PUBLIC WORKS-ROAD & BRIDGE
"SUMMARY – SHEETS"
CAPITAL & MAINTENANCE
JULY - 2015

PUBLIC WORKS / ROAD & BRIDGE PROJECT HISTORY :

- La Plata County maintains 653 miles of road. Approximately 222 miles are paved and the remaining 431 miles are gravel. The County has experienced significant residential growth over the past forty years. That growth has been built in large part on rural "farm to market" gravel roads that historically accommodated on average less than two-hundred average daily trips (ADT). Increased traffic on gravel roads has at least two significant impacts including increased maintenance cost and a potential for an increased incident of accidents.

- Most road reconstruction projects have been funded in part with Energy Impact grants (EIG), however some have also been funded with the Gaming grants, although Gaming grants were used mostly for asphalt overlay projects. Numerous County bridges have been replaced using both Energy Impact grants, and Federal "Off-System Bridges" grants.

- During the thirteen year period from 2002 to 2014 the County invested approximately $40,700,000 in capital road and bridge projects, or an average of $3,100,000 per year. During that period, approximately $16,300,000 or 40% was funded by grants.

County Road 213 – 2009 EIG

County Road 234 – 2008 EIG

- The June 2, 2006 - 2030 Transportation Integrated Plan (2030 TRIP) identified: $82,064,000 of road improvements, including $6,475,000 of Intersection improvements for a twenty-five year project total of $88,539,000, or $3,541,560 per year average.
- The 1999 Comprehensive Traffic Study identified twenty years of improvements including; $31,460,000 in efficiency improvements, $195,900,000 capacity road improvements, $12,800,000 major safety improvements, for a total estimate of $240,160,000. Realizing funding limitations, this amount was "pared down" to $62,600,000 to meet "anticipated funding limits". Again providing an annual average of $3,130,000.

PUBLIC WORKS 2015 – 2024 CAPITAL IMPROVEMENT PLAN – SUMMARY

Organizational Development Initiative (ODI) 2015 - 2024 Capital Improvement Plan - Transportation Projects													
			5 YEAR CIP					10 YEAR CIP					
Sheet	Public Works Ten Year Capital Summary	Est. 10-YR TOTAL	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Road Reconstruction	$27,517,000	$1,000,000	$5,000,000	$1,260,000	$2,750,000	$1,600,000	$3,050,000	$2,324,000	$2,733,000	$5,000,000	$2,800,000
2	Paving - Overlay Projects	$11,896,000	$784,000	$1,440,000	$2,250,000	$1,780,000	$1,080,000	$1,702,000	$860,000	$740,000	$730,000	$530,000
3	Intersection Projects	$12,580,000	$680,000	$350,000	$100,000	$750,000	$5,000,000	$1,500,000	$1,200,000	$750,000	$750,000	$1,500,000
4	Bridge & Major Drainage Projects	$8,200,000	$150,000	$500,000	$750,000	$850,000	$750,000	$1,000,000	$1,100,000	$750,000	$1,500,000	$850,000
	Ten Year Total	**$60,193,000**	$2,614,000	$7,290,000	$4,360,000	$6,130,000	$8,430,000	$7,252,000	$5,484,000	$4,973,000	$7,980,000	$5,680,000
	Potential Capital Projects beyond 10 years	BEYOND 10 YEARS										
1	Road Reconstruction	$35,230,000										
2	Paving - Overlay Projects	$3,447,500										
3	Intersection Projects	$7,450,000										
4	Bridge & Major Drainage Projects	$2,750,000										
	Total Beyond 10 Years	$48,877,500										

Notes:

2030 TRIP projected costs: As a comparisson, the June 2, 2006 - 2030 Transportation Integrated Plan (2030 TRIP) identified; $82,064,000 of road improvements, $6,475,000 of Intersection improvements for a 25 year project total of $88,539,000. The study also provided a cost estimate for Ewing Mesa Road at $18,349,000, not included in the 2030 TRIP total.

1999 Comprehensive Traffic Study: The 1999 Comprehensive Traffic Study identified 20 years of improvements including; $31,460,000 in efficiency improvements, $195,900,000 capacity road improvements (and piroritized these to , $12,800,000 major safety improvements, for a total estimate of $240,160,000. Realizing funding limitations this amount was "*pared down*" to $62,600,000 to meet *"anticipated funding limits"*.

Project costs in 2014 dollars, not adjusted for inflation.

Summary of Past Capital Road & Bridge Projects

2002 – 2014 Major Capital Road & Bridge Projects						
YEAR	**COUNTY ROAD**	**CONSTRUCTION PROJECT**	**MILES**	**GRANTS**	**TOTAL AMOUNT**	**YEAR TOTAL**
2002	CR 213	Reconstruction Project	0.5	Yes	$ 579,527	
	CR 234	Reconstruction Brown's Drop Off	0.75	Yes	$ 1,101,957	
2002 TOTAL						**$1,681,484**
2003	CR 211	CR 211 East End Reconstruction	1.32	ALP	$ 1,426,980	
	CR 250	MSE Wall – Road Reconstruction	0.25	No	$ 239,360	
	CR 501	Reconstruction Bridge #3	NA	Yes	$ 2,125,640	
	CR 141	Curve Realignment	0.9	Yes	$ 700,458	
2003 TOTAL						**$4,492,438**
2004	CR 521	Reconstruction Project – Urban Impro.	0.75	Yes	$ 1,620,673	
	RIVER ROAD	Animas River Bridge Construction	0.2	Yes	$ 3,607,170	
2004 TOTAL						**$ 5,227,843**
2005	CR 213	Reconstruction Project	1.96	Yes	$ 1,843,862	
	CR 213	Asphalt Overlay Project	8.0	Yes	$ 1,668,207	
	CR 521	Asphalt Overlay Project	5.0	Yes	$ 600,000	
2005 TOTAL						**$4,112,069**
2006	CR 141	Bridge Replacement #33	0.2	Yes	$ 525,510	
	CR 234	Reconstruction Self's Hill	0.75	Yes	$ 1,700,808	
	CR 501	Asphalt Overlay Project	4.5	Yes	$ 800,000	
2006 TOTAL						**$3,026,318**
2007	CR 234	Reconstruction Project-Self's Hill - 228	1.25	Yes	$ 2,424,323	
	CR 213	Reconstruction Project	1.5	Yes	$ 2,798,550	
	CR 521	Asphalt Overlay Project	3.9	Yes	$ 1,124,475	
2007 TOTAL						**$6,347,348**
2008	CR 141	Bridge Replacement #3	0.2	Yes	$ 740,390	
	CR 213	Reconstruction Project	0.9	Yes	$ 1,598,899	
	CR 311-314	3 Concrete Box Culverts	NA	Yes	$ 186,061	
2008 TOTAL						**$2,525,350**

Summary of Past Road & Bridge Capital Projects

2002 – 2014 Major Capital Road & Bridge Projects						
YEAR	**COUNTY ROAD**	**CONSTRUCTION PROJECT**	**MILES**	**GRANTS**	**TOTAL AMOUNT**	**YEAR TOTAL**
2009	CR 213	Reconstruction Project	0.9	Yes	$ 1,075,025	
	CR 234	Reconstruction Project – 235-228	0.6	Yes	$ 1,232,595	
	CR 240	Recon Intersection CR 234 & 240	0.25	Impact fees	$ 455,279	
	CR 501	CR 501 bike path	0.75	Yes	$ 362,417	
2009 TOTAL						**$2,762,899**
2010	CR 309-309A	Reconstruction of Intersection	0.5	Yes	$ 874,230	
	CR 141	Bridge Replacement	0.2	Yes	$ 499,018	
	CR 210	Chip and Seal – New Lake Nighthorse Rd	4	no	$ 800,000	
	CR 527	Reconstruction Bridge #1	0.2	Yes	$ 491,031	
2010 TOTAL						**$2,664,279**
2011	CR 309-309A	Landscaping Airport Intersection		Yes	$ 293,696	
	CR 309	Culvert Replacement – Jack & Bore	NA	NO	$ 47,454	
2011 TOTAL						**$341,241**
2012	CR 141	CR 141/210 Intersection	0.75	No	$ 821,295	
	CR 250	Full Depth Reclamation	0.7	No	$398,452	
	CR 517	Full Depth Reclamation	1.0	Yes	$427,056	
2012 TOTAL						**$1,646,803**
2013	CR 207	Lightner Creek Bridge	NA	Yes	$ 653,708	
	CR 141	Full Depth Reclamation	2.7	Yes	$ 1,359,557	
2013 TOTAL						**$2,013,265**
2014						
	CR 311-513	Oxford Intersection Project	0.3	Yes	$ 3,500,000	
	CR 105	Box Culvert Project	0.1	No	$ 60,000	
	CR 210	Lake Nighthorse Left Turn Lane	0.15	No	$ 300,000	
2014 TOTAL						**$3,860,000**
Total Capital 2002-2014						**$40,701,337**
Average Per Year 2002-2014 – 13 years						**$3,130,872**

MAINTENANCE ACTIVITIES

PAVED COUNTY ROADS

2012 - PAVEMENT SURFACE EVALUATION AND RATING (PASER) - Continued

The four major categories of common asphalt pavement surface distress include:

- **Surface defects**; raveling, flushing, polishing
- **Surface deformation**; rutting, distortion-ripping and shoving, settling, frost heave
- **Cracks**; transverse, reflection, slippage, longitudinal, block, and alligator cracks
- **Patches and potholes**

Deterioration has two general causes:

1. environmental due to weathering and aging
2. structural caused by repeated traffic loadings

La Plata County Public Works completed our 2012 Pavement Surface Evaluation and Rating (PASER) during the months of August and September in 2012. This required driving the 222 miles of paved county roads to complete a visual evaluation of the surface condition, documenting sections of each road where there are significant changes in the surface conditions, and reviewing the records of past paving and capital projects. To build a digital data base the roads we also located using GPS data collection, and representative sections of the roads were photographed to document the current surface condition.

According to our 2012 PASER report, 78.2% of our 222 miles of paved county roads are in good to excellent condition and 21.8% are in fair to poor condition.

Using this information to look ahead and project our future maintenance and capital projects will help us to determine what level of funding may be required to keep our roads at their existing level or potentially what they may look like over time if the investment is not made.

The maintenance typically includes chip seal and asphalt overlays, while the capital projects include conventional reconstruction or full depth reclamation.

MAINTENANCE ACTIVITIES

GRAVEL COUNTY ROADS

2013 Gravel PASER - EXECUTIVE SUMMARY

In 2013 a gravel road assessment was conducted using a method to value criteria commonly used when assessing a gravel road. The final report of this assessment provides Public Works and Road and Bridge staff with valuable information for making informed decisions to maintain and improve the County's gravel road network.

To assess gravel road conditions during the period of July and August 2013 a PASER method was used as a guide. A numeric value from 1 – 5 was used in rating each of the road segments listed in the HUTF Report. Three areas of the roadway were evaluated: crown (cross slopes of the road), drainage condition, and existing gravel layer condition.

Information provided in this report is as follows: Average PASER Ratings by District, miles of gravel roads in the network, average maintenance cost per mile, gallons of magnesium chloride (MgCl) budgeted in 2013, total square yards maintained by each District, average maintenance costs per year, a list of gravel to pavement improvements for consideration, Low-Medium-High ADT counts, and 2014 – 2022 forecast for gravel quantities. Cost data information came from reports generated by R&B PubWorks cost accounting software.

The 2013 gravel PASER evaluated 304 miles of gravel county roads, of which 212-miles were found to be in GOOD CONDITION, 85- miles in FAIR CONDITION, and 7-miles are in POOR CONDITION.

MAINTENANCE ACTIVITIES

POINTS TO CONSIDER

- The asphalt surface on most paved roads will have a service life of approximately 20 years, and this can vary depending on level of maintenance, volume and type of traffic, and climatic conditions. The service life can usually be extended with routine maintenance including crack sealing, surface treatments, milling and overlays. This type of maintenance does not typically add structural capacity to the pavement but can restore the surface for rideability, safety and environmental protection from the elements.
- Pavement Surface Evaluation and Rating (PASER) reports are considered one of the best tools for pavement management. Our 2012 PASER report included 222 miles of asphalt roads and was completed in-house using an employee that managed our paving program for over 20 years. The cost of contracting this service can be as much as $200 to $300 per mile per year. Based on our limited revenues and the cost of conducting a PASER analysis on an annual basis, we recommend conducting a PASER every 3 to 5 years.
- One of the challenges we face is higher maintenance cost associated with some of our higher ADT gravel roads. Based on the 2013 gravel PASER most of gravel roads are currently in reasonable conditions however gravel roads are subject to changing sooner than paved roads.
- The County Code requires *"All new roads having a projected trip generation of 400 or greater ADT (average daily traffic) shall be paved."* The cost of maintaining gravel roads depends on weather, road base or structure, drainage, and the volume and type of traffic. The County currently maintains a number of gravel roads where the average daily traffic exceeds 400 ADT, including county roads; 228, 510, 309A, 502, 120(north), and 330 to name a few.