CITY OF IOWA CITY
MEMORANDUM

Date: September 26, 2013

To: Tom Markus, City Manager

From: Rick Fosse, Public Works Director RAF

Re: Gateway Project

The Federal Highway Administration has indicated that their process for responding to the Advisory Council on Historic Preservation will not be complete prior to the October 1st City Council meeting. This will prevent us from taking any formal action on design parameters at that meeting. Based on that, our plan for the evening of October 1st is as follows.

> **Work Session**: HNTB and staff will follow up on the questions from the September 17th work session, outline recommendations and answer questions from the City Council.
>
> **Formal Meeting**: There will be an agenda item for discussion and public input on the Gateway Project. Staff will outline recommendations and then open the floor for public comment. Staff will make note of questions from the public and follow up in the October 10th information packet.

Formal council action regarding design parameters will not occur until after the NEPA process is complete.

Answers to the questions asked at the September 17th work session have been prepared by HNTB and city staff and are attached. HNTB will briefly outline this information at the work session.

Recommendations

At the September 17, 2013 work session, staff outlined three design parameters that need to be defined to begin design of the Gateway Project. These parameters are:

1. Level of protection for Dubuque Street
2. Backwater reduction goals
3. Structural type of the bridge

Many of the questions at the September 17th work session were centered on design details that contribute to the project footprint, such as sidewalks, lane width, and green space in the median or between the back of curb and the sidewalk. Each of these design elements are important to the function, safety, comfort and appearance of this multimodal corridor. Optimizing the width of each of these elements while balancing their impact on the adjacent properties is best accomplished during the design phase of the project when detailed survey information is available and everything is evaluated at a higher level of detail. Staff recommends that we remain focused on the three major design parameters at this time and these other design elements be addressed early in the design process and then seek City Council concurrence before submitting the concept statement to the Iowa Department of Transportation.

Staff's recommendations for each of the major design parameters are outlined below:

Level of Protection for Dubuque Street

Staff recommends protecting Dubuque Street to the 2008 + 1' level. While this recommendation offers less protection than the option outlined in the Environmental Assessment (EA), staff feels that this is a reasonable level of protection and provides a good balance of performance while limiting impacts. The table below outlines the estimated number of days each option would have been closed over the past 20 year period and compares the relative elevations of each option to the recommended option.

Level of Protection Option	Estimated number of days closed over the past 20 years due to Iowa River flooding	Relative Comparison: inches above/below the 2008 + 1' protection level
Existing	150	NA
100 year + 1'	7*	-39"
200 year + 1'	5*	-11"
2008 flood + 1'(Recommended)	0	0"
500 year + 1' (EA Preferred Alt)	0	+19"

*Including one day for cleanup, inspection and repair after inundation

Backwater Reduction Goals and Bridge Type

Three bridge options are outlined below. The first provides the maximum level of protection and backwater reduction and is the option that is represented in the Environmental Assessment (EA). The next two options represent staff's recommendation for the optimization of backwater reduction, bridge deck elevation and cost. Two recommendations are made because of the unique properties of each bridge type. The factors used for this recommendation are outlined on attached Figure 1, Bridge Type and Level of Protection Comparison. Although both recommendations sacrifice some backwater reduction when compared to the EA's Preferred Alternative, they offer substantially less elevation of the intersection of Dubuque Street and Park Road. This translates to reduced impact on the wooded bluffs.

Bridge Options

Option	Bridge Type	Low Steel Elevation	Elevation at the Dubuque St/Park Rd Intersection	Backwater Reduction at Idyllwild and Taft Speedway	Dubuque Street Protection Level	Construction Cost Estimate of Bridge and Road
Maximum Protection and Backwater Reduction (EA Preferred Alternative)	Deck Girder	500yr + 1'	665.03	7"	500yr + 1'	$36.65 M
Recommended Arch	Through Arch	200yr + 1'	659.02	4.9"	2008 + 1'	$38.31 M
Recommended Girder	Deck Girder	200yr + 1'	662.52	6.1"	2008 + 1'	$35.01 M

To assist in evaluating the staff recommendations, comparisons of each option to the Environmental Assessment's preferred alternative are outlined below as well as a comparison to each other.

Comparison of Recommended Arch to EA Preferred Alternative

Bridge Type	Backwater Reduction	Deck Elevation	Cost
Through Arch @ 200yr +1'		Advantage by 6'	
EA Preferred Alternative	Advantage by 2.1"		Advantage by $1.66M

Comparison of Recommended Girder to EA Preferred Alternative

Bridge Type	Backwater Reduction	Deck Elevation	Cost
Deck Girder @ 200yr +1'		Advantage by 2.5'	Advantage by $1.64M
EA Preferred Alternative	Advantage by 0.9"		

Comparison of Recommended Arch to Recommended Girder

Bridge Type	Backwater Reduction	Deck Elevation	Cost
Through Arch @ 200yr +1'		Advantage by 3.5'	
Deck Girder @ 200yr +1"	Advantage by 1.2"		Advantage by $3.3M

Staff recommends that we proceed with either the Through Arch Bridge with a low steel elevation of 200yr + 1' or the Deck Girder Bridge with a low steel elevation of 200yr + 1'. The final decision will need to weigh backwater reduction and cost against deck elevation. Aesthetics will also be an important factor.

Through Arch

Deck Girder

IOWA CITY GATEWAY

Figure 1
Bridge Type and Level of Protection Comparison
September 26, 2013

Bridge Type	Low Steel Elevation	Backwater Reduction at Idyllwild	Incremental Improvement in Backwater Reduction	Deck Elevation	Incremental Height of Bridge Deck	Construction Cost Estimate with Dubuque at 100yr + 1’	Construction Cost Estimate with Dubuque at 200yr + 1’	Construction Cost Estimate with Dubuque at 2008 + 1’	Construction Cost Estimate with Dubuque at 500yr + 1’
Deck Girder	100yr + 1’	3.4”		660.20		$32.67 M		$34.26 M	
Deck Girder	200yr + 1’	6.1”	2.7”	662.52	27.8”		$34.63 M	$35.01 M	
Deck Girder	2008 + 1’	6.6”	0.5”	663.45	11.2”	$33.41		$35.17 M	
Deck Girder	500yr + 1’	7.0”	0.4”	665.03	19.0”	$34.20 M	$35.01 M	$35.34 M	$36.65 M **EA Preferred Alternative**
Deck Arch	100yr + 1’	3.6”		659.20		$36.01 M		$37.59 M	
Deck Arch	200yr + 1’	4.7”	1.1”	661.52	27.8”		$37.96 M	$38.34 M	
Deck Arch	2008 + 1’	5.2”	0.5”	662.45	11.1”	$36.71 M		$38.48 M	
Deck Arch	500yr + 1’	5.6”	0.4”	664.03	19.0”	$36.94 M	$38.33 M	$38.66 M	$39.98 M
Through Arch	100yr + 1’	3.4”		656.87		$35.99 M		$37.58 M	
Through Arch	200yr + 1’	4.9”	1.5”	659.02	25.8”		$37.93 M	$38.31 M	
Through Arch	2008 + 1’	5.2”	0.3”	659.95	11.1”	$36.70 M		$38.47 M	
Through Arch	500yr + 1’	5.8”	0.6”	661.53	19.0”	$36.90 M	$38.30 M	$38.63 M	$39.60 M