City of Washington Est. 1825

Memo

TO: Public Works Committee

FROM: Ed Andrews, Public Works Director

DATE: September 1, 2017

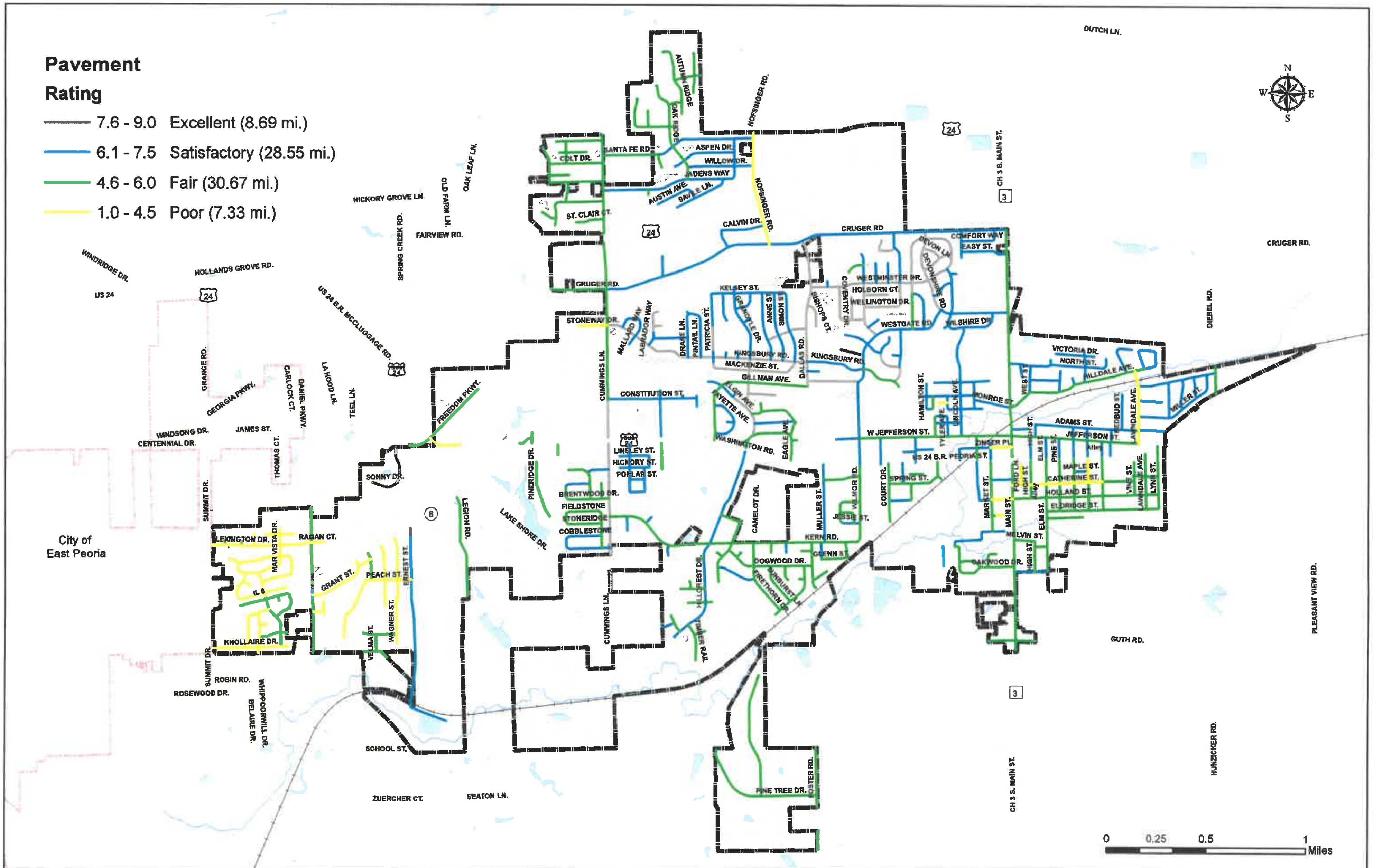
SUBJECT: Roadway Prioritization

Through discussion at the Committee of the Whole, the question arose as to why Lawndale was selected over Catherine in this year's reconstruction budget. This conversation goes back to the earlier budget discussions concerning Capital Improvement Projects (CIP).

> *The City's 79.5 miles of roadway network represents an $86M investment in current dollars. The City's current network of 2.7 miles of alleys, 64.4 miles of urban roadways and 12.4 miles of rural cross-section pavements will ultimately need complete reconstruction even with an idealized paving program.*
>
> *Assuming a useful life of 63 to 84 years on asphalt residential streets and 40 to 60 years on higher volume HMA and Concrete pavements translates to an annualized cost of $1.03M to $1.8M, or a blended requirement of 0.9 to 1.2 miles of pavement reconstruction per year.*
>
> *Reconstruction entails removal & replacement of curb, asphalt, and usually base material. This institutes the development of annual reconstruction program. In this year's CIP of the proposed reconstruction projects for FY 17/18 were Lawndale & Lexington. With proposed project for FY 18/19 includes Hilldale.*

Consideration of Catherine Street in the reconstruction presets a different challenge due to it being a brick street and the potential desire to reconstruct it as a brick street. A detailed take-off of this for a portion of Holland Street from Market to Main (525') was previously prepared and is attached herewith. Brick reconstruction represents an estimated 15% upcharge to the cost of the street, currently projected at $950 to $1000 per Lineal Foot.

Reconstruction of Catherine from Main to Vine St is a length of 3200LF, or a cost of $3.04M to $3.2M. Potential cost sharing based on lot frontages was also prepared for Holland St could also be used to project how that might apply to Catherine St.



Printed Date: 1/4/2017

CAPITAL IMPROVEMENT PLAN
PROJECT REQUEST FORM
FY17-18 THROUGH FY21-22

Project Title:	Project Type:
Streets - Reconstruction	**Roads**

Project Description/Location:

Reconstruction entails removal & replacement of curb, asphalt, and usually base material. This institutes the development of annual reconstruction program. Proposed projects for FY 17/18 include Lawndale & Lexington. Proposed project for FY 18/19 includes Hilldale. Engineering is needed for each except Lexington.

The City's 79.5 miles of roadway network represents an $86M investment in current dollars. The City's current network of 2.7 miles of alleys, 64.4 miles of urban roadways and 12.4 miles of rural cross-section pavements will ultimately need complete reconstruction even with an idealized paving program.

Assuming a useful life of 63 to 84 years on asphalt residential streets and 40 to 60 years on higher volume HMA and Concrete pavements translates to an annualized cost of $1.03M to $1.8M, or a blended requirement of 0.9 to 1.2 miles of pavement reconstruction per year.

Justification:

In 2016, pavement ratings were conducted on City streets for the first time. Rating categories include: Excellent (7.6 - 9.0), Satisfactory (6.1 - 7.5), Fair (4.6 - 6.0), Poor (1.0 - 4.5)

Lexington rating: 4 (Poor - lowest rating category); ADT range: NA
Lawndale rating: 4.5 (Poor - lowest rating category); ADT range: 550-1350
Hilldale rating: 5 (Fair - botton of 2nd lowest rating category); ADT range: 750-950

All three roads are minor collectors that generally have a higher volume than residential streets. Complete reconstruction of older pavements is currently budgeted on a project by project baisis rather than programatically by pavement age.

Project Prioritization:

Criteria	Score
Stewardship of Tax Dollars	8
Service Delivery	11
Quality of Life	3
Legal/Contractual Oblig.	0
Health/Safety	0
Project Score:	22

Cost Summary:

Prior Yrs Cost	
17-18	$1,040,000
18-19	$1,287,500
19-20	$1,326,125
20-21	$1,365,909
21-22	$1,406,886
Future	On-Going
TOTAL COST:	**$6,426,420**

Schedule:

	Fiscal Year						
Phase	**Prior Yr.**	**17-18**	**18-19**	**19-20**	**20-21**	**21-22**	**Future**
Arc. & Eng.	☐	☑	☑	☑	☑	☑	☑
Acquisition	☐	☐	☐	☐	☐	☐	☐
Construction	☐	☑	☑	☑	☑	☑	☑

Comments: Annualized overlay cost of reconstruction current 76.8mi of roadways with equivalent pavement structure at end of estimated pavement life.

Cost Detail

Item	Cost	Notes/Assumptions
A. Feasibility Study (if applicable)		
B. Conceptual Design (if applicable)		
C. Engineering & Design	$ 140,000	Hilldale ($90k), Lawndale ($50k), Lexington ($0)
D. Land Acquisition (sum D1, D2, D3)		
D1. Land Cost	$ -	
D2. Engineering	$ -	
D3. Legal	$ -	
E. Utility Relocation		UG Utility renewal by other funds.
F. Construction (sum F1 & F2)		
F1. Construction Cost	$ 800,000	Lawndale ($475k), Lexington ($325k). Hilldale ($900k) construct in FY 18/19.
F2. Contingency		
G. Construction Management/Inspection	$ 100,000	Lawndale ($50k), Lexington ($50k), Hilldale ($90k) in FY 18/19 ; Alternative: hire seasonal inspector
H. Equipment (tools, furnishings, etc.)		
I. Inflation (F+H X .03)/year		
J. Other - explain:		
Total Project Cost:	**$1,040,000**	

Project Financing:

Source(s):	General Fund
Amount:	**$1,040,000**

Details: Anticipates use of reserve funds.

Responsible Staff/Department:

EA / Public Works - Streets

CAPITAL IMPROVEMENT PLAN
PROJECT REQUEST FORM
FY17-18 THROUGH FY21-22

Project Title:	Project Type:
Streets - Hot-Mix Asphalt Paving	**Streets**

Project Description/Location:

The City's 79.5 miles of roadway network represents an $86M investment in current dollars. An idealized paving program would include a frequency of overlays interspersed between seal coat or over pavement preservation techniques. Seal coat at a 7 year frequency would ideally be applied in years 7 and 14 and an 1.5" mill and overlay planned for Year 21.

Paving includes milling/removing & replacing the top 1.5 inches of asphalt.

This translates to a requirement of 3.5 miles of pavement overlay per year. Jefferson Street between Lawndale and Wilmor is proposed for FY 17/18.

Justification:

In 2016, pavement ratings were conducted on City streets for the first time. Rating categories include: Excellent (7.6 - 9.0), Satisfactory (6.1 - 7.5), Fair (4.6 - 6.0), Poor (1.0 - 4.5)

Jefferson St. rating: 5.5 - 6.0 (Fair - 2nd lowest rating category); ADT range: 1050 - 3100

As a major collector that serves the high school, Jefferson is a significant roadway used by many residents and visitors. Seal coat and other pavement preservation techniques do not add structural value back to the pavement matrix. Overlay on rural / shoulder sections and mill and overlay on urbanized sections is required to increase the pavement's structural value.

Project Prioritization:

Criteria	Score
Stewardship of Tax Dollars	8
Service Delivery	11
Quality of Life	3
Legal/Contractual Oblig.	0
Health/Safety	0
Project Score:	22

Cost Summary:

Prior Yrs Cost	
17-18	$950,000
18-19	$978,500
19-20	$1,007,855
20-21	$1,038,091
21-22	$1,069,233
Future	On-Going
TOTAL COST:	**$5,043,679**

Schedule:

	Fiscal Year						
Phase	**Prior Yr.**	**17-18**	**18-19**	**19-20**	**20-21**	**21-22**	**Future**
Arc. & Eng.	☐	☑	☑	☑	☑	☑	☑
Acquisition	☐	☐	☐	☐	☐	☐	☐
Construction	☐	☑	☑	☑	☑	☑	☑

Comments: Annualized overlay cost of current 73.5mi of HMA roadways at 3.5mi/yr with a 1.5" mill and overlay at $120/T HMA and $3/SY Milling.

Cost Detail

Item	Cost	Notes/Assumptions
A. Feasibility Study (if applicable)		
B. Conceptual Design (if applicable)		
C. Engineering & Design	$ 25,000	Pavement coring and insitu testing to insure pavement adequate for overlay.
D. Land Acquisition (sum D1, D2, D3)		
D1. Land Cost	$ -	
D2. Engineering	$ -	
D3. Legal	$ -	
E. Utility Relocation		
F. Construction (sum F1 & F2)		
F1. Construction Cost	$ 850,000	
F2. Contingency		
G. Construction Management/Inspection	$ 75,000	
H. Equipment (tools, furnishings, etc.)		
I. Inflation (F+H X .03)/year		
J. Other - explain:		
Total Project Cost:	**$950,000**	

Project Financing:

Source(s): General Fund

Amount: **$950,000**

Details: Federal Aid Eligible road

Responsible Staff/Department:

EA / Public Works - Streets

Holland Street Reconstruction

				Project Total
Sodding, Class 1A	SQ YD	585	$20.00	$11,700.00
Supplemental Watering	UNITS	25	$50.00	$1,250.00
Topsoil - Furnish & Place 4"	SQ YD	585	$4.00	$2,340.00
Pav't Remv'l	SQ YD	598	$17.50	$10,463.54
Brick Pavement Remv'l & Salvage	SQ YD	1556	$10.00	$15,555.56
Curb Remv'l	FOOT	1050	$20.00	$21,000.00
Sidewalk Remv'l	SQ FT	4200	$2.50	$10,500.00
Driveway Apron Remv'l	SQ YD	140	$4.00	$560.00
Inlet Demolition	EA	4	$1,250.00	$5,000.00
Agg Bse Cse - 6"	TON	598	$35.00	$20,927.08
HMA Bse Cse - 6"	TON	588	$100.00	$58,800.00
HMA Surf Cse - 1.5"	TON	147	$110.00	$16,170.00
Brick Paver Installation	SQ FT	5292	$8.00	$42,336.00
PCC Sidewalk - 4"	SQ FT	4200	$5.50	$23,100.00
ADA Ramps	EA	6	$2,500.00	$15,000.00
Comb PCC C&G B6.12 (Machine)	FOOT	1050	$75.00	$78,750.00
Storm Sewer - Class A, Type 1	LF	50	$50.00	$2,500.00
Trench Backfill	CY	47	$20.00	$940.00
Inlets - Type G-1	EA	4	$5,000.00	$20,000.00
Inlet Protection	EA	4	$225.00	$900.00
Sanitary Sewer - 8" (10' to 15' Deep)	LF	230	$65.00	$14,950.00
Sanitary Lateral	EA	9	$5,000.00	$45,000.00
Water Main - 6" AWWA C900	LF	525	$50.00	$26,250.00
Water Service - 3/4" HDPE	EA	9	$2,500.00	$22,500.00
Sump Drain Laterals	EA	9	$1,500.00	$13,500.00
Sump Drain Line - 6"	LF	800	$25.00	$20,000.00
				$499,992.18

$952.37 per LF

	Total	Comment		Potential Home Owner Cost Share Lot 121	Lot 117	Lot 115	Lot 111	Lot 107	Lot 101	Lot 120	Lot 110	Lot 106
Sodding, Class 1A												
Supplemental Watering												
Topsoil - Furnish & Place 4"												
Pav't Remv'l												
Brick Pavement Remv'l & Salvage	$15,555.56	100% Homeowner		$1,090.43	$931.79	$1,350.72	$1,256.77	$853.25	$2,296.37	$2,816.94	$1,024.20	$3,935.09
Curb Remv'l												
Sidewalk Remv'l	$5,250.00	50/50 Cost		$368.02	$314.48	$455.87	$424.16	$287.97	$775.02	$950.72	$345.67	$1,328.09
Driveway Apron Remv'l												
Inlet Demolition												
Agg Bse Cse - 6"												
HMA Bse Cse - 6"												
HMA Surf Cse - 1.5"												
Brick Paver Installation	$42,336.00	100% Homeowner		$2,967.71	$2,535.97	$3,676.11	$3,420.41	$2,322.19	$6,249.80	$7,666.59	$2,787.47	$10,709.75
PCC Sidewalk - 4"	$11,550.00	50/50 Cost		$809.64	$691.86	$1,002.91	$933.15	$633.53	$1,705.05	$2,091.58	$760.47	$2,921.81
ADA Ramps												
Comb PCC C&G B6.12 (Machine)												
Storm Sewer - Class A, Type 1												
Trench Backfill												
Inlets - Type G-1												
Inlet Protection												
Sanitary Sewer - 8" (10' to 15' Deep)												
Sanitary Lateral	$45,000.00	100% Homeowner		$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Water Main - 6" AWWA C900		100% City										
Water Service - 3/4" HDPE	$11,250.00	50/50 Cost		$1,250.00	$1,250.00	$1,250.00	$1,250.00	$1,250.00	$1,250.00	$1,250.00	$1,250.00	$1,250.00
Sump Drain Laterals	$13,500.00	100% Homeowner		$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
Sump Drain Line - 6"		100% City										
	$144,441.56			$12,985.80	$12,224.10	$14,235.59	$13,784.49	$11,846.94	$18,776.25	$21,275.83	$12,667.81	$26,644.74
	$499,992.18											

Frontages

Northside								
Lot#	121	117	115	111	107	101	6 ea	
(FT)	70.8	60.5	87.7	81.6	55.4	149.1		505.1
% of Total	7.0%	6.0%	8.7%	8.1%	5.5%	14.8%		50%
Southside								
Lot#	120			110		106	3 ea	
(FT)	182.9			66.5		255.5		504.9
% of Total	18.1%			6.6%		25.3%		50%
								1010
							9 ea	