



Council Communication

Office of the City Manager

Date:	August 29, 2011
Agenda Item No.	74
Roll Call No.	<u>11-1528</u>
Communication No.	<u>Council Communication: 11-539</u>
Submitted by:	Jeb E. Brewer, P.E. City Engineer

AGENDA HEADING:

Approval of the preliminary design for the Grand Avenue over Walnut Creek Bridge Replacement Project with a sidewalk only on the south side of the bridge, two left turn lanes, and an enhanced pedestrian crossing east of the bridge, and authorization to proceed with final design.

SYNOPSIS:

The preliminary design for this bridge provides for a sidewalk on the south side of the bridge, two lanes in each direction, and dual left turn lanes for westbound traffic to better accommodate the heavy existing and future left turns at the intersection. The existing flood control gate structure severely limits the ability to construct a new bridge with all of the desired lanes for traffic and full accommodations for bicycles and pedestrians. Several neighborhood meetings have been held on the project to advise citizens about the project and the necessity to close Grand Avenue during the construction.

Following requests at the May 26 public meeting and the July 11 direction by Council, the design consultant and City staff have completed a detailed review of the issues regarding sidewalks on this bridge, with three basic options considered: sidewalks on both sides, sidewalk on the north side only, and sidewalk on the south side only. A fourth public meeting was held on August 11 in the Council chambers to present the results of this additional review. This meeting was attended by six residents, most of whom had also attended the previous meeting. These residents spoke strongly in favor of the design option that included sidewalks on both sides of the bridge, or on just the north side, but were opposed to the option with a sidewalk on the south side only, even with the proposed enhanced pedestrian crossing east of the bridge.

After a thorough analysis and based on the pedestrian safety, traffic flow advantages and benefits to all users, the consultant design team and City staff recommend the option with a sidewalk only on the south side of the bridge, two left turn lanes, and an enhanced pedestrian crossing east of the bridge.

FISCAL IMPACT:

Amount: \$3,400,000

Funding Source: 2011-12 CIP, Grand Avenue over Walnut Creek, BRV045, Page Bridge/Viaduct Improvements – 12, being \$1,000,000 Federal Highway Bridge Program Funds, \$300,000 Gaming Monies and \$2,100,000 G.O. Bonds.

ADDITIONAL INFORMATION:

The Grand Avenue Bridge over Walnut Creek, which was originally constructed in 1914 and last rehabilitated in 1961, is showing signs of deterioration and is scheduled to be replaced with a new bridge. The structurally deficient bridge will be replaced with a new structure that will improve the hydraulic characteristics of the bridge during flood events. Due to the complete replacement of the existing structure, the structure type and very limited site for construction work, Grand Avenue will be closed during construction.

On May 18, 2009, by Roll Call 09-825, Council approved and authorized a Professional Services Agreement between the City and Shuck-Britson, Inc., Tim Monson, President, 2409 Grand Avenue, Des Moines for design services on this bridge. The consultant has completed detailed analysis of the structural, hydraulic and traffic conditions for the bridge and adjacent intersection of Grand Avenue and 63rd Street (Iowa 28), and has completed preliminary design documents. The preliminary design provides for a sidewalk on the south side of the bridge, two lanes in each direction, and dual left turn lanes for westbound traffic to better accommodate the heavy existing and future left turns at the intersection. This preliminary design has been coordinated with the City of West Des Moines, which has planned some improvements to Grand Avenue west of 63rd Street that will be constructed this fall.

Several neighborhood meetings have been held on the project to advise citizens about the project and the necessity to close Grand Avenue during the construction. The initial meeting was held October 10, 2010 to provide general project information, and the second meeting on January 27, 2011 focused on getting public input on bridge aesthetics. The third meeting was held May 26 in the Council chambers, with approximately 50 people in attendance. This meeting included discussion about the need to close Grand Avenue during construction, the proposed detour routes and a number of traffic concerns on those detour routes. In addition, a follow-up study was requested regarding the recommended design that provided sidewalks on only the south side of the bridge due to the physical constraints presented by the existing flood gates.

The design consultant and City staff completed a detailed review of the issues regarding sidewalks on this bridge, with three basic options considered: sidewalks on both sides, sidewalk on the north side only, and sidewalks on the south side only – as included in the preliminary design. Because of the concrete towers that hold the flood gate, the corners at the west end of the bridge are very tight, especially for turning trucks or buses. In addition, turning vehicles provide a safety conflict with pedestrians or bicycles that must be addressed. This turning conflict on the north is compounded not only by trucks tracking over the sidewalk, but also by limited visibility and the fact that the turning vehicles will have a green signal at the same time that pedestrians would have the WALK signal.

If sidewalks are constructed on both sides, the remaining width for the bridge will require that only a single left turn lane be constructed. Even with minimum lane widths and clearances to bridge railings, there is not sufficient width with the flood gate to provide two left turn lanes. The traffic analysis for the intersection shows that this single left turn lane would cause a very long traffic queue of over 500 feet (almost to 62nd Street) for future (2035) peak hour traffic, compared to a queue of 280 feet for dual left turn lanes. The advantage of sidewalks on both sides of the bridge is that it is more convenient for pedestrians and bicyclists. The disadvantages are that it would create a significant safety conflict with turning vehicles at the northwest corner of the bridge, the single left turn lane would cause long queues and delays during peak traffic periods, and may increase neighborhood cut through traffic.

If a sidewalk is constructed on the north side only, the bridge width would be the same as the preliminary

design, and the lanes would just shift to the south to provide the sidewalk on the north side. The advantages of this option are that it keeps the two left turn lanes and provides a sidewalk on the north side as requested by the six residents at the July 11, 2011 meeting. The disadvantages are that it would still have the significant safety conflict at 63rd Street, and it would not directly serve all sidewalk users. Those on the south side would need to connect to the trail, cross under the bridge using the trail, and then connect back up to the sidewalk on the north side of Grand. During periods of high water and prior to clean up after high water, the trail under the bridge will be closed, so this connection to the north sidewalk would not be available.

The final option is to construct a sidewalk on the south side only, as currently included in the preliminary design. The advantages of this option are that it keeps the two left turn lanes and does not create the safety conflict with pedestrians and bicyclists for the westbound turning vehicles. The disadvantage is that it does not directly serve all sidewalk users, similar to a sidewalk on the north side only.

Based on the desire to provide improved access to a sidewalk on the south side only, the consultant team and City staff propose an enhanced pedestrian crossing located about 150 feet east of the bridge, and about 100 feet west of the railroad crossing where the trail is very close to the north side of Grand Avenue. This pedestrian crossing would include a raised concrete island in the center lane of the road, so pedestrians and other users could find a gap in traffic to cross two lanes of one-way traffic to the center refuge island, follow an offset that directs their vision toward any oncoming traffic, and then find a gap to cross the remaining two lanes of one-way traffic. The crossing would include high visibility pavement markings for the crosswalks and high visibility pedestrian crossing signs on the right side of the road and the center island for both directions. This proposed crossing would be very similar to the new crossing on M. L. King, Jr. Parkway at the west end of the Des Moines River Bridge, except that brick crosswalks would not be included. The advantages of this option are that it keeps the two left turn lanes and does not create the safety conflict with pedestrians and bicyclists for the westbound turning vehicles, and also provides an enhanced crossing for pedestrians and bicyclists to use this south sidewalk, even if the trail underpass is closed.

This kind of pedestrian crossing is included in new types of crossings for traffic calming and Complete Streets. As listed in the Federal Highway Administration (FHWA) website, “this type of crossing has been demonstrated to decrease the percentage of pedestrian crashes and casualties by 57-82%. The factors contributing to pedestrian safety include reduced conflicts, reduced vehicle speeds approaching the island (if designed as such the approach can be designed to force a greater or lesser slowing of cars, depending on how dramatic the curvature is), greater attention called to the existence of a pedestrian crossing, opportunities for additional signage in the middle of the road and reduced exposure time for the pedestrians.”

A fourth public meeting was held on August 11 in the Council chambers to present the results of the additional review. This meeting was attended by six residents, most of whom had also attended the previous meeting. These residents spoke strongly in favor of the design option that included sidewalks on both sides of the bridge, and just the north side, but were opposed to the options with a sidewalk on the south side only, even with the proposed enhanced pedestrian crossing east of the bridge.

After thorough analysis and consideration of the three options for the sidewalk, the professional design team and staff recommend the sidewalk on the south side with the enhanced pedestrian crossing for the following reasons:

- Dual turn lanes are critical to provide minimal levels of service for current and future traffic. Excessive delays may increase neighborhood cut through traffic.
- Provides a pedestrian path on the south side and a grade separated trail connection from the north to the south. The trail connect will be raised to reduce trail closure due to flooding.
- The south pedestrian connection provides better visibility for right turn pedestrian-vehicle conflicts, and allows for the conflicts to be eliminated at the south-east corner with right-turn on red restrictions.
- The option provides an enhanced pedestrian crossing. This provides another crossing option if the grade separated trail is closed.

The final configuration for the bridge needs to be submitted to the Iowa Department of Transportation (IDOT) soon, in order to keep this project on schedule for construction to be completed by the fall of 2012.

On March 24, 2008, by Roll Call 08-463, Council approved and authorized the execution of an agreement with the IDOT to provide up to a maximum of \$1,000,000 in Federal Highway Bridge Program Funds for construction costs.

On August 8, 2011 by Roll Call 11-1363, Council authorized staff to proceed with necessary right-of-way for this project, which will include a minor partial acquisition, several permanent easements and temporary easements. No relocation assistance will be required for this project.

PREVIOUS COUNCIL ACTION(S):

Date: August 8, 2011

Roll Call Number: 11-1363

Action: [Authorization](#) to proceed with acquisition of necessary right-of-way and easements for the Grand Avenue over Walnut Creek Bridge Replacement Project. ([Council Communication No. 11-520](#)) Moved by Mahaffey to adopt. Motion Carried 7-0

Date: July 11, 2011

Roll Call Number: 11-1229

Action: [From](#) Council Member Skip Moore to discuss configuration of lanes and sidewalks on Grand Avenue Bridge over Walnut Creek Project. Moved by Hensley to refer to the City Manager for review and recommendation. Motion Carried 7-0.

Date: May 18, 2009

Roll Call Number: 09-825

Action: [Shuck](#)-Britson, Inc. for evaluation, design and construction phase services for the Grand Avenue over Walnut Creek Bridge Replacement, not to exceed \$267,864. ([Council Communication No. 09-334](#)) Moved by Kiernan to adopt. Motion Carried 6-1. Absent: Cownie.

Date: March 24, 2008

Roll Call Number: 08-463

Action: [Approving](#) execution of Iowa Department of Transportation (IDOT) Agreement for Grand Avenue over Walnut Creek Bridge Replacement. ([Council Communication No. 08-159](#)) Moved by Vlassis to adopt. Motion Carried 7-0.

BOARD/COMMISSION ACTION(S): NONE

ANTICIPATED ACTIONS AND FUTURE COMMITMENTS:

Anticipated actions include public hearing, receive and file bids, designate lowest bidder, and approve contract and bond; also partial payments to the contractor and final acceptance of work.

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