City of Benson
City Council Communication

Regular Meeting **November 28, 2016**

To: Mayor and Council Agenda Item # 6

From: Bradley J. Hamilton, P.E. Director of Public Works/City Engineer

Subject:

Discussion and possible direction to Staff regarding the Railroad Quiet Zone Improvements Final Design - Scope for Professional Services and Fees

Discussion:

Attached is a scope and fee for the design of the 3 railroad crossings to make the crossings eligible for quiet zone status. This project is currently not funded in the 2016-2017 City Budget.

Staff is seeking direction to either move forward with entering into a legal contract for the design or the deferral of the design until the upcoming budget discussions.

Staff Recommendation:

Council pleasure and Direction to Staff

Exhibit A

November 15, 2016

Bradley Hamilton, P.E.
Director of Public Works/City Engineer
City of Benson
120 W. 6th St.
Benson, AZ 85602

RE: ***Railroad Quiet Zone Improvements Final Design - Scope for Professional Services***

Kimley-Horn and Associates, Inc. ("Kimley-Horn") is pleased to submit this scope to the City of Benson ("City") for final design of improvements at three at-grade public highway/railroad crossings within the City limits where the City is planning to establish a railroad quiet zone. This scope of services is presented by Kimley-Horn at the request of the City, as a task order under the contract executed by the City and Kimley-Horn for On-Call Miscellaneous Engineering Design and Review Services ("On-Call Contract").

Project Understanding

The City of Benson Railroad Quiet Zone Feasibility Study, completed by Kimley-Horn in September 2016, determined that it is feasible for the City to implement certain improvements such that the City can establish a railroad quiet zone that encompasses the following three at-grade highway/railroad crossings:

- San Pedro Street north of 4th Street/Business Loop 10 (DOT Crossing #741386V)
- Patagonia Street north of 4th Street/Business Loop 10 (DOT Crossing #741383A)
- Ocotillo Avenue/Road north of 4th Street/Business Loop 10 (DOT Crossing #741382T)

The improvements recommended in the feasibility study include the supplemental safety measures and associated improvements and consist of new median and vertical curb, pavement markings, signing modifications, sidewalk, and driveway access modifications. The feasibility study also recommended that the pavement on the approaches to the three at-grade crossings be removed, reprofiled, and resurfaced with new pavement (3" overlay at Ocotillo; 2" overlay at San Pedro and Patagonia). The pavement rehabilitation limits are not anticipated to encroach onto Arizona Department of Transportation (ADOT) right-of-way or the Union Pacific Railroad (UPRR) tracks.

Scope of Services

Kimley-Horn will provide the services specifically set forth in the following Tasks 1-6:

Task 1 – Utility Coordination

Kimley-Horn will contact Arizona Blue Stake to identify utilities in the project area. Kimley-Horn will send the identified utility companies preliminary design plans and utility clearance requests for their review and comment at the 30% and 100% submittals. Kimley-Horn will compile and address utility comments received from these submittals and will provide the City with a Utility Clearance Letter as part of the submittal of the Final Sealed Plans. Kimley-Horn will not be responsible for prior rights verification.

Deliverable

- Utility Clearance Letter (as part of Final Sealed Plans Submittal)

Task 2 – Geotechnical Services

Kimley-Horn will coordinate with subconsultant Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo & Moore) to determine the appropriate pavement structural section to be utilized for the approaches to each of the three at-grade crossings. Ninyo & Moore will collect pavement core samples and evaluate the thickness of aggregate base at one location on each side of the three at-grade crossings. Ninyo & Moore will also prepare a Pavement Rehabilitation Letter Report that describes the existing pavement condition and provides pavement treatment recommendations. See Attachment A for more information on the Ninyo & Moore scope of services and fee.

Deliverables

- Draft Pavement Rehabilitation Letter Report (as part of 30% Submittal)
- Final Pavement Rehabilitation Letter Report (as part of 100% Submittal)

Task 3 – Drainage Memorandum

Kimley-Horn will prepare a single Drainage Memorandum for the three at-grade crossings. The Drainage Memorandum will address the existing drainage conditions at each crossing. Calculations and recommendations will be provided to address pavement drainage and meet spread requirements for each of the three roadways. This scope of work assumes offsite drainage conditions will not be impacted; thus, analysis, design, and/or recommendations related to offsite drainage are specifically excluded.

Deliverables

- Preliminary Drainage Memorandum (as part of 30% Submittal)
- Final Sealed Drainage Memorandum (as part of 100% Submittal)

Task 4 – Preparation of Construction Documents (30%, 100%, & Final Sealed Plans)

Subtask 4.1 – Topographic Survey

Kimley-Horn will coordinate with subconsultant Ashby Surveying & Drafting, Inc. (Ashby) for surveying. Ashby will conduct right-of-way surveys, topographical mapping, and design surveys for the three at-grade crossings. Ashby will prepare CAD files containing right-of-way lines, survey controls, and additional topography and elevations from field data. See Attachment B for more information on the Ashby scope of services and fee.

Subtask 4.2 – 30% Plans

Using the survey information generated in Subtask 4.1, Kimley-Horn will develop 30% plans for the improvements at the three at-grade crossings based upon the concepts from the previously completed feasibility study.

Kimley-Horn will submit the 30% plans to the City, ADOT, and UPRR for their review and comment. The comment period will be 30 days.

It is anticipated that the 30% plans will consist of the following sheets:

Description of Sheets in Plans	***Sheet Count***
Cover Sheet	1
General Notes / Design Sheet	1
Geometric / Survey Control Sheet	1
Detail Sheets	2
Demolition Sheets (40 Scale, Each Intersection)	3
Roadway Sheets (40 Scale, Each Intersection)	3
Maintenance of Traffic Notes	1
Maintenance of Traffic Plans (40 scale)	1
Signing and Marking Notes	1
Signing and Marking Sheets (40 Scale, Each Intersection)	3

Subtask 4.3 – 100% Plans

Kimley-Horn will develop 100% plans that address comments received on the 30% plans. The 100% plans will include the same sheets as shown in Subtask 4.2. Kimley-Horn will submit the 100% plans to the City, ADOT, and UPRR for their review and comment. The comment period will be 30 days.

Subtask 4.4 – Final Sealed Plans

Kimley-Horn will develop final sealed plans that address comments received on the 100% plans. The final sealed plans will include the same sheets as shown in Subtask 4.2. Kimley-Horn will submit the final sealed plans to the City, ADOT, and UPRR.

Deliverables

- 30% Plans (PDF and 5-11”x17” and 2-22”x34” hard copies)
- 100% Plans (PDF and 5-11”x17” and 2-22”x34” hard copies)
- Final Sealed Plans (PDF and 5-11”x17” and 2-22”x34” hard copies)

Task 5 – Opinion of Probable Cost / Special Provisions / Construction Bid Tabulation

Kimley-Horn, in coordination with the City, will prepare and submit an opinion of probable cost, special provisions, and construction bid tabulation in conjunction with the improvement plans.

Deliverables

- Opinion of Probable Cost (as part of 30% Submittal)
- Draft Special Provisions and Opinion of Probable Cost (as part of 100% Submittal)
- Final Sealed Special Provisions and Construction Bid Tabulation (as part of Final Sealed Plans Submittal)

Task 6 – Meetings and Project Management

Kimley-Horn will schedule and prepare materials for an in-person kick-off meeting/field meeting with City staff and other stakeholders invited by the City to review existing features and design concepts at each of the three intersections.

Kimley-Horn will schedule and prepare materials for one in-person comment response meeting with the City to discuss comments and responses associated with the 30% Submittal and for a second in-person comment response meeting with the City to discuss comments and responses associated with the 100% Submittal.

Kimley-Horn will coordinate with UPRR by attending up to two meetings with UPRR.

Kimley-Horn will coordinate with ADOT for a permit waiver from ADOT's permits department.

Kimley-Horn will provide project management efforts such as regular coordination with the City project manager and invoicing.

Allowance Items

This proposal includes the following allowance items for activities that may or may not be needed, depending on how the design process develops:

- *Additional Coordination*: Covers additional coordination that may be required with the City, UPRR, and/or ADOT
- *Native Plant Survey*: Covers a field visit to acquire the native plant species and the development of a seeding mix for use in median or ground disturbance areas.
- *Legal Descriptions*: Covers preparing legal descriptions (through a qualified subconsultant) should such services be required
- *Utility Potholes*: Covers utility potholing (through a qualified subconsultant) should such services be required to aid in the preparation of the design plans

Additional Services

Any services not specifically identified in the Scope of Services above shall be considered additional services and shall only be performed upon written authorization by the City. The following are examples of additional services that can be provided if requested by the City:

- Public meetings or presentations to stakeholders, boards, or elected officials
- Any additional plan sheets beyond those outlined in the Scope of Services
- Culvert summary sheets
- Utility relocation design
- Lighting design services
- Environmental evaluation, including National Environmental Policy Act (NEPA) requirements
- Permitting
- Post-design services
- Storm water pollution prevention plans

Schedule

We will provide our services as expeditiously as practicable with the goal of meeting a mutually agreed upon schedule. It is estimated it will take 6-8 months to complete Tasks 1-6, but this schedule is heavily dependent on review and coordination time.

Fee

Kimley-Horn will perform the services in Tasks 1-6 for the total lump sum fee of $105,278 with allowances or $92,978 without allowances (see **Exhibit B**). Direct reimbursable expenses such as delivery services, fees, travel, and other anticipated direct expenses are included in the lump sum fee. Fees will be invoiced monthly based on a percent complete basis for the total lump sum fee. Payment will be due within 30 days of the City's receipt of Kimley-Horn's invoice.

Closure

We appreciate the opportunity to provide these services to you. Please contact me at (480) 207-2666 or michael.grandy@kimley-horn.com should you have any questions.

Sincerely,

Michael Grandy

Michael Grandy
Project Manager

Exhibit B

City of Benson Railroad Quiet Zone Improvements Final Design
Kimley-Horn and Associates, Inc.
November 15, 2016

Direct Labor

Classification	Hours	Rate	**Totals**
Principal/Sr. Project Manager	0	$225.00	$0
Project Manager	58	$189.84	$11,011
Senior Professional	62	$159.46	$9,887
Professional	143	$126.59	$18,102
Junior Professional	267	$96.73	$25,827
Admin Support I	10	$119.25	$1,193
Admin Support II	35	$70.26	$2,459
Direct Labor	**575**		**$68,478**

Estimated Direct Expenses

Type	Amount	Unit Costs	Cost
Reproduction	3	$300.00	$900
Mileage / Travel	500	$0.50	$250
Courier	3	$50.00	$150
Direct Expenses			**$1,300**

Subconsultant	Service	Cost
Ashby	Topographic Survey	$12,900
Ninyo & Moore	Geotechnical Services	$10,300
Total of Subconsultants		**$23,200**

Total Lump Sum **$92,978**

Allowances	Cost
Additional Coordination	$5,000
Native Plant Survey	$2,500
Ashby - Legal Descriptions	$1,800
Cardno - Utility Potholes	$3,000
Total of Allowances	**$12,300**

Total Lump Sum with Allowances **$105,278**

City of Benson Railroad Quiet Zone Improvements Final Design
Derivation of Hours

Task No.	Description	No. of Sheets	Principal/Sr. Project Manager	Project Manager	Senior Professional	Professional	Junior Professional	Admin Support I	Admin Support II	Total
1	**TASK 1 - Utility Coordination**									
	Utility Coordination		0	2	0	3	20	0	1	26
	Utility Responses		0	2	0	3	20	0	1	26
	Utility Clearance Letter		0	2	0	2	10	0	1	15
	Hours Subtotal		0	6	0	8	50	0	3	67
2	**TASK 2 - Geotechnical Services**									
	Geotechnical Coordination		0	1	0	4	4	0	1	10
	Hours Subtotal		0	1	0	4	4	0	1	10
3	**TASK 3 - Drainage Memorandum**									
	Hydrology		0	0	10	0	3	0	1	14
	Culvert Hydraulics		0	0	10	0	3	0	1	14
	Outlet Protection Calcs		0	0	10	0	3	0	1	14
	Preliminary Drainage Memo (At 30% Submittal)		0	0	10	0	3	0	1	14
	Final Sealed Drainage Memo (At 100% Submittal)		0	0	12	0	4	0	1	17
	Hours Subtotal		0	0	52	0	16	0	5	73
4	**TASK 4 - Preparation of Construction Documents (30%, 100%, & Final Sealed Plans)**									
	Cover Sheet	1	0	1	0	3	4	0	1	9
	General Notes / Design Sheet	1	0	1	0	3	4	0	1	9
	Geometric / Survey Control Sheet	1	0	1	0	4	6	0	1	12
	Detail Sheets	2	0	1	0	4	12	0	1	18
	Demolition Sheets (40 Scale, Each Intersection)	3	0	2	0	9	15	0	1	27
	Roadway Sheets (40 Scale, Each Intersection)	3	0	2	0	12	24	0	1	39
	Maintenance of Traffic Notes	1	0	1	0	3	4	0	1	9
	Maintenance of Traffic Sheets (40 scale)	1	0	2	0	3	8	0	1	14
	Signing and Marking Notes	1	0	1	0	3	4	0	1	9
	Signing and Marking Sheets (40 Scale, Each Intersection)	3	0	2	0	6	18	0	1	27
	30% Submittal		0	3	0	5	8	0	1	17
	Address Review Comments		0	2	0	5	8	0	1	16
	100% Submittal		0	3	0	5	8	0	1	17
	Address Review Comments		0	2	0	5	8	0	1	16
	Final Sealed Submittal		0	3	0	5	8	0	1	17
	Hours Subtotal		0	27	0	75	139	0	15	256
5	**TASK 5 - Opinion of Probable Cost / Special Provisions / Construction Bid Tabulation**									
	Prepare Construction Bid Tabulation (30%, 100%, & Final)		0	1	0	10	14	0	1	26
	30% Submittal		0	3	0	2	4	0	1	10
	Address 30% Review Comments		0	1	0	2	4	0	1	8
	Prepare Project Special Provisions (100% & Final Sealed)		0	8	10	16	4	0	1	39
	100% Submittal		0	3	0	4	6	0	1	14
	Address 100% Review Comments		0	1	0	2	4	0	1	8
	Final Submittal		0	1	0	2	4	0	1	8
	Hours Subtotal		0	18	10	38	40	0	7	113
6	**TASK 6 - Meetings and Project Management**									
	Project Invoicing		0	2	0	0	0	10	1	13
	Field Meeting (6 hours)		0	0	0	6	6	0	1	13
	Attend Two (2) Coordination Meetings with City Staff (4 hours each)		0	4	0	8	8	0	1	21
	Attend Two (2) Coordination Meetings with UPRR Staff (2 hours each)		0	0	0	4	4	0	1	9
	Hours Subtotal		0	6	0	18	18	10	4	56
	Total		**0**	**58**	**62**	**143**	**267**	**10**	**35**	**575**

November 14, 2016
Proposal No. P-12-00350

Mr. Tim Rhine, P.E.
Kimley-Horn and Associates, Inc.
333 East Wetmore Road, Suite 280
Tucson, Arizona 85705

Subject: Proposal to Provide Geotechnical Services
City of Benson Railroad Quiet Zone Feasibility Study
Benson, Arizona

Dear Mr. Rhine:

In accordance with your request, Ninyo & Moore is pleased to submit this proposal to provide geotechnical services for the geotechnical services associated with the above-referenced project. This proposal outlines our scope of services, estimated fee, project assumptions, and anticipated schedule for the work associated with this project.

SITE/PROJECT DESCRIPTION

We understand that the City of Benson has identified 3 railroad crossing locations that are proposed to be milled and overlaid after new medians and curb have been constructed.

The existing vertical alignment of the road segment will be changed as the road will be re-profiled up to the crossing to allow for a smoother transition through the area. The purpose of this exploration will include collecting asphaltic concrete (AC) pavement core samples and evaluate the thickness of aggregate base (AB), if encountered, at one location on either side of the following railroad crossings:

- Ocotillo Road UPRR Crossing (DOT Crossing #741382T);
- Patagonia Street UPRR Crossing (DOT Crossing #741383A); and
- San Pedro Street UPRR Crossing (DOT Crossing #741386V).

Ninyo & Moore was requested to evaluate the existing pavement sections and provide recommendations for the mill and overlay treatments in accordance with the current City of Benson standards.

SCOPE OF SERVICES

Ninyo & Moore will perform the following tasks as part of this project:

- Prepare a field testing plan and associated permit applications for submittal to the City of Benson.
- Conduct a visual reconnaissance of the pavement in the project area and to mark out field test locations.
- Arrange for adequate traffic control measures to conduct the anticipated field work.
- Core the existing AC pavement at up to 6 test locations. Selection of the coring locations will be coordinated with your office.
- Hand auger the AB material through the core holes. The sampling will be terminated at the AB/subgrade interface.
- The holes will be backfilled with drilling spoils and topped with AC cold patch. The AB samples will be placed in re-sealable bags and transported to a Ninyo & Moore laboratory for testing and evaluation.
- Perform pavement design/reconstruction/rehabilitation analysis for the project alignment. We will work with your office to formulate most cost-effective and technically suitable treatment.
- Prepare preliminary pavement data and recommendations for internal discussion with the project team.
- Attend project meetings as necessary. The meetings will be held in Tucson.
- Prepare a Pavement Rehabilitation Letter Report for the project alignment. The report will present our field and laboratory procedures and provide a brief description of the existing pavement condition, as well as pavement treatment recommendations. The report will contain plans showing the boring locations, core and pavement summary table, and traffic data provided by others.

ASSUMPTIONS

The following assumptions were made when developing the work scope:

- Arizona811 will not need to be notified.
- Any environmental/cultural clearances/permits, other than a right-of-way permit issued by the City of Benson, if needed, will be obtained by others.
- Traffic control measures will include lane closures along the project alignment for the duration of the field work.
- The work will be performed during normal work hours.
- The borings will be backfilled with drill cuttings and topped with an asphalt cold patch material.
- Subgrade soil samples will not be collected and laboratory testing will not be required for this project.
- Traffic volumes will be provided by others.

FEE ESTIMATE

We propose to perform the above scope of work, for a lump sum fee of $10,300 (Ten Thousand Three Hundred Dollars).

These estimated fees are based on the scope of services presented above and our understanding of the project. Any additional services not included in the aforementioned scope will be charged on a time and materials basis in accordance with the attached schedule of fees.

SCHEDULE

We are prepared to initiate this project immediately upon receiving your authorization to proceed. We anticipate that the fieldwork will take about three days and will be performed within two weeks after acquisition of a City's permit.

If this proposal meets your expectations, please provide formal authorization in the form of a sub-consultant agreement.

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have questions or comments, please do not hesitate to contact the undersigned.

Sincerely,
NINYO & MOORE

Marek J. Kasztalski, PE, PMP, LEED AP
Senior Geotechnical Engineer

Fred Narcaroti
Principal/Tucson Office Manager

MJK/FFN/jom

Distribution: (1) Addressee (via email)

Attachment B

Ashby
SURVEYING & DRAFTING, INC.

Via E-Mail: tim.rhine@kimley-horn.com
Rick.Solis@Kimley-Horn.com

November 9, 2016

Mr. Tim Rhine, P.E.
Kimley-Horn and Associates, Inc.
333 East Wetmore Road, Suite 280
Tucson, AZ 85705

RE: City of Benson Quiet Zone Study
Ocotillo Road (DOT Crossing# 741382T)
Patagonia Street (DOT Crossing# 741383A)
San Pedro Street (DOT Crossing# 741386V)

Dear Mr. Rhine:

It is our understanding that right-of-way surveys, topographical mapping and design surveys are needed for each of the three (3) sites referenced above.

Based on the Exhibits sent by Kimley-Horn to Ashby and our telephone conversations, the following is the scope of work, as we understand it, along with our proposed fees for providing professional land surveying and drafting services:

ITEM	DESCRIPTION	FEE
1.	**Initial Research & Pre-Calculations** ▪ Research ADOT right-of-way and construction plans ▪ Research Town of Benson Plans ▪ Research Record of Surveys for Cochise County ▪ Research for published NAVD '88 benchmarks ▪ Calculate "looking coordinates" for the survey crew to facilitate finding survey monuments at the three (3) sites	**$ 800.00**

717 NORTH SWAN ROAD ▪ TUCSON, AZ 85711-1210 ▪ TEL: (520) 325-1991 ▪ FAX: (520) 325-2074
ashby@asadinc.tuccoxmail.com

Attachment B

ITEM	DESCRIPTION	FEE
2.	**Initial Survey Controls** ▪ Search for a minimum of 2 survey monuments with a published NAVD elevation ▪ Transfer the elevation datum to each of the three sites ▪ Search for and field locate relevant survey monuments to establish a basis of bearings	**$ 1,500.00**
3.	**Aerial Ground Controls** ▪ Construct targets for an aerial flight ▪ Obtain horizontal positions for the target points ▪ Obtain elevations of the target points ▪ Provide an AGC diagram to the aerial company	**$ 2,200.00**
4.	**Topographical Mapping (3 sites)** ▪ 40 scale, 1 foot contour interval for the areas lying north of the north right-of-way line of 4th Street/Business Loop 10 ▪ Plan view only for the areas lying south of the north right-of-way line of 4th Street/Business Loop 10 ▪ Digital ortho-photo not included in the fee	**$ 2,250.00**
5.	**Field Surveys & Right-of-Way Calculations** ▪ Search for and field locate relevant survey monuments for the determination of right-of-way lines ▪ Obtain elevations of curb etc. at locations specified by Kimley-Horn ▪ Field locate above ground features which do not show on the aerial mapping ▪ Calculate right-of-way lines based on field obtained data	**$ 4,950.00**
6.	**Drafting** ▪ Right-of-way lines ▪ Survey Controls ▪ Additional topography and elevations from field data	**$ 1,200.00**
	TOTAL:	**$ 12,900.00**

Ashby
SURVEYING & DRAFTING, INC.

Attachment B

Thank you for contacting Ashby Surveying & Drafting, Inc. We look forward to assisting you on this project.

Sincerely,
Ashby Surveying & Drafting, Inc.

T. Wayne Ashby, R.L.S.
President/Director of Survey

TWA:kaa

FILE: S:\#1 - CLERICAL FILES (FREQUENT)\#01 PROPOSALS\Clients\Kimley-Horn\City of Benson Quiet Zone Study.docx