

## Memorandum

To: Programs, Projects and Operations Subcommittee

Subject: Mopac Trail (Hwy. 50 to Chalco Hills)

Date: November 5, 2010

From: Gerry Bowen

In 2007, the District selected Lamp Rynearson & Associates (LRA) to provide professional engineering services (contract amount \$279,370) for the Mopac Trail Project (Hwy. 50 to Chalco Hills). Subsequently, the District applied for and received approval for TE funding (\$500,000) through the Nebraska Department of Roads (NDOR). The estimated construction cost in 2007 was \$925,000.

LRA was issued a notice to proceed with the design of the project. The status of the project is outlined in the attached letter. The letter discusses the items completed and indicates whether these items were included in the original scope of services. They estimate that the project design is approximately 85% complete, at a cost of \$156,091. The scope called for design fees to be approximately \$147,448. Further, the original scope anticipated an at-grade crossing at Highway 50 that according to an NDOR determination will not be allowed. Instead, either an overpass (bridge) or underpass (tunnel) will be needed. The design of which was not originally anticipated. This would involve additional design fees and an increase in construction costs of approximately \$400,000. LRA estimates that additional design fees for this option to be approximately \$20,000. With this change, the estimated construction cost is now \$1.4 million.

As you are aware, this project has been stalled due the revised procedures implemented by NDOR under guidance from the Federal Highway Commission (FHWA). According to the new procedures, a NEPA (National Environmental Policy Act) document must be prepared and approved for the project before right-of-way acquisition can proceed. Under the new procedures, LRA does not qualify as a NEPA consultant. An environmental consultant needs to be hired. NDOR has notified staff that LRA cannot simply hire a sub-consultant and proceed with this task. The District has the option of selecting from a list of six pre-approved environmental consultants and following an abbreviated process, or prepare an RFP to all qualified consultants and follow the District's and NDOR's selection process. Regardless of the process selected, it will require at least three months to select an environmental consultant. An estimate of the cost of the NEPA document preparation is \$20,000 - \$25,000. This will require a change of scope on the project and add approximately three to six months to the project timeline.

Based on the above, it believed that right-of-way acquisition cannot be started for at least another 6 months if the District follows the federal process. Additional consultant fees are needed to get the right-of-way plans acceptable to NDOR. A complicating factor is the legislative restrictions placed on NRDs for acquiring right-of-way for trails and recreation projects.

It is also anticipated that following, right-of-way acquisition, an additional \$60,000 is needed to prepare final plans and specifications that will be suitable to NDOR for bidding.

As this process proceeds slowly forward, construction costs are anticipated to rise, shrinking the buying power of the federal funds even further.

It is also unknown whether NDOR/FHWA will allow LRA to provide construction engineering services on the project. If the District needs to select a separate firm for these services, additional costs and delays will more than likely occur.

The District can proceed to construction possibly as soon as next summer without federal funding.

- **It is recommended that the Subcommittee recommend to the Board that the District reject the federal funding for this project and proceed with the project without federal funding.**

November 4, 2010

Mr. Gerry Bowen  
Papio-Missouri River NRD  
8901 South 154th Street  
Omaha, NE 68138-3621

REFERENCE: Mopac Trail  
LRA Job No. 0106100.01-110

Dear Gerry:

Based on our meeting dated Wednesday, October 20, 2010 Lamp, Ryneanson & Associates (LRA) is writing to bring you up-to-date on the status of the project to date including areas where we have spent hours beyond our original contract, to estimate the additional design and construction costs associated with adding a pedestrian bridge to carry the trail over Highway 50 at Schram Road and an estimate of the additional hours and costs associated with the scope of modifications that will be necessary to complete the design of the project through the Nebraska Department of Roads (NDOR) LPA process for funding.

I. Project Status:

We began the design of the project in the spring of 2007. Since that time we have completed the horizontal and vertical alignment of the trail from the beginning point at the south end of the existing trail around Wehrspann Lake to the terminus at the intersection of Highway 50 and Schram Road. The alignment as designed winds from the existing trail to the south along the creek channel and under the Highway N-370 bridge on the east side of the creek and then continues to the south and west across the US Army Corps of Engineers (COE) property to 168<sup>th</sup> Street. From the southwest corner of the COE property, the trail follows along the east side of 168<sup>th</sup> Street and crosses over Interstate 80 on the existing county bridge. The trail then turns to the east and follows along Schram Road on primarily the south side of the road to a cul-de-sac just west of Highway 50.

Specifically, our design efforts have included the establishment of the horizontal and vertical alignment of the trail and the preparation of the plan and profile sheets for the entire 3.5 mile length of the project. Our design has also included locating and sizing drainage culverts, laying out and detailing a pedestrian bridge over a channel, the design and layout of a retaining wall under the Highway N-370 bridge, and fencing layouts and details. Other details have been prepared for several items including sections of the trail surfaces, signage, fencing, erosion control measures, striping, and other construction items. earthwork cross-sections have been prepared at 100 foot intervals for the entire length of the trail based on the existing and proposed elevations along the trail alignment. These sections have been used to estimate the quantity of earthwork for the project and also to establish the limits of construction. Based on the limits of construction, right-of-way plans have been developed. These plans show the necessary temporary and permanent easements and the right-of-way takings that the NRD will need to acquire to construct the project.

Quantity estimates have been completed for all of the construction and removal items based on the plans. Cost estimates have been completed and a revised up-to-date estimate accompanies this letter for your information. This estimate represents the estimate of costs based on these plans and current estimated unit prices for the various construction items.

As part of the preliminary study phase, our sub-consultant, Jacobson Satchell Consultants completed field work, and a report for wetlands delineation. A copy of this report is also attached with this letter for your information.

Based on the level of design that has been completed to date on the project, we estimate that the plans are approximately 85-90% complete. Final design details still need to be completed for the pedestrian bridge and final right-of-way plans and strip maps need to be finished. We also need to prepare the specifications for the project including all front end documents needed to bid the project.

The one area that we know we spent a significant amount of time on that we did not originally plan for was meeting with and coordinating with the NDOR on how to get the trail across Highway 50. We have had numerous meetings with the NDOR and have spent much time reviewing various layouts, scenarios and options for making this crossing. We have done layouts for at-grade crossings with pedestrian signals and advanced warning systems, overpasses and underpasses. Ultimately, the NDOR has told us that the trail cannot cross the highway unless we use a grade separation structure such as an underpass or overpass. This is the reason why a cul-de-sac has been designed on the west side of Highway 50 in the current set of plans. Our original fee estimate did not account for this coordination work. We estimate that we have spent over 80 hours looking at these various options.

Another area of the project that we spent a significant amount of time on that we had not planned on was coordinating the layout and design of the trail under the Highway 370 bridge with the NDOR. For this effort we met in Lincoln with NDOR roadway design staff and met several times with staff members from the District 2 office in Omaha. We also attended the public hearing in Gretna for the Highway 370 project that the NDOR hosted to discuss the trail design. We have e-mailed and sent hardcopies of the plans, profile and cross-sections of the trail under and near the bridge to the NDOR and have sent sections, details and layouts of the retaining wall under the bridge as well. Several iterations have needed to be sent in order to come to an agreement with the NDOR on a design. To coordinate our design with the NDOR, we had estimated a total of 14 hours. To date we estimate that we have spent more than 60 hours on this task.

To date we have expended 1789.5 hours completing the preliminary and final design phases of the project. We estimated a total of 1,600 hours to complete these two phases in our original contract with to the NRD. Also to date, we have spent a total of \$156,091.00 on the project including labor, overhead, fee, direct costs and sub-consultant costs. Our original proposal and contract amount with the NRD is \$147,448.00 for all of these services. Based on the design efforts we have left to complete from the original scope of services, we estimate that it will cost approximately \$20,000.00 to complete the bid documents and assist the NRD with the bidding phase of the project. Our sub-consultant costs have included payments to Jacobson-Sachel for their work for the wetlands delineation and report and Thiele Geotech for soils investigations and reports. These costs total \$10,898.00.

## II. Pedestrian Overpass of Highway 50:

Attached to this letter for your review are two cost estimates. The first estimate is for the project as it is designed currently. This includes the trail to the west side of Highway 50 ending with a cul-de-sac. No provisions have been provided to carry the trail across the highway. The second estimate includes the added costs to construct a pedestrian overpass across Highway 50 which would be located a few hundred feet south of Schram Road. Our preliminary estimates are that this bridge would be a pre-manufactured 130 foot long single span bridge 14 feet in width. This width would

include the trail and 2 foot wide shoulders on each side. Additional earth berms would need to be placed to bring the trail up to the elevation of the bridge at a slope to meet ADA requirements. Mechanically stabilized earth walls would be constructed at the bridge abutments at the required offset distance from the highway to minimize the length of the bridge. The bid items that would be added or increased due to the bridge have been highlighted on the estimate. Based on our preliminary estimates, it appears that adding the bridge will add over \$400,000.00 to the construction costs of the project. Additional costs would also be incurred for the design efforts for the bridge. These costs are shown on the attached estimate.

III. LPA Process:

As you are aware, when LRA entered into an agreement with the Papio Missouri River NRD to complete the design of the MOPAC Trail the LPA process required by the NDOR was not in place. Our estimate of hours and costs was based on the former way of doing business with the NDOR which we had completed numerous times in the past with great success. The new LPA process adds several steps and reviews to the design process which adds time and costs to our design efforts. The NDOR outlines a process of approximately 38 steps to complete the design of an LPA project which includes several steps more than originally considered in our fee. Some of these steps include a plan-in-hand report and plan-in-hand meeting, a public involvement plan, a purpose and need statement, detailed NEPA documentation, draft categorical exclusion, EA or EIS documents, LOC plans, a separate submittal for right-of-way plans, estimates and encroachments and separate utility plans and agreements, to mention a few. Having never completed a project through this process, it is difficult to estimate the time and effort involved. We are aware however, that the LPA process has added a significant amount of coordination efforts with the NDOR both in person and via various types of written communication. Based on our past experience in working with the NDOR and the amount of coordination and communications and meetings that will undoubtedly be required, we estimate that it could cost an additional \$30,000 to \$40,000 in design fees to complete the project documents to meet the NDOR's LPA criteria. This estimate does not include the cost necessary to complete the NEPA documents, the Categorical Exclusion, EA or EIS or the right-of-way appraisals and negotiations. We have been given a preliminary estimate by a sub-consultant of between \$10,000 and \$15,000 to complete the NEPA process for the project.

Attached are two cost estimates and an estimate of the additional design hours and costs. The first cost estimate is an estimate of the construction costs for the trail as it is designed currently. The second estimate shows the estimated construction costs for the trail including a pedestrian overpass of Highway 50. The final estimate shows the estimated design costs associated with coordinating with the NDOR thus far, the design costs to include the pedestrian overpass and the design costs to complete the project following the LPA process. It should be noted that the estimate of additional design costs does not include any additional hours or costs associated with the construction administration phase of the project. Hopefully, this is the all information you need from us at this time. We are available at your convenience to meet to discuss this letter and the process for completing the project. If you have any questions or comments or need additional information, please feel free to call.

Sincerely,

LAMP, RYNEARSON & ASSOCIATES, INC.

Scott W. Austin, P.E.  
Senior Project Manager

**Trail Design**

**Assumptions/Comments:**



Costs for original trail as presently designed.

Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1. MOBILIZATION	1	LS	\$10,000.00	\$10,000.00
2. CLEARING AND GRUBBING GENERAL	1	LS	\$8,000.00	\$8,000.00
3. CLEARING AND GRUBBING TREES OVER 8" TO 18" DIAMETER	23	EA	\$150.00	\$3,450.00
4. CLEARING AND GRUBBING TREES OVER 18" TO 27" DIAMETER	9	EA	\$175.00	\$1,575.00
5. CLEARING AND GRUBBING TREES OVER 27" TO 36" DIAMETER	1	EA	\$300.00	\$300.00
6. REMOVE 4' WOVEN WIRE FENCE	361	LF	\$1.00	\$361.00
7. CONSTRUCT 4' WOVEN WIRE FENCE	317	LF	\$11.50	\$3,645.50
8. EARTHWORK (EXCAVATION)	4,100	CY	\$4.50	\$18,450.00
9. EARTHWORK (EMBANKMENT)	12,900	CY	\$4.00	\$51,600.00
10. SUBGRADE PREPARATION	1	LS	\$5,000.00	\$5,000.00
11. LANDSCAPING	1	LS	\$10,000.00	\$10,000.00
12. CONSTRUCT 6" CONCRETE TRAIL - 10' WIDE	65,289	SF	\$3.50	\$228,546.50
13. CONSTRUCT LIMESTONE CHIP TRAIL - 10' WIDE	118,148	SF	\$1.50	\$177,219.00
14. CONSTRUCT 70' PEDESTRIAN BRIDGE	70	LF	\$1,400.00	\$98,000.00
15. CONSTRUCT TUBULAR HANDRAIL	291	LF	\$17.50	\$5,092.50
16. CONSTRUCT REMOVABLE BOLLARD	1	EA	\$400.00	\$400.00
17. PAINT PERMANENT MARKING - WHITE SOLID (4")	277	LF	\$1.50	\$415.50
18. PAINT PERMANENT MARKING - YELLOW SKIP (4") (10'-30')	69	LF	\$1.50	\$103.50
19. CONSTRUCT CHAIN-LINK PEDESTRIAN RAILING	554	LF	\$70.00	\$38,780.00
20. INSTALL SIGNS	8	EA	\$100.00	\$800.00
21. CONSTRUCT MODULAR BLOCK RETAINING WALL	710	SF	\$25.00	\$17,750.00
22. SEEDING - TYPE "A"	7	AC	\$2,500.00	\$17,500.00
23. CONSTRUCT ROCK RIP-RAP - TYPE "A"	76	TN	\$50.00	\$3,750.00
24. CONSTRUCT SILT FENCE	8,400	LF	\$1.75	\$14,700.00
25. CONSTRUCT EROSION CONTROL BLANKET	22,400	SY	\$1.25	\$28,000.00
26. CONSTRUCT ROCK TRENCH STABILIZATION	100	TN	\$125.00	\$12,500.00
27. CONSTRUCT 18" CMP WITH BEDDING	108	LF	\$25.00	\$2,650.00
28. CONSTRUCT 24" CMP WITH BEDDING	29	LF	\$25.00	\$725.00
29. CONSTRUCT 30" CMP WITH BEDDING	84	LF	\$55.00	\$4,620.00
30. CONSTRUCT 36" CMP WITH BEDDING	107	LF	\$51.00	\$5,457.00
31. CONSTRUCT 18" CMP FLARED END SECTION	4	EA	\$220.00	\$880.00
32. CONSTRUCT 24" CMP FLARED END SECTION	1	EA	\$260.00	\$260.00
33. CONSTRUCT 30" CMP FLARED END SECTION	3	EA	\$400.00	\$1,200.00
34. CONSTRUCT 36" CMP FLARED END SECTION	3	EA	\$485.00	\$1,455.00
35. ADJUST MANHOLE TO GRADE	1	EA	\$425.00	\$425.00
36. ADJUST HYDRANT TO GRADE	1	EA	\$870.00	\$870.00
37. PERMANENT EASEMENTS	5	AC	\$10,000.00	\$50,000.00
CONTINGENCY - 15%				\$123,372.08

**Estimated Construction Costs:**

**\$945,652.68**

## ADDED PEDESTRIAN BRIDGE AND RELATED TRAIL FEATURES

Bid Item Description	Approximate Quantity	Unit	Unit Price	Total
1. MOBILIZATION	1	LS	\$10,000.00	\$10,000.00
2. CLEARING AND GRUBBING GENERAL	1	LS	\$8,000.00	\$8,000.00
3. CLEARING AND GRUBBING TREES OVER 8" TO 18" DIAMETER	23	EA	\$160.00	\$3,450.00
4. CLEARING AND GRUBBING TREES OVER 18" TO 27" DIAMETER	9	EA	\$175.00	\$1,675.00
5. CLEARING AND GRUBBING TREES OVER 27" TO 36" DIAMETER	1	EA	\$300.00	\$300.00
6. REMOVE 4' WOVEN WIRE FENCE	381	LF	\$1.00	\$381.00
7. CONSTRUCT 4' WOVEN WIRE FENCE	317	LF	\$11.50	\$3,645.50
8. EARTHWORK (EXCAVATION)	4,100	CY	\$4.50	\$18,450.00
9. EARTHWORK (EMBANKMENT)	28,226	CY	\$4.00	\$116,900.00
10. SUBGRADE PREPARATION	1	LS	\$5,000.00	\$5,000.00
11. LANDSCAPING	1	LS	\$10,000.00	\$10,000.00
12. CONSTRUCT 6" CONCRETE TRAIL - 10' WIDE	85,289	SF	\$3.50	\$228,548.50
13. CONSTRUCT LIMESTONE CHIP TRAIL - 10' WIDE	123,546	SF	\$1.50	\$185,319.00
14. CONSTRUCT 70' PEDESTRIAN BRIDGE	70	LF	\$1,400.00	\$88,000.00
15. CONSTRUCT 130' PEDESTRIAN BRIDGE	130	LF	\$1,400.00	\$182,000.00
16. CONSTRUCT MECHANICALLY STABILIZED EARTH WALL	2,200	SF	\$26.00	\$56,000.00
17. CONSTRUCT TUBULAR HANDRAIL	281	LF	\$17.50	\$6,022.50
18. CONSTRUCT REMOVABLE BOLLARD	1	EA	\$400.00	\$400.00
19. PAINT PERMANENT MARKING - WHITE SOLID (4")	277	LF	\$1.50	\$415.50
20. PAINT PERMANENT MARKING - YELLOW SKIP (4") (10'-30')	69	LF	\$1.50	\$103.50
21. CONSTRUCT CHAIN-LINK PEDESTRIAN RAILING	814	LF	\$70.00	\$56,980.00
22. INSTALL SIGNS	8	EA	\$100.00	\$800.00
23. CONSTRUCT MODULAR BLOCK RETAINING WALL	710	SF	\$25.00	\$17,750.00
24. SEEDING - TYPE "A"	8	AC	\$2,500.00	\$20,000.00
25. CONSTRUCT ROCK RIP-RAP - TYPE "A"	75	TN	\$50.00	\$3,750.00
26. CONSTRUCT SILT FENCE	8,400	LF	\$1.75	\$14,700.00
27. CONSTRUCT EROSION CONTROL BLANKET	25,560	SY	\$1.25	\$31,950.00
28. CONSTRUCT ROCK TRENCH STABILIZATION	100	TN	\$125.00	\$12,500.00
29. CONSTRUCT 18" CMP WITH BEDDING	108	LF	\$25.00	\$2,650.00
30. CONSTRUCT 24" CMP WITH BEDDING	267	LF	\$25.00	\$6,675.00
31. CONSTRUCT 30" CMP WITH BEDDING	84	LF	\$55.00	\$4,620.00
32. CONSTRUCT 36" CMP WITH BEDDING	107	LF	\$51.00	\$5,457.00
33. CONSTRUCT 18" CMP FLARED END SECTION	4	EA	\$220.00	\$880.00
34. CONSTRUCT 24" CMP FLARED END SECTION	1	EA	\$260.00	\$260.00
35. CONSTRUCT 30" CMP FLARED END SECTION	3	EA	\$400.00	\$1,200.00
36. CONSTRUCT 36" CMP FLARED END SECTION	3	EA	\$485.00	\$1,455.00
37. ADJUST MANHOLE TO GRADE	1	EA	\$425.00	\$425.00
38. ADJUST HYDRANT TO GRADE	1	EA	\$870.00	\$870.00
39. PERMANENT EASEMENTS	8	AC	\$10,000.00	\$80,000.00
CONTINGENCY - 15%				\$178,020.20

Estimated Construction Costs:

\$1,348,488.20

**MOPAC Trail  
 Papio Missouri River Natural Resources District  
 November 4, 2010**

**Lamp, Ryneerson & Associates  
 Additional Design Hours and Cost Estimate**

I	Work to Date	Hours		
		Contract	Actual	Diff.
	Coordinate with NDOR			
	Highway N-370	14	40	26
	Highway N-50	0	60	60
<b>Total</b>		<b>14</b>	<b>100</b>	<b>86</b>

Approximate cost at an Average \$100/ hour

\$8,600.00

II	Pedestrian Bridge	Contract	Actual	Diff.
	Design Abutments	0	60	60
	Coordinate design with bridge supplier	0	12	12
	Coordinate with Geotech	0	12	12
	Layout MSE walls	0	16	16
	Additional trail design			
	Horizontal	0	16	16
	Vertical	0	16	16
	Cross-sections	0	8	8
	Earthwork	0	6	6
	Seeding	0	4	4
	Fencing	0	4	4
	Erosion Control	0	4	4
	Right-of Way	0	16	16
	Drainage	0	8	8
	Culvert Sections	0	6	6
<b>Total</b>		<b>0</b>	<b>188</b>	<b>188</b>

Approximate cost at an Average \$100/ hour

\$18,800.00

III	LPA Process	Contract	Actual	Diff.
	Submit Plan-In-hand Plans	0	40	40
	Distribute Plan-In-hand report	0	8	8
	Submit NEPA Determination form	0	12	12*
	Submit a public involvement plan	0	16	16
	Submit updated purpose and need statement	0	16	16
	Submit functional design plans	0	12	12
	submit public meeting documentation	0	8	8
	Submit draft categorical exclusion, EA or EIS document	0	12	12**



	Hours		
Submit 90% LOC plans, updated cost estimate and applicable permits	0	24	24
Submit ROW plans, cost estimates and indentified encroachments	0	12	12
Submit utility plans	0	32	32
Submit LPA concurrence in eligible utility rehab costs	0	24	24
Submit draft utilities agreement	0	32	32
Submit ROW compensation estimates, appraisals and appraisal reviews	0	12	12
Submit ROW acquisition files	0	24	24
Submit ROW administrative settlements	0	24	24
Submit environmental commitments file	0	24	24
Submit final plans	0	8	8
Submit executed utilities agreement	0	24	24
<b>Total</b>	<b>0</b>	<b>364</b>	<b>364</b>

Approximate cost at an Average \$100/ hour

\$36,400.00

\* Does not include the cost to prepare the NEPA form

\*\* Does not include the cost to prepare the CE, EA or EIS

\*\*\* Does not include the cost to do the appraisals or appraisal reviews