points, placing traffic demand on Seabeck Highway. The road had substandard shoulder width and deteriorated asphalt surfacing, and the roadside drainage was non-functional.

With an average daily traffic of 5,205 and heavy truck traffic of 499 (~20%), the intersection of Seabeck at Holly Road was identified as a major collision location. A traffic study conducted over a five-year period recorded 13 accidents at the intersection. Drivers experienced longer than expected stop-delays during peak operating hours. This was attributed to the lack of alternative routes.

Traffic capacity was improved at the Holly Road intersection by construction of a roundabout, eliminating traffic backups. An existing 24-inch culvert was replaced with a 12-foot bottomless structure to improve fish passage. A fully functional drainage system with catch basins was installed and the road was paved with a full depth structural asphalt section.



From the construction bid opening to the issuance of the project acceptance, the project moved forward in the spirit of collaboration, as partnerships between the county, the contractor, and utility companies were maintained.

Keeping the public informed throughout the project was critical, and the county received several positive comments on the results.

Contractor: Seton Construction, Pt Townsend, WA
Total Project Cost: \$2,098,683
RAP Funds: \$1,520,000
County Funds: \$578,683

Columbia County Reconstructs Important Section of Kellogg Hollow Road

Kellogg Hollow Road is a paved arterial that serves as a link between the towns of Dayton and Starbuck. Showing many failures, the biggest of which were width and structure of the pavement, an existing wooden bridge also needed replacement and the intersection of Kellogg Hollow and Whetstone Roads had unsafe geometry.

With the help of RAP funding, the road surface was recycled in place, cement was incorporated in the materials to add greater stability, and HMA pavement was placed.



The road was also widened from 22 feet to 28 feet. The intersection between Kellogg Hollow and Whetstone Roads was realigned to intersect at 90°. This work was performed by Thompson Brothers Excavating, Inc., Vancouver, WA

The wooden bridge was replaced with a precast concrete structure by County Forces.

Total Project Cost: \$2,269,282

RAP Funds: \$1,372,500

Federal Funds: \$853,000

County Funds: \$43,782



Benton County Gives Heavily Used Nine Canyon Road a Major Reconstruction

As the southern part of Benton County has switched from dry-land-farming to irrigated farming, heavy farm-to-market truck traffic has greatly increased. Nine Canyon Road is a main route for this traffic and had degraded to a narrow, weak roadway on which opposite-direction trucks had to perform difficult maneuvers, in spots, to avoid head-on collisions.



The road had sharp curves and a switch back at the bottom of the canyon with steep grades into and out of the canyon. Side-slopes were steep and guardrails were needed. A fill was built across the canyon eliminating the sharp curves, the switch back alignment, and the steep grades. The new roadway is built to standard width and is an all-weather structure enhanced with guardrails for added safety.

The rock crushing contractor was DeAtley Crushing, of Lewiston, Idaho. The road construction was performed by Apollo Inc. of Kennewick, WA



Total Project Cost: \$3,853,077
RAP Funds: \$2,740,500
County Funds: \$1,112,577

Local Bridge #70 in Yakima County Replaced Using Federal, County and RAP Funds

Pioneer Way is a local gravel road, providing access to agricultural and residential lands just northwest of Yakima. The existing bridge at milepost 2.6 was undersized. Over the years, it experienced severe damage to its concrete superstructure.



The county was awarded federal funding for bridge replacement, and gained CRABoard funding through the Rural Arterial Program in 2014. The bridge was replaced with a longer and wider precast concrete girder bridge. The farming community is enjoying a stronger, safer crossing that will last a long time.



The bridge replacement work was accomplished by Cascade Bridge LLC, of Vancouver, WA.



Total Project Cost: \$1,019,379
Federal Funds: \$815,503
RAP Funds: \$182,833
County Funds: \$21,043

Skamania County Takes a Resurfacing Approach to Address Many Wind River Road Needs



Wind River Road is the main entrance into the Southwest portion of the Gifford Pinchot National Forest. It is the corridor by which multiple user groups enter the forest for year round recreation.

A section of roadway near the forest, milepost 20.5 to 25.4, had been deteriorating for some time, with noticeable skin patches, slumping, and areas of dangerous ‘non-recoverable’ shoulders.



Using an expanded 2R (resurfacing and restoration) RAP project approach, Skamania County used federal STP, RAP and local county funds to fix safety and width deficiencies as well as to upgrade failing pavement before the full road structure failure could happen.

The county first improved sections that needed road slope improvements (super-elevation) by pre-leveling (before paving) with asphalt at 17 curve locations. Then a final overlay was applied over the entire project and guardrail was installed along steep slopes of the roadway.



Contractor:

Granite Construction Co., Dallesport, WA

Total Project Cost: \$1,555,600

Federal Funds: \$910,469

RAP Funds: \$550,000

County Funds: \$95,131

Grant County Addresses Truck Traffic Impacts on 7-NE Road

Residential travel & agriculture needs in the rural areas northeast of Moses Lake are served by many interconnected Grant County roads. Among them is 7-NE Road, a major collector route that has suffered as a narrow, old BST surface, due to truck traffic that is generated by the Port of Moses Lake industrial area.



The county improved milepost 0.00 to 3.00 (Stratford Road to M-NE) by doing basic widening from 21 feet to 34 feet on the first mile of the project. The last 2 miles had widening as well as major rebuild of the pavement structure. The public appreciates the wider roadway, the larger radii on intersections, and have noticed the safety improvements for bicyclists.

Contractor:

North Central Construction,
Moses Lake, Washington

Total Project Cost: \$1,687,428

RAP Funds: \$1,048,500

County Funds: \$638,928.



Lewis County Accomplishes Long Overdue Rebuilding of King Road



This portion of King Road was established in May of 1881. The road is now a minor collector, one of the few east-west routes in southwestern Lewis County, connecting the central part of the county and the city of Winlock to the Boistfort Valley area. The road is used by local farmers and loggers since much of the property along the road is either farm or forest land. The existing road was a 24 to 26 feet wide gravel road with numerous horizontal and vertical curves that followed the natural shape of

the rolling terrain and was below safety standards. An adjacent wetland often flooded the road during rain events.

The 2015 improvements included widening the road to a 28' section, reconstructing the base, and adding a Class A Bituminous Surface Treatment. The horizontal and vertical alignment was unsafe and substandard, so all curves were constructed to current and much safer design standards. Numerous storm-water facilities were installed to deal with drainage and flooding. The intersections with Burri and Boistfort-Winlock Roads were also realigned as part of the project.



After project completion, local residents have commented on the nice new, easy-to-maintain surface, and are glad that they no longer have to deal with dust from the old gravel road.

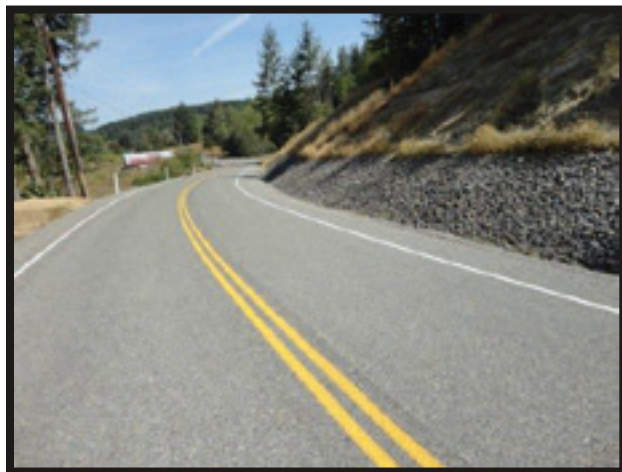
Contractor:

Sterling Breen Crushing, Chehalis, WA

Total Project Cost: \$3,684,953

RAP Funds: \$1,162,000

County Funds: \$2,522,853



Deficient Section of Old Olympic Highway in Clallam County Gets a RAP Upgrade

Old Olympic Highway is a major east-west arterial serving eastern Clallam County. Current ADT for the road is 5,083 with a projected ADT of 8641 in 2030. This makes Old Olympic Highway the most traveled road in the county system.

The existing width of Old Olympic Highway was between 24 and 26 feet with minimal shoulders. Although the speed limit was posted at 50 mph, a large majority of the traffic exceeded this by more than 5 mph. Given these conditions the roadside was an obvious run-off-the-road hazard throughout the project length.

The improvement project provided Old Olympic Highway with significant widening to forty feet overall, comprised of 2-twelve foot lanes and eight foot shoulders on each side. This work, along with removal of unsafe power poles and trees, and flattening the side slopes, gave immense safety benefits to the public.



Contractor:

Jordan Excavating of Port Angeles

Total Project Cost: \$1,1354,435

RAP Funds: \$990,000

County Funds: \$364,435

Tables

A: County Bridge Data	28
County Bridge Condition at a Glance.....	29
B: Actual County Road Related Revenues.....	30
C: Actual County Road Related Expenditures	31
D: Anticipated County Road Fund Revenues.....	32
E: Anticipated County Road Fund Expenditures.....	33
F: County Road Levy Summary	34
G: County Road Mileage.....	35
H: County Arterial Preservation Program	36
I: County Freight and Goods System	37
J: County Forces Summary	38

Table A

COUNTY BRIDGE DATA - NOVEMBER 2016

Washington State Bridge Inventory System

Bridges 20 Feet or Greater in Length on Federal Aid (FAR) and Non Federal Aid (NFAR) Routes
Posting Consideration Based on HS-20 Design Load, less than 28 Tons at Operating Rating

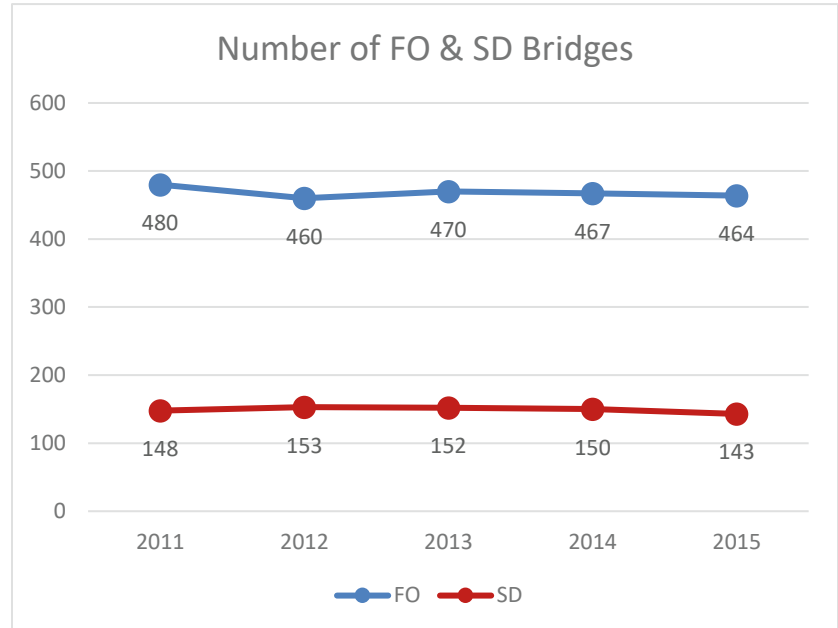
COUNTY	County Owned Bridges	Bridges Posted or May Consider Posting				Bridges With Posting Not Required				Deficient Bridges**
		FAR	Square Feet	NFAR	Square Feet	FAR	Square Feet	NFAR	Square Feet	
ADAMS	111	2	4,744	8	9,295	65	118,596	36	30,371	15
ASOTIN	18	0	0	0	0	13	129,858	5	9,814	2
BENTON	50	2	1,853	0	0	22	68,279	26	26,833	8
CHELAN	50	2	14,584	2	1,832	27	112,238	19	44,419	12
CLALLAM	29	0	0	3	7,436	11	64,202	15	58,290	9
CLARK	55	0	0	2	2,950	24	86,990	29	49,909	16
COLUMBIA	60	2	3,722	2	2,059	30	53,693	26	38,949	9
COWLITZ	62	2	7,889	5	24,688	26	117,522	29	59,350	13
DOUGLAS	20	2	4,549	0	0	12	47,953	6	4,113	0
FERRY	22	0	0	2	3,518	7	10,292	13	19,851	7
FRANKLIN	85	1	829	2	1,404	40	69,371	42	57,024	6
GARFIELD	32	1	1,695	0	0	19	17,117	12	12,538	5
GRANT	193	2	2,242	5	7,361	100	244,380	86	116,427	12
GRAYS HARBOR	161	7	54,214	2	2,424	77	330,942	75	140,484	23
ISLAND	0	0	0	0	0	0	0	0	0	0
JEFFERSON	31	1	1,078	0	0	11	18,075	19	59,810	4
KING	116	5	16,757	7	14,529	69	418,610	35	86,550	51
KITSAP	35	0	0	2	2,793	20	52,374	13	13,459	3
KITTITAS	114	1	864	2	1,523	28	85,745	83	131,648	6
KLICKITAT	57	0	0	5	4,141	14	41,221	38	79,114	14
LEWIS	198	4	4,356	3	3,668	66	216,528	125	222,972	27
LINCOLN	122	2	2,441	7	4,283	42	62,798	71	98,935	14
MASON	53	0	0	3	45,288	10	41,428	40	65,430	13
OKANOGAN	50	0	0	2	2,448	12	50,376	36	65,090	7
PACIFIC	60	4	9,876	15	48,289	5	17,808	36	82,319	13
PEND OREILLE	21	2	1,450	1	681	11	104,760	7	6,256	6
PIERCE	101	4	52,952	1	464	64	242,839	32	49,648	39
SAN JUAN	3	0	0	1	1,274	1	600	1	437	2
SKAGIT	106	1	28,368	2	4,585	43	171,255	60	118,192	22
SKAMANIA	25	0	0	1	2,310	5	30,218	19	55,471	6
SNOHOMISH	166	5	7,172	4	10,919	92	495,060	65	176,893	45
SPOKANE	104	4	6,481	6	6,267	48	225,592	46	109,718	21
STEVENS	49	1	4,685	0	0	10	30,479	38	67,165	8
THURSTON	90	0	0	2	1,596	56	220,787	32	69,303	18
WAHKIAKUM	20	0	0	1	2,419	12	35,789	7	12,494	1
WALLA WALLA	102	2	3,270	0	0	38	119,495	62	119,449	7
WHATCOM	131	3	14,424	11	21,035	30	107,557	87	129,366	28
WHITMAN	239	7	16,905	7	5,753	112	216,852	113	148,199	56
YAKIMA	306	6	24,716	9	18,480	160	394,422	131	198,946	45
TOTAL	3,247	75	292,116	125	265,712	1,432	4,872,101	1,615	2,835,236	593
Total Replacement Cost* (\$ Million):			\$190		\$173		\$3,167		\$1,843	

*At \$650 per Square Foot

** Deficient Bridges are listed as Structurally Deficient (SD) or Functionally Obsolete (FO).

County Bridge Condition at a Glance

All County NBI Bridges as of December 16 th , 2016		
Year	Deficiency Code	Count
2011	FO	480
2011	SD	148
2012	FO	460
2012	SD	153
2013	FO	470
2013	SD	152
2014	FO	467
2014	SD	150
2015	FO	464
2015	SD	143



All County NBI Bridges as of December 16 th , 2016	
Year	Average Sufficiency Rating
2011	81.25
2012	81.79
2013	81.96
2014	81.92
2015	82.19

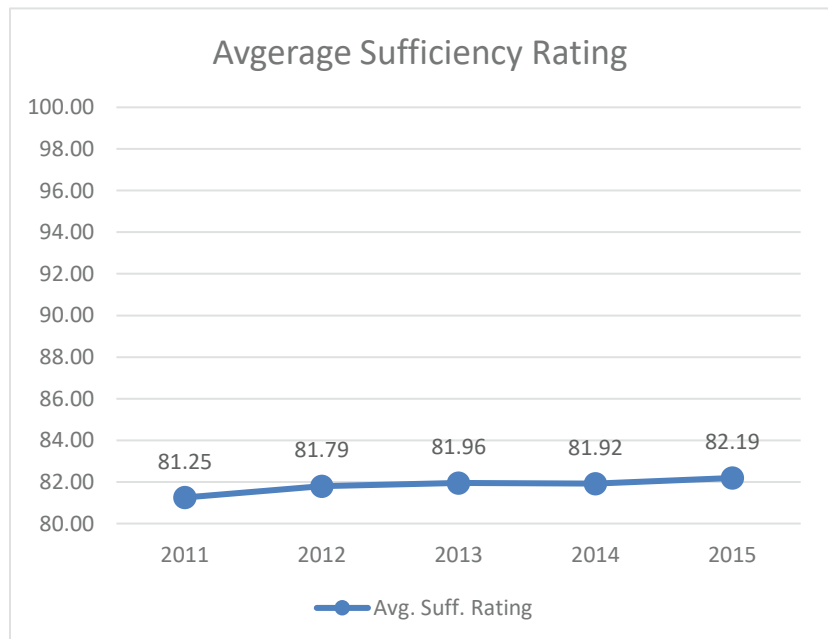


Table B

ACTUAL COUNTY ROAD RELATED REVENUES

2015

(thousands of dollars)

COUNTY	MOTOR VEHICLE FUEL TAX					TAXES				MISC			TOTAL
	COUNTY REGULAR	TIB	RAP	CAPP	MVFT TOTAL	PROP- ERTY	FOREST HARVEST	OTHER TAXES	TOTAL TAXES	FED GRANTS	FED LANDS	OTHER	
ADAMS	4,148	0	118	876	5,142	1,616	0	1	1,617	64	0	25	6,848
ASOTIN	1,644	0	189	163	1,996	1,039	3	3	1,045	203	35	149	3,428
BENTON	3,163	0	1,447	477	5,087	5,545	0	111	5,656	40	0	419	11,202
CHELAN	2,249	17	197	386	2,849	7,175	42	52	7,269	1,613	652	2,572	14,955
CLALLAM	1,911	0	1,102	210	3,223	6,947	451	14	7,412	2,624	392	1,745	15,396
CLARK	6,483	1,404	195	736	8,818	32,701	0	16	32,717	7,502	2	18,213	67,252
COLUMBIA	1,475	0	75	229	1,779	1,123	1	2	1,126	927	77	75	3,984
COWLITZ	2,248	0	96	358	2,702	8,574	862	78	9,514	1,027	69	1,378	14,690
DOUGLAS	3,669	541	670	479	5,359	5,081	0	35	5,116	2,476	0	895	13,846
FERRY	1,760	0	245	286	2,291	813	43	1	857	634	427	722	4,931
FRANKLIN	2,942	0	2	554	3,498	3,182	0	38	3,220	316	1	443	7,478
GARFIELD	1,305	0	99	198	1,602	764	0	3	767	283	63	316	3,031
GRANT	6,449	0	750	1,339	8,538	9,017	0	189	9,206	4,545	0	381	22,670
GRAYS HARBOR	2,322	0	1	415	2,738	5,633	1,004	29	6,666	244	169	1,716	11,533
ISLAND	2,273	0	396	345	3,014	8,500	0	3	8,503	1,311	0	6,370	19,198
JEFFERSON	1,380	0	1,278	210	2,868	3,482	266	7	3,755	1,789	396	885	9,693
KING	12,792	0	78	764	13,634	80,857	233	44	81,134	2,556	142	42,043	139,509
KITSAP	5,185	2,006	1,490	498	9,179	24,229	68	54	24,351	4,363	0	4,708	42,601
KITTITAS	2,001	0	81	492	2,574	3,776	2	9	3,787	2,827	534	5,153	14,875
KLICKITAT	2,672	0	35	577	3,284	4,288	98	19	4,405	1,281	20	1,675	10,665
LEWIS	3,226	0	465	458	4,149	9,885	1,522	20	11,427	2,769	941	1,914	21,200
LINCOLN	4,297	0	639	618	5,554	1,674	0	10	1,684	1,303	4	375	8,920
MASON	2,251	0	232	423	2,906	8,291	529	29	8,849	4,139	166	3,845	19,905
OKANOGAN	3,332	0	7	672	4,011	4,361	63	27	4,451	572	718	203	9,955
PACIFIC	1,345	0	8	193	1,546	3,091	887	43	4,021	0	11	377	5,955
PEND OREILLE	1,645	0	638	269	2,552	1,892	131	1	2,024	90	396	612	5,674
PIERCE	10,623	516	497	1,120	12,756	53,021	228	4,929	58,178	5,353	0	17,932	94,219
SAN JUAN	914	0	213	140	1,267	3,656	1	5	3,662	393	0	2,699	8,021
SKAGIT	3,120	0	21	573	3,714	11,614	417	48	12,079	561	250	3,620	20,224
SKAMANIA	773	0	473	146	1,392	1,153	211	5	1,369	6,184	1	84	9,030
SNOHOMISH	9,439	180	140	818	10,577	58,655	434	469	59,558	5,017	52	21,731	96,935
SPOKANE	9,244	357	(1,500)	1,184	9,285	20,127	62	32	20,221	4,722	7	3,036	37,271
STEVENS	3,789	0	1,313	752	5,854	5,200	458	3	5,661	1,823	184	218	13,740
THURSTON	5,037	67	438	560	6,102	17,834	357	23	18,214	1,001	1	3,859	29,177
WAHKIAKUM	835	0	308	126	1,269	161	89	401	651	1,761	1	798	4,480
WALLA WALLA	2,973	2,306	1,523	668	7,470	5,105	0	81	5,186	876	3	2,033	15,568
WHATCOM	4,012	0	0	578	4,590	17,778	256	926	18,960	6,912	432	9,881	40,775
WHITMAN	4,290	0	35	672	4,997	2,388	0	37	2,425	1,660	0	148	9,230
YAKIMA	5,921	278	2,030	1,176	9,405	11,409	20	38	11,467	184	633	1,839	23,528
TOTALS	145,137	7,672	16,022	20,738	189,569	451,637	8,738	7,835	468,210	81,945	6,779	165,087	911,590

% OF TOTAL 15.9% 0.8% 1.8% 2.3% 20.8% 49.5% 1.0% 0.9% 51.4% 9.0% 0.7% 18.1%

Source: County Reports to D.O.T. Secretary of Transportation

Table C

ACTUAL COUNTY ROAD RELATED EXPENDITURES

Including RAP and CAPP

2015

(thousands of dollars)

COUNTY	CONST	MAINT	ADMIN & OPER	FACIL	FERRY	BOND WARRANT RETT	TRAFFIC POLICING **	OTHER	TOTAL INCLUDES RAP & CAPP	RAP	CAPP ***
ADAMS	482	4,111	1,350	0	0	0	0	30	5,973	118	876
ASOTIN	788	2,093	674	0	0	0	0	0	3,555	189	163
BENTON	2,120	5,822	1,618	53	0	207	0 *	71	9,891	1,447	477
CHELAN	7,314	6,707	2,575	19	0	0	0	291	16,906	197	386
CLALLAM	3,946	6,573	2,742	14	0	0	500	198	13,973	1,102	210
CLARK	42,423	17,042	16,918	96	0	0	6 *	2,240	78,725	195	736
COLUMBIA	1,330	2,176	503	13	0	131	0 *	15	4,168	75	241
COWLITZ	4,523	7,454	2,808	64	0	70	0	812	15,731	96	358
DOUGLAS	4,482	5,822	2,564	75	0	558	0	111	13,612	670	479
FERRY	853	2,652	563	141	0	0	0 *	722	4,931	245	329
FRANKLIN	255	4,727	1,261	0	0	251	473	447	7,414	2	554
GARFIELD	461	1,573	289	0	0	0	0	358	2,681	99	149
GRANT	798	10,591	1,753	0	0	0	0	0	13,142	750	1,339
GRAYS HARBOR	2,284	7,788	1,691	18	0	0	0	571	12,352	1	415
ISLAND	4,479	5,906	3,092	0	0	0	0	2,413	15,890	396	345
JEFFERSON	3,451	3,917	1,392	42	0	32	0 *	782	9,616	1,278	210
KING	6,779	53,098	15,399	519	0	9,307	6,000	29,740	120,842	78	764
KITSAP	12,216	16,071	7,441	144	0	49	0 *	4,721	40,642	1,490	498
KITKITAS	9,282	5,425	1,281	12	0	0	0 *	646	16,646	81	500
KLICKITAT	5,434	5,092	1,082	193	0	0	0	13	11,814	35	577
LEWIS	7,838	11,599	3,848	169	0	0	0 *	129	23,583	465	458
LINCOLN	2,742	4,872	1,222	61	0	0	0 *	507	9,404	639	322
MASON	5,140	6,312	2,404	8	0	1,064	0 *	2,445	17,373	232	423
OKANOGAN	610	6,094	2,144	6	0	349	0	26	9,229	7	530
PACIFIC	1,925	3,554	854	0	0	0	297	1	6,631	8	325
PEND OREILLE	1,131	3,300	901	28	0	0	0	528	5,888	638	321
PIERCE	9,272	34,580	24,578	410	5,715	135	2,625	14,097	91,412	497	1,120
SAN JUAN	1,327	3,985	1,351	0	0	0	0 *	561	7,224	213	140
SKAGIT	1,578	8,683	4,853	0	2,534	0	0	487	18,135	21	573
SKAMANIA	6,726	1,437	422	131	0	0	0 *	0	8,716	473	65
SNOHOMISH	28,810	26,967	24,211	514	0	673	0	15,951	97,126	140	818
SPOKANE	6,698	18,894	9,112	157	0	776	42 *	208	35,887	(1,500)	1,184
STEVENS	4,155	8,975	966	32	0	0	0	116	14,244	1,313	937
THURSTON	3,915	12,241	7,855	0	0	0	0	2,942	26,953	438	560
WAHIAKUM	2,114	927	299	0	721	0	0	142	4,203	308	82
WALLA WALLA	5,634	4,856	1,831	0	0	0	0	193	12,514	1,523	668
WHATCOM	13,188	12,637	5,052	1,027	2,547	0	0 *	6,854	41,305	0	0
WHITMAN	2,245	5,660	1,159	29	0	0	106	193	9,392	35	672
YAKIMA	8,254	9,153	3,242	29	0	933	298	451	22,360	2,030	1,176
TOTALS	227,002	359,366	163,300	4,004	11,517	14,535	10,347	90,012	880,083	16,022	19,981

% OF TOTAL 25.8% 40.8% 18.6% 0.5% 1.3% 1.7% 1.2% 10.2%

Construction expenditure amounts do not include State ad & award Federal Aid participation

Source: County Reports to D.O.T. Secretary of Transportation

* Traffic Policing funds paid from diverted road levy

** Road Fund portion only

*** includes \$5 Million Motor Vehicle Account Funds

Table D
ANTICIPATED COUNTY ROAD FUND REVENUES
2016 BUDGETS
(thousands of dollars)

COUNTY	BEGIN FUND BAL	MOTOR VEHICLE FUEL TAX					TAXES			MISC			TOTAL
		COUNTY	TIB	RAP	CAPP	OTHER	PROP- ERTY	FOREST HARVEST	OTHER TAXES	FED GRANTS	FED LANDS	OTHER	
ADAMS	4,800	4,207	0	573	907	0	1,621	0	8	2,713	0	84	14,913
ASOTIN	1,718	1,610	3,200	657	165	30	1,070	0	0	1,108	0	6	9,564
BENTON	4,900	3,089	0	833	478	0	6,183	0	88	1,280	0	2,150	19,001
CHELAN	1,803	2,429	38	1,084	385	54	7,046	13	40	1,200	524	506	15,122
CLALLAM	18,719	1,841	0	92	157	484	7,057	0	325	2,376	350	1,374	32,775
CLARK	33,090	6,325	1,500	400	738	400	32,795	0	220	8,384	3	12,769	96,624
COLUMBIA	452	1,350	0	2,692	237	12	1,405	0	0	758	62	297	7,265
COWLITZ	7,500	2,183	0	885	372	0	8,891	700	85	1,600	0	1,784	24,000
DOUGLAS	1,756	3,550	1,638	2,374	750	0	5,436	0	46	2,060	0	1,775	19,385
FERRY	600	1,765	0	72	295	2	775	30	1	2,817	522	221	7,100
FRANKLIN	1,500	2,894	0	151	579	0	2,600	0	25	2,104	110	1,087	11,050
GARFIELD	923	1,290	0	1,365	205	0	803	0	3	1,812	30	82	6,513
GRANT	7,034	6,456	0	1,031	1,402	0	8,800	0	140	4,000	207	101	29,171
GRAYS HARBOR	3,552	2,455	0	135	437	175	5,533	800	30	4,223	152	1,107	18,599
ISLAND	1,516	2,196	0	0	946	4,544	8,575	0	2	2,045	0	1,437	21,261
JEFFERSON	3,795	1,429	0	97	217	0	4,287	100	6	1,790	381	1,843	13,945
KING	21,745	10,807	0	3,580	616	386	77,749	350	35	6,100	155	48,527	170,050
KITSAP	35,378	5,355	2,190	2,226	515	0	26,986	75	53	3,949	0	7,906	84,633
KITTITAS	15,969	2,069	0	1,214	492	300	3,968	0	99	1,164	0	348	25,623
KLICKITAT	2,467	2,675	0	1,400	605	0	4,232	0	40	1,019	9	1,161	13,608
LEWIS	1,269	3,305	0	474	674	1,147	10,190	1,300	10	10,313	0	1,270	29,952
LINCOLN	500	4,356	0	883	639	35	1,489	0	10	4,577	0	161	12,650
MASON	4,168	2,100	0	1,876	400	0	6,542	275	20	1,086	150	3,471	20,088
OKANOGAN	5,000	3,409	0	339	704	7	4,394	40	15	4,250	754	147	19,059
PACIFIC	3,137	1,343	0	405	199	0	3,174	700	7	1,374	5	255	10,599
PEND OREILLE	1,200	1,741	0	130	282	250	1,973	163	2	2,912	549	379	9,581
PIERCE	23,745	10,810	1,613	2,209	1,100	1,503	53,300	230	25	8,987	200	19,441	123,163
SAN JUAN	2,839	890	0	393	154	3,060	3,850	0	5	2,139	0	363	13,693
SKAGIT	4,064	3,050	0	1,100	600	300	14,725	1,030	354	4,083	250	2,680	32,236
SKAMANIA	1,258	825	0	262	151	142	1,542	200	5	986	1	98	5,470
SNOHOMISH	10,525	9,356	0	920	800	318	58,690	475	375	8,316	51	19,303	109,129
SPOKANE	7,651	8,917	1,486	1,668	1,225	267	20,608	30	25	6,582	7	1,567	50,033
STEVENS	5,000	3,600	0	1,945	700	0	5,259	325	13	300	200	118	17,460
THURSTON	16,962	5,233	521	1,013	579	0	18,356	220	20	3,296	1	5,448	51,649
WAHKIAKUM	1,684	865	0	285	130	500	82	100	1	811	1	268	4,727
WALLA WALLA	4,450	2,966	9	42	689	0	5,000	0	204	1,126	0	221	14,707
WHATCOM	29,233	3,903	0	0	574	0	18,369	200	38	0	465	5,423	58,205
WHITMAN	7,500	4,275	0	2,450	703	0	2,135	0	30	2,234	0	79	19,406
YAKIMA	5,024	6,099	900	502	1,216	2,865	11,223	0	0	6,168	532	2,738	37,267
TOTAL	304,426	143,018	13,095	37,757	22,017	16,781	456,713	7,356	2,405	122,042	5,671	147,995	1,279,276

% OF TOTAL 23.8% 11.2% 1.0% 3.0% 1.7% 1.3% 35.7% 0.6% 0.2% 9.5% 0.4% 11.6%

Table E

**ANTICIPATED COUNTY ROAD FUND EXPENDITURES
2016 BUDGETS**
(thousands of dollars)

COUNTY	CONST	MAINT	ADMIN & OPER	FACIL	FERRY	BOND WARR RETT	TRAFFIC POLICING	OTHER	TOTAL	END FUND BAL	GRAND TOTAL
ADAMS	4,209	5,218	1,264	0	0	0	0	84	10,775	4,138	14,913
ASOTIN	4,661	2,376	568	0	0	0	0	0	7,605	1,959	9,564
BENTON	6,045	7,414	2,293	0	0	212	630	170	16,764	2,237	19,001
CHELAN	3,420	7,854	2,464	75	0	0	0	371	14,184	938	15,122
CLALLAM	8,866	7,765	2,672	0	0	0	510	225	20,038	12,737	32,775
CLARK	31,601	20,313	16,328	68	0	0	12	3,560	71,882	24,742	96,624
COLUMBIA	3,936	2,111	568	50	0	130	0	23	6,818	447	7,265
COWLITZ	5,502	8,352	3,097	167	0	72	0	0	17,190	6,810	24,000
DOUGLAS	8,281	6,416	2,334	11	0	533	0	803	18,378	1,007	19,385
FERRY	3,076	3,229	453	0	0	0	0	144	6,902	198	7,100
FRANKLIN	2,878	4,887	1,289	177	0	257	473	339	10,300	750	11,050
GARFIELD	3,892	1,581	300	0	0	0	0	112	5,885	628	6,513
GRANT	8,500	12,081	1,921	400	0	2	270	905	24,079	5,092	29,171
GRAYS HARBOR	6,210	8,739	1,770	40	0	0	0	13	16,772	1,827	18,599
ISLAND	7,295	7,921	2,981	0	0	0	0	3,064	21,261	0	21,261
JEFFERSON	3,847	4,545	1,479	75	0	32	720	2	10,700	3,245	13,945
KING	0	58,717	15,074	16,650	0	9,272	6,000	45,592	151,305	18,745	170,050
KITSAP	20,280	12,854	6,083	850	0	49	2,690	12,898	55,704	28,929	84,633
KITTITAS	5,154	8,344	1,533	0	0	0	0	1,002	16,033	9,590	25,623
KLICKITAT	6,790	5,500	900	0	0	0	0	88	13,278	330	13,608
LEWIS	10,022	12,432	4,545	34	0	0	0	191	27,224	2,728	29,952
LINCOLN	6,522	4,141	1,187	0	0	0	0	136	11,986	664	12,650
MASON	4,475	6,905	3,033	446	0	0	0	1,289	16,148	3,940	20,088
OKANOGAN	4,713	8,088	2,189	34	0	0	0	399	15,423	3,636	19,059
PACIFIC	2,244	5,696	771	0	0	0	300	20	9,031	1,568	10,599
PEND OREILLE	3,519	3,515	982	134	0	0	100	320	8,570	1,011	9,581
PIERCE	12,791	41,967	26,796	0	1,400	3,615	0	12,133	98,702	24,461	123,163
SAN JUAN	5,365	3,953	1,344	315	0	0	0	984	11,961	1,732	13,693
SKAGIT	8,835	4,091	10,739	104	1,823	0	1,350	0	26,942	5,294	32,236
SKAMANIA	1,741	1,758	635	10	0	0	0	0	4,144	1,326	5,470
SNOHOMISH	32,442	0	28,249	290	0	618	0	47,530	109,129	0	109,129
SPOKANE	14,055	22,854	8,640	1,261	0	793	63	471	48,137	1,896	50,033
STEVENS	2,895	8,637	1,286	657	0	0	0	85	13,560	3,900	17,460
THURSTON	6,907	16,091	12,979	2,092	0	0	142	1,974	40,185	11,464	51,649
WAHIAKUM	2,747	839	204	21	891	0	0	25	4,727	0	4,727
WALLA WALLA	3,123	5,371	2,148	0	0	0	0	186	10,828	3,879	14,707
WHATCOM	6,422	14,691	6,885	40	2,728	0	806	2,466	34,038	24,167	58,205
WHITMAN	9,453	7,345	1,703	0	0	0	95	0	18,596	810	19,406
YAKIMA	19,373	11,878	2,843	0	0	1,233	383	0	35,710	1,557	37,267
TOTAL	302,087	376,469	182,529	24,001	6,842	16,818	14,544	137,604	1,060,894	218,382	1,279,276

% OF TOTAL 23.6% 29.4% 14.3% 1.9% 0.5% 1.3% 1.1% 10.8% 82.9% 17.1%

Table F

COUNTY ROAD LEVY SUMMARY

As shown in 2016 Budgets

(thousands of dollars)

COUNTY	Unincorp Valuation	County Road Maximum Property Tax Levy (2.25)	County Road Property Tax Revenue Planned	Operating Transfer	Payment for Services	(RCW 36.33.220)		Revenue Remaining in Road Fund	Levy Shift from Road to Current Exp. (RCW 84.52.043)
						Diversion from Road To Current Expense	County Road Property Tax Exp. for Other Purposes		
						Traffic Policing expense paid by:			
ADAMS	1,296,558	2,917	1,700		100			1,600	0
ASOTIN	1,128,961	2,540	1,070					1,070	600
BENTON	3,976,539	8,947	6,186			630		5,556	0
CHELAN	5,617,890	12,640	7,434	120				7,314	400
CLALLAM	4,849,908	10,912	6,997		500			6,497	0
CLARK	22,042,290	49,595	37,751			4,533		33,218	0
COLUMBIA	733,787	1,651	1,481				Divert - Current Expense 75	1,406	0
COWLITZ	5,473,035	12,314	8,443					8,443	2,700
DOUGLAS	3,252,321	7,318	5,536					5,536	0
FERRY	557,321	1,254	1,254			477		777	0
FRANKLIN	2,207,761	4,967	2,577		473			2,104	650
GARFIELD	577,279	1,299	803					803	0
GRANT	4,891,143	11,005	9,026		270			8,756	0
GRAYS HARBOR	2,542,648	5,721	5,721		500			5,221	0
ISLAND	10,231,076	23,020	8,529		825			7,704	0
JEFFERSON	3,298,791	7,422	4,269			720		3,549	0
KING	36,633,109	82,424	82,424	6,372				76,053	0
KITSAP	16,864,294	37,945	26,719			2,902		23,817	0
KITTITAS	4,329,898	9,742	4,046			200		3,846	1,000
KLICKITAT	2,755,250	6,199	4,363					4,363	0
LEWIS	5,019,227	11,293	11,160			1,310		9,850	0
LINCOLN	1,149,699	2,587	1,989			500		1,489	0
MASON	6,369,280	14,331	7,768			1,200		6,568	1,824
OKANOGAN	2,884,014	6,489	4,394					4,394	0
PACIFIC	1,727,799	3,888	3,100		300			2,801	0
PEND OREILLE	1,222,276	2,750	1,924		100			1,824	0
PIERCE	35,059,917	78,885	66,971	2,625			Divert - Traffic and Courts 13,113 *	51,233	0
SAN JUAN	5,949,826	13,387	4,348			650		3,698	50
SKAGIT	7,592,705	17,084	14,909			1,350		13,559	0
SKAMANIA	1,154,678	2,598	1,542					1,542	200
SNOHOMISH	39,766,193	89,474	60,506	4,204				56,301	0
SPOKANE	13,412,412	30,178	22,046			1,200		20,846	6,100
STEVENS	3,185,592	7,168	5,259					5,259	468
THURSTON	13,779,164	31,003	21,606			3,250		18,356	0
WAHKIAKUM	374,655	843	64					64	471
WALLA WALLA	2,563,540	5,768	5,236					5,236	0
WHATCOM	12,206,791	27,465	18,849			807		18,042	0
WHITMAN	1,575,335	3,545	2,419		95			2,325	0
YAKIMA	6,583,375	14,813	11,905		383			11,522	2,278
TOTALS	294,836,335	663,382	492,323	13,321	3,546	19,727	13,188	442,541	16,741

* Increased by voter approval (RCW 84.55.050)

Table G

COUNTY ROAD MILEAGE - 1/1/16

COUNTY	URBAN ROADS			RURAL ROADS			SYSTEM CENTERLINE TOTAL	PAVED ARTERIAL C/L MILES	PAVED ARTERIAL LANE-MILES	UNPAVED C/L MILES
	ACCESS	ARTERIAL	TOTAL	ACCESS	ARTERIAL	TOTAL				
ADAMS	10.68	3.73	14.41	1094.22	665.84	1,760.06	1,774.46	547.56	1091.90	1,125.09
ASOTIN	59.90	20.57	80.47	166.45	152.33	318.77	399.25	100.30	203.25	231.96
BENTON	125.32	52.44	177.75	391.93	290.07	682.00	859.76	297.21	594.42	254.45
CHELAN	57.00	29.55	86.54	357.04	209.97	567.01	653.55	239.23	479.24	123.22
CLALLAM	82.98	16.55	99.53	271.89	118.97	390.86	490.39	135.33	269.88	3.15
CLARK	415.16	149.56	564.72	281.22	273.21	554.43	1,119.15	422.77	911.02	11.87
COLUMBIA	0.00	0.00	0.00	271.68	229.17	500.85	500.85	141.41	282.82	354.10
COWLITZ	46.32	24.14	70.46	259.51	197.17	456.68	527.14	221.31	442.67	6.87
DOUGLAS	61.29	37.65	98.94	1139.44	400.31	1,539.75	1,638.69	296.49	599.41	1,198.67
FERRY	0.00	0.00	0.00	505.02	232.32	737.34	737.34	177.63	355.63	535.82
FRANKLIN	14.64	11.88	26.52	610.09	336.93	947.02	973.54	343.33	685.19	394.84
GARFIELD	0.00	0.00	0.00	234.08	213.03	447.10	447.10	123.58	247.15	317.78
GRANT	63.99	32.16	96.15	1535.89	874.85	2,410.73	2,506.88	829.97	1667.64	1,041.61
GRAYS HARBOR	33.69	22.28	55.97	265.16	242.64	507.80	563.77	259.64	519.25	37.78
ISLAND	96.13	35.02	131.15	272.25	179.93	452.18	583.33	214.94	430.61	5.06
JEFFERSON	5.14	0.00	5.14	254.99	138.48	393.46	398.60	130.34	261.30	73.11
KING	630.93	207.56	838.49	387.60	242.50	630.10	1,468.59	450.06	939.94	51.03
KITSAP	412.31	167.64	579.94	195.47	140.09	335.55	915.50	307.72	622.27	8.90
KITTITAS	9.98	12.00	21.97	243.64	296.38	540.02	561.99	304.56	609.85	63.83
KLICKITAT	0.00	0.00	0.00	695.63	384.49	1,080.12	1,080.12	366.05	731.24	517.52
LEWIS	36.16	22.63	58.79	718.05	266.14	984.18	1,042.97	286.74	574.19	42.18
LINCOLN	0.00	0.00	0.00	1338.94	658.43	1,997.37	1,997.37	384.74	769.48	1,541.41
MASON	27.74	9.56	37.30	316.19	263.36	579.54	616.84	267.13	534.46	43.24
OKANOGAN	7.13	2.80	9.93	838.15	490.54	1,328.70	1,338.63	418.53	837.05	661.76
PACIFIC	0.00	0.00	0.00	216.86	130.31	347.16	347.16	120.01	240.40	45.82
PEND OREILLE	0.00	0.00	0.00	380.42	180.86	561.28	561.28	167.49	334.98	265.61
PIERCE	634.51	419.97	1,054.48	250.77	250.41	501.18	1,555.66	670.38	1417.55	17.87
SAN JUAN	0.00	0.00	0.00	184.00	86.80	270.80	270.80	86.80	173.60	45.84
SKAGIT	71.33	36.92	108.25	373.56	319.04	692.60	800.85	355.96	712.81	40.16
SKAMANIA	0.00	0.00	0.00	148.84	90.45	239.29	239.29	90.45	181.37	28.75
SNOHOMISH	627.46	183.95	811.42	460.37	311.72	772.09	1,583.50	492.61	1012.40	11.62
SPOKANE	288.68	126.25	414.93	1447.56	664.39	2,111.95	2,526.88	719.38	1479.08	1,142.06
STEVENS	0.00	0.00	0.00	928.38	560.61	1,488.99	1,488.99	468.41	936.84	824.25
THURSTON	335.63	107.00	442.63	351.88	230.40	582.28	1,024.91	337.40	689.90	22.43
WAHKIAKUM	0.00	0.00	0.00	56.49	81.82	138.31	138.31	78.31	156.62	12.72
WALLA WALLA	44.56	35.89	80.45	455.02	423.55	878.57	959.02	414.47	829.78	368.00
WHATCOM	124.52	69.98	194.50	455.75	288.30	744.05	938.55	358.28	719.40	30.84
WHITMAN	0.00	0.00	0.00	1282.68	614.51	1,897.19	1,897.19	418.35	836.70	1,459.15
YAKIMA	120.94	101.61	222.55	774.07	646.89	1,420.96	1,643.51	726.66	1469.42	539.46
STATEWIDE	4,444.11	1,939.26	6,383.37	20,411.17	12,377.15	32,788.32	39,171.69	12,771.50	25,850.70	13,499.81
EASTERN	864.10	466.52	1,330.62	14,690.32	8,525.44	23,215.76	24,546.38	7,485.34	15,041.07	12,960.57
WESTERN	3,580.01	1,472.75	5,052.75	5,720.85	3,851.71	9,572.56	14,625.31	5,286.16	10,809.63	539.24

County Road Log Data certified 1/1/2016 by the County Road Administration Board

Table H

**COUNTY ARTERIAL PRESERVATION PROGRAM
2015 ACCOMPLISHMENT SUMMARY**

COUNTY	1/1/14 Eligible Arterial System C/Line (miles)	Total CAPP ** Rec'd (\$1,000)	Total CAPP ** Expended (\$1,000) *	Total Eligible Expenses (\$1,000)	CAPP** Contri- bution (%)	2015 Arterial Prep/ Repair (\$1,000)	2015 Arterial Sealcoat C/Line (miles)	2015 Arterial Overlay C/Line (miles)	2015 Total Resurf. C/Line (miles)	2015 Percent System Resurf'd
ADAMS	547.54	876.5	876.5	1,047.9	83.6	178.2	48.2	0.0	48.2	8.8
ASOTIN	100.30	163.2	163.2	257.8	63.3	0.0	13.1	0.0	13.1	13.1
BENTON	297.27	477.4	477.4	697.7	68.4	93.2	30.9	0.0	30.9	10.4
CHELAN	240.07	386.3	386.3	3,069.0	12.6	408.5	37.6	0.0	37.6	15.6
CLALLAM	131.20	210.2	210.2	673.1	31.2	0.1	29.0	0.0	29.0	22.1
CLARK	424.48	735.5	735.5	4,573.3	16.1	383.7	17.8	10.0	27.8	6.5
COLUMBIA	142.66	229.1	240.9 *	1,293.1	18.6	266.4	23.9	2.8	26.7	18.7
COWLITZ	223.06	358.3	358.3	1,407.0	25.5	189.7	22.4	15.8	38.2	17.1
DOUGLAS	295.86	478.8	478.8	1,299.6	36.8	447.1	33.4	0.0	33.4	11.3
FERRY	177.63	285.6	328.8 *	328.8	100.0	177.3	52.0	0.0	52.0	29.3
FRANKLIN	345.28	554.3	554.3	1,129.5	49.1	167.1	19.9	0.0	19.9	5.7
GARFIELD	123.58	198.5	149.3	270.3	55.2	31.0	6.9	0.5	7.4	6.0
GRANT	829.34	1338.6	1338.6	4,788.5	28.0	1,058.5	82.5	8.5	91.0	11.0
GRAYS HARBOR	258.24	414.7	414.7	1,585.2	26.2	449.4	14.9	0.0	14.9	5.8
ISLAND	214.02	344.7	344.7	1,417.1	24.3	194.0	16.4	2.0	18.4	8.6
JEFFERSON	130.34	209.8	209.8	772.6	27.2	25.6	11.0	1.2	12.2	9.3
KING	454.97	763.7	763.7	5,206.0	14.7	1,206.0	0.0	13.3	13.3	2.9
KITSAP	306.70	498.5	498.5	1,394.7	35.7	669.0	7.0	2.5	9.5	3.1
KITTITAS	306.11	492.2	500.0 *	1,036.6	48.2	1,036.6	0.0	0.0	0.0	0.0
KLICKITAT	358.98	576.6	576.6	1,073.6	53.7	77.6	32.3	0.0	32.3	9.0
LEWIS	285.01	458.2	458.2	1,482.2	30.9	418.9	30.9	1.3	32.2	11.3
LINCOLN	384.80	618.0	322.2	3,065.3	10.5	308.1	5.4	9.6	15.1	3.9
MASON	263.44	423.3	423.3	4,607.7	9.2	286.0	38.1	11.3	49.4	18.7
OKANOGAN	418.33	671.9	530.0	530.0	100.0	242.1	16.2	0.0	16.2	3.9
PACIFIC	119.85	192.8	324.8 *	1,174.1	27.7	0.0	8.3	5.9	14.2	11.8
PEND OREILLE	167.49	269.0	321.3 *	321.3	100.0	59.8	10.8	0.0	10.8	6.4
PIERCE	669.81	1120.3	1120.3	3,144.4	35.6	209.9	91.6	3.9	95.5	14.3
SAN JUAN	87.05	139.8	139.8	171.4	81.5	0.0	3.2	0.0	3.2	3.7
SKAGIT	356.24	572.9	572.9	1,399.7	40.9	250.7	23.5	0.9	24.4	6.8
SKAMANIA	90.45	145.6	65.2	1,500.4	4.3	0.0	0.0	5.0	5.0	5.5
SNOHOMISH	495.32	817.7	817.7	5,053.5	16.2	721.9	16.2	12.8	29.0	5.8
SPOKANE	717.05	1183.9	1183.9	4,011.5	29.5	1,338.7	80.7	0.0	80.7	11.3
STEVENS	468.41	752.3	936.9 *	2,965.1	31.6	468.6	111.7	0.0	111.7	23.8
THURSTON	340.68	560.1	560.1	2,561.0	21.9	98.9	41.0	3.2	44.2	13.0
WAHIAKUM	78.31	125.9	82.4	82.4	100.0	4.0	2.3	0.0	2.3	2.9
WALLA WALLA	415.79	668.4	668.4	1,552.3	43.1	282.4	46.8	0.0	46.8	11.3
WHATCOM	358.39	577.8	0.0	3,557.7	0.0	61.9	34.4	14.6	49.0	13.7
WHITMAN	418.50	672.1	672.1	2,283.6	29.4	215.0	44.6	6.6	51.2	12.2
YAKIMA	722.75	1175.7	1175.7	2,217.3	53.0	52.7	35.2	3.8	39.0	5.4
TOTAL	12,765.3	20,738.2	19,981.4	75,002.4	26.6%	12,078.4	1,139.8	135.3	1,275.1	10.3
									AVERAGE	10.3

* Expended amounts higher than received include carry-forward amounts of prior years.

** Includes \$5,000,000 statewide Motor Vehicle Account (MVA) contribution for County Arterial Preservation.

Table I

COUNTY FREIGHT AND GOODS SYSTEM - 1/1/2016

COUNTY	Freight and Goods System - Truck Route Class					Total	Total	%
	T-1	T-2	T-3	T-4	T-5	FGTS	Adequate	Adequate
ADAMS			143.17	206.11	288.02	637.30	232.36	36.5%
ASOTIN		0.15	22.95	19.98	0.00	43.08	37.62	87.3%
BENTON			117.95	120.57	89.87	328.39	98.64	30.0%
CHELAN			50.19	84.67	42.84	177.69	58.03	32.7%
CLALLAM			34.93	98.44	9.99	143.36	0.53	0.4%
CLARK	0.22	10.44	135.92	159.47	0.00	306.05	253.46	82.8%
COLUMBIA			10.30	49.10	146.81	206.21	11.20	5.4%
COWLITZ			77.72	57.12	3.00	137.84	110.12	79.9%
DOUGLAS			6.89	85.56	171.15	263.60	15.31	5.8%
FERRY			109.25	115.71	0.00	224.96	27.31	12.1%
FRANKLIN			111.39	154.05	252.51	517.95	246.07	47.5%
GARFIELD			0.00	10.13	125.75	135.88	113.03	83.2%
GRANT		10.19	269.43	261.83	305.76	847.22	57.69	6.8%
GRAYS HARBOR			212.65	7.12	0.00	219.77	192.49	87.6%
ISLAND			14.05	34.14	0.20	48.38	46.82	96.8%
JEFFERSON			39.64	33.01	65.75	138.40	108.06	78.1%
KING	5.13	21.38	249.76	106.45	0.00	382.72	354.06	92.5%
KITSAP		2.17	203.45	107.01	0.00	312.64	223.27	71.4%
KITTITAS		6.63	199.77	146.29	3.63	356.32	256.33	71.9%
KLICKITAT			174.68	111.37	0.00	286.05	7.63	2.7%
LEWIS		1.98	125.44	261.69	102.44	491.55	271.36	55.2%
LINCOLN			131.90	281.72	363.90	777.52	446.47	57.4%
MASON			68.50	51.75	1.70	121.95	4.03	3.3%
OKANOGAN			100.51	116.46	181.68	398.65	5.43	1.4%
PACIFIC			0.00	135.41	0.00	135.41	26.89	19.9%
PEND OREILLE			38.39	125.40	62.21	226.00	0.49	0.2%
PIERCE	5.85	52.10	312.03	28.80	7.70	406.48	142.36	35.0%
SAN JUAN			23.92	64.33	0.00	88.25	58.11	65.8%
SKAGIT		4.46	128.48	102.73	0.00	235.66	110.51	46.9%
SKAMANIA			22.47	58.73	0.00	81.20	80.78	99.5%
SNOHOMISH	4.31	7.40	327.08	108.99	60.70	508.47	318.06	62.6%
SPOKANE	5.69	25.87	453.72	106.90	109.28	701.46	400.31	57.1%
STEVENS			91.82	164.52	78.95	335.29	12.82	3.8%
THURSTON		10.05	226.45	110.19	4.13	350.83	28.47	8.1%
WAHKIAKUM			12.88	16.90	8.14	37.92	25.22	66.5%
WALLA WALLA		2.15	98.20	298.10	5.39	403.84	34.63	8.6%
WHATCOM			107.40	91.99	0.00	199.39	70.40	35.3%
WHITMAN			3.40	37.97	248.08	289.45	36.04	12.5%
YAKIMA		7.76	385.83	133.15	65.56	592.30	585.61	98.9%
TOTAL	21.20	162.73	4,842.50	4,263.83	2,805.13	12,095.39	5,108.00	42.2%

County Road Log Data Certified 1/1/2016 by the County Road Administration Board

Table J

2015 COUNTY FORCES SUMMARY

COUNTY	2015 County Forces Limit	2015 Proposed County Forces Construction Expenditure	2015 Actual County Forces Construction Expenditure	% Expended of County Forces Limit
ADAMS	822,838	130,000	207,392	25.2%
ASOTIN	809,070	75,000	0	0.0%
BENTON	1,788,267	0	6,062	0.3%
CHELAN	1,269,396	70,000	184,549	14.5%
CLALLAM	1,266,396	77,000	78,394	6.2%
CLARK	3,396,471	271,000	409,763	12.1%
COLUMBIA	808,102	0	0	0.0%
COWLITZ	1,269,968	0	13,145	1.0%
DOUGLAS	1,281,943	450,000	254,043	19.8%
FERRY	809,671	130,000	184,680	22.8%
FRANKLIN	1,275,246	50,000	0	0.0%
GARFIELD	807,235	459,000	141,048	17.5%
GRANT	1,305,321	665,000	1,146,670	87.8%
GRAYS HARBOR	1,270,020	150,000	157,022	12.4%
ISLAND	1,269,490	265,000	301,692	23.8%
JEFFERSON	1,261,950	115,000	0	0.0%
KING	3,526,747	280,000	30,408	0.9%
KITSAP	1,812,281	1,045,000	628,857	34.7%
KITTITAS	1,267,168	125,000	181,493	14.3%
KLICKITAT	814,674	800,000	756,756	92.9%
LEWIS	1,277,679	1,275,000	1,159,945	90.8%
LINCOLN	823,597	200,000	218,950	26.6%
MASON	1,269,414	190,000	109,653	8.6%
OKANOGAN	1,278,735	315,735	166,222	13.0%
PACIFIC	807,197	400,000	70,252	8.7%
PEND OREILLE	809,081	240,000	99,993	12.4%
PIERCE	3,494,530	250,000	17,983	0.5%
SAN JUAN	814,800	411,000	341,387	41.9%
SKAGIT	1,278,178	0	16,750	1.3%
SKAMANIA	804,526	0	0	0.0%
SNOHOMISH	3,460,408	3,002,000	2,365,457	68.4%
SPOKANE	3,457,084	0	111,263	3.2%
STEVENS	1,282,678	0	0	0.0%
THURSTON	1,810,513	0	628,944	34.7%
WAHKIACUM	804,584	112,000	0	0.0%
WALLA WALLA	1,275,507	194,000	70,925	5.6%
WHATCOM	1,798,193	760,000	3,099	0.2%
WHITMAN	1,286,994	370,000	129,046	10.0%
YAKIMA	1,821,131	112,000	73,820	4.1%
TOTAL	57,787,083	12,988,735	10,265,663	17.8%

Maintenance Management – 39 Flavours

BACKGROUND

Maintenance Management was last featured in the CRAB 2009 Annual Report released in January, 2010. At that time, the feature focused on the history of Maintenance Management, detailing the chronology of Legislative Action (RCW 36.78.121) and CRAB Implementation (Chapter 136-11 WAC) from 2000 to 2009. Larry Pearson joined the CRAB Staff in May 2001 and was tasked with developing the Standard of Good Practice for Maintenance Management and assisting the counties to implement Maintenance Management. By 2009, all of the 39 counties were utilizing a variety of techniques and systems at an appropriate level for the complexity of each individual county's Maintenance Management needs. In December 2009, all the counties submitted their first Maintenance Management Work Plans and Budgets for the coming year 2010, and in April 2011 they submitted the "Annual Certification Form for Maintenance Management" activities performed during 2010.

Larry Pearson retired in April, 2013, and Bob Moorhead was assigned to the Maintenance Manager position. The focus of the CRAB Maintenance Management activities then transitioned from introduction and implementation to monitoring and support of the Standard of Good Practice.

During 2013 and 2014, CRAB conducted on-site visits with each of the 39 counties to gather information on the details of the individual Maintenance Management Plans. Just as the road inventories, terrain, weather, and public expectations vary across the state, so too do the details and priorities of the individual county activities. The counties' programs and systems vary widely from highly rigorous and data driven to a fluid seasonal approach.

THE CONTINUITY OF MAINTENANCE MANAGEMENT

Maintenance Management is an on-going, continuous process once it is in place and used by an organization. While operating in any one stage, aspects of the other stages are ongoing in the background.

Planning

The purpose of the Planning stage is to determine the scope of the maintenance work plan for the coming calendar year budget cycle. The information needed includes an inventory of infrastructure assets to be maintained (centerline road miles by surfacing type; number and type of bridges and culverts, signs, and traffic control devices, etc.); available equipment and an hourly, daily or monthly billing rate; number of employees with an hourly billing rate that includes wages, benefits, and overhead; available or needed materials with unit costs; and finally, a comparison the level of service desired to be provided versus available resources.

Organizing

The Organizing stage prepares for the actual maintenance activities. An annual schedule of maintenance tasks is prepared, taking into consideration available budget and resources; seasonal and weather-dependent tasks (snow plowing, chip sealing, gravel road grading); personnel training and availability (seasonal workers, common vacation schedules); materials purchase and delivery windows; major equipment purchases and/or leases; and production rates developed in close cooperation with the front-line supervisors and maintenance crews. After the course of several years, this stage of Maintenance Management

can become somewhat routine, with relatively minor adjustments based on the employees' skill levels, equipment features, and material quality.

Directing

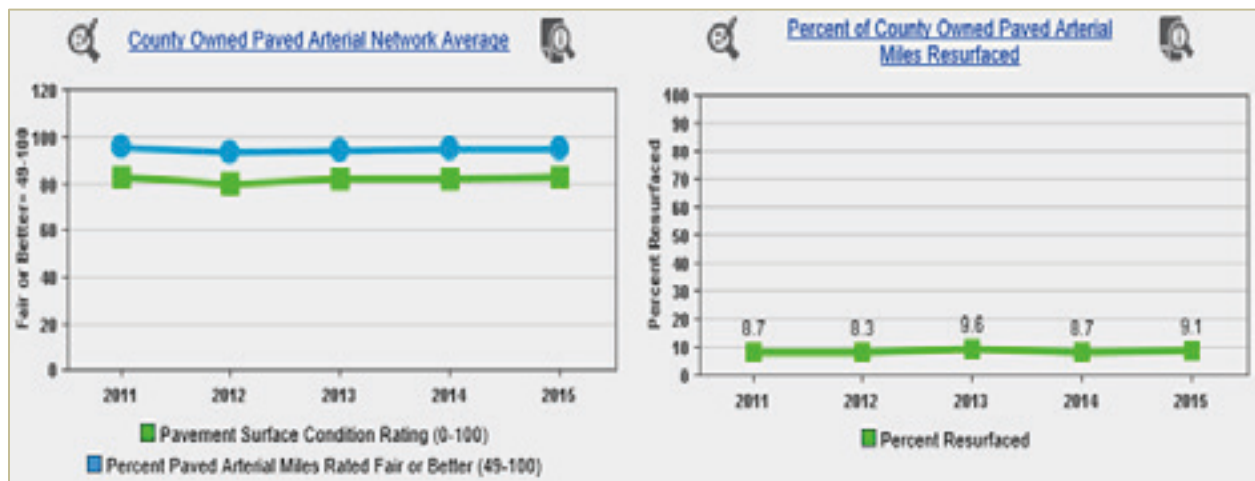
The Directing stage is the detailed scheduling and performance of the work. In most counties, this effort is focused on the front-line supervisors developing one- or two-week work plans. Here is where the knowledge, experience, and skills of all the employees come into play for a successful maintenance management effort.

Controlling (Reporting)

The Controlling (Reporting) stage is the on-going record keeping and evaluation of the tasks accomplished. The Maintenance Budget can be accurately tracked during the course of the year to avoid going over the budget or not making productive use of it. There is also great value in making adjustments to the work plan during the course of the year (for example: if less snow plowing is needed, perhaps more ditch maintenance can be accomplished) as well as making long-term adjustments to future annual work plans (for example: if the crew becomes more experienced, or if features of new equipment lead to improved production rates). The ongoing evaluation of tasks can lead to decisions to contract out certain tasks or lease/rent equipment rather than purchase. The opposite can also result.

BENEFITS OF A MAINTENANCE MANAGEMENT PLAN

The benefits of a Maintenance Management Plan are many. Gathering the background information that needs to be compiled to fully implement the plan may seem tedious, but once it has been assembled, keeping the information current with annual updates does not require the same level of effort. Among the data needed are:



The figures above show that although counties are only able to resurface a small percentage of their Arterial-Collector system annually, that investment is well targeted to maintain acceptable pavement surface condition ratings.

Inventory

You need to know just what you are maintaining, the component parts of your transportation infrastructure. The more detailed the inventory, the more accurate the plan can be. The basic information starts with centerline miles and width of roadway, compiled by the surfacing type. Then the other features that require regular maintenance can be added: bridges, culverts, signs, guardrail, pavement markings, ditch configurations, catch basins, railroad crossings, cattle guards, illumination, etc.

Level of Service

Once the inventory is compiled, the next step is to determine how often it needs to be maintained. Are gravel roads graded two or three (or more) times per year? Are culverts inspected and cleaned once or twice a year? How often are pavement markings refreshed? Is there a need to replace signs on a regular basis? Should bituminous surface treatments be programmed on a seven-year cycle? Bridge maintenance and inspection? Which maintenance tasks are programmed on a regular basis, or are they complaint driven? And, of course, what funding is available for maintenance?

Personnel, Equipment, and Materials

Once the inventory and level of service are defined, the next step is to determine the production rates, personnel, equipment, and materials needed to accomplish the maintenance management tasks.

Production Rates: This component is perhaps the most critical of those needed to prepare and carry out a Maintenance Management Plan. It is imperative that the front line supervisors and the field crews be involved in determining the production rates that can be incorporated into the work plan. These rates are typically measured in terms of “miles per day” for gravel road grading; “signs per day” for sign maintenance; or “lane miles per shift” for snow removal. Production rates are dependent upon travel time to the work sites, condition of the equipment, availability of materials, and the skill of the personnel.

Personnel: This is the most important factor of a Maintenance Management Plan. Developing a skilled and knowledgeable staff takes time and training. Once the production rates are developed with the participation of the employees, there is reasonable buy-in by the employees, and employee expectations are established. Often an agency discovers their desired level of service is limited by the number of available FTE's.

Equipment: Well-maintained equipment is also necessary to keep the maintenance work on schedule. The long-established Equipment Rental and Revolving (ER&R) requirement allows the counties to acquire, maintain, and replace equipment on a regular basis in order to be ready and able to respond to ordinary maintenance demands and emergencies.

Materials: The Maintenance Management Plan identifies the types and quantities of materials needed to accomplish the annual activities; whether it is calling for bids for asphalt products, scheduling rock crushing in a county-owned pit, or scheduling

delivery of vegetation control chemicals, the needed quantity and quality of materials are on-hand when the work is scheduled to be done.

Adopting an Annual Maintenance Budget

The use of Maintenance Management allows the county staff to develop the desired level of maintenance activities. When the budget numbers are being negotiated with the County Legislative Authority or Executive, the specific tasks can be evaluated and prioritized if there is a need to reduce the planned expenditures to meet the available budget. In the transparent governance methodology, the staff and elected officials share responsibility for not only the dollars budgeted but also for the activities to be performed.



Comparing revenue and expenditures above, you can see that locally derived revenue barely covers the current level of maintenance being performed on the county road system. All of the other critical activities are covered by fuel taxes, grants, etc.

OUT OF THE FRYING PAN AND BACK TO WORK

Nothing road departments do ever occurs in a vacuum, and while the connection between maintenance activities and courtroom outcomes may not be initially apparent, that nexus can be very real. County road departments, along with everyone else, find themselves in a growingly litigious environment, with most claims centering around road design and maintenance. Traditionally, it has been relatively easy to sort through road design claims because those issues revolve around well known, established standards. Claims involving maintenance, however, have been more difficult to resolve because maintenance has always been a much more fluid activity.

The advent of Maintenance Management Programs in each county, compliant with state-wide standards established in WAC, has given the public, road departments and the courts a more predictable means by which to assess tort claims arising from maintenance activities. It is still early to draw definitive conclusions, however it is safe to say that Maintenance Management Programs that are compliant with state-wide standards of operation, afford counties a better means to demonstrate, whether in court, or to the public generally, that maintenance of the road system is programmatically targeted, with safety as the primary result.

Article contributors: Bob Moorhead, PE, Derek Pohle, PE, Jay Weber
