FLOOD PLAIN PERMIT COMMITTEE MEETING
201 West Gray, Building A, Conference Room D

Monday, February 15, 2016
3:30 p.m.

Minutes

PRESENT:	Shawn O'Leary, Director of Public Works Susan Connors, Director of Planning/Community Development Scott Sturtz, City Engineer Ken Danner, Subdivision Development Manager Jane Hudson, Principal Planner Sherri Stansel, Citizen Member
OTHERS PRESENT:	Todd McLellan, Development Engineer Rachel Warila, Staff John Clink, Capital Projects Manager Joe Willingham, Storm Water Engineer Aruna Mathuranayagam, Leidos, Inc. Ellen Stevens, Consultant Duane Kranz, Leidos, Inc.

The meeting was called to order by O'Leary at 3:30 p.m.

Item No. 1, Approval of Minutes:

O'Leary called for a motion to approve the minutes from the meeting of February 1, 2016. A motion was made to approve minutes by Sturtz and seconded by Danner. Approved 5-0 (Sherri Stansel abstained because she was not present). It was noted that six members of the committee were present (Suneson absent) and a quorum was established.

O'Leary then announced that the first and only application of the day was for a new bridge on Lindsay Street over Imhoff Creek. He then requested that McLellan present the Staff Report for this application.

Item No. 2, Flood Plain Permit Application No. 558A:

McLellan introduced the applicant as the City of Norman represented by city staff member John Clink, Capital Projects Manager, Aruna Mathuranayagam, Traffic Engineer from Leidos, Inc., Ellen Stevens, Sub-Consultant to Leidos, Inc., and Duane Kranz from Leidos, Inc. He then presented the Staff Report for Flood Plain Permit Application No. 558A.

McLellan then stated that this application was previously postponed from the January 4th, 2016 Floodplain Permit Committee meeting because more time was necessary to complete the application. He then proceeded to discuss the Staff Report, which involves the removal and replacement of the existing bridge on Lindsey Street over Imhoff Creek and associated channel improvements as part of the City's $40 million West Lindsey Street Corridor Project. The project must begin construction in May 2016 in order to fulfill community expectations to coincide with the replacement by ODOT of the Lindsey Street bridge over I-35 and to be eligible for $14 million in federal funds. All permits for this project must be secured by February 23, 2016 in order to meet the project schedule. The City floodplain permit is the only remaining permit to be acquired.

In regard to this floodplain permit application, McLellan remarked that the project area is both in the floodway/floodplain of Imhoff Creek Zone AE (Base Flood Elevations have been determined).

McLellan then summarized the floodplain modeling process used by Leidos to determine the new bridge impact on the Base Flood Elevations (BFEs). The Flood Insurance Rate Map and Base Flood Elevations (BFEs) for Imhoff Creek were revised by FEMA in 2008 based on the 1997 HEC-2 model.

As part of the design process, Leidos converted the HEC-2 model to a HEC-RAS model which is a more current modeling standard to create a Duplicate Effective Model (DEM). As part of the new bridge design, Leidos performed field survey work and analyzed the DEM to see what effect the new bridge would have on the BFE of this portion of Imhoff Creek. Analysis of the DEM indicated there are errors with the current FEMA model:

- The existing reinforced concrete box (RCB) under Lindsey Street dimensions and elevations were found to be incorrect
- The channel flowline elevations downstream of Lindsey Street were too low based on newly acquired survey data.

Leidos found other minor errors in the existing model and re-evaluated the model, accounting for the previous model errors and adding new channel cross sections and topographic survey

information to create a Corrected Effective Model (CEM). The CEM indicated the published FEMA BFE's for this portion of Imhoff Creek are 0.13' to 4.16' too low.

McLellan explained that Leidos compared the CEM to the model developed by PBS&J in the Storm Water Master Plan that was accepted by City Council in November, 2009. As part of their scope of work, PBS&J reviewed the FEMA model for Imhoff Creek and also discovered multiple errors in the current FEMA floodplain maps. As noted in the Storm Water Master Plan "a number of issues were identified and corrected as a result of their review." After PBS&J corrected the FEMA model, they noted "these and other minor changes resulted in a general increasing of the water surface elevation along the majority of the length of Imhoff Creek."

McLellan discussed how the Leidos CEM and the PBS&J model correlate well and indicate the published FEMA BFE's are too low and should be revised based on the latest and best available information.

He also stated that Leidos has proposed that a Conspan 54-foot wide by 8-foot tall arch bridge structure replace the existing RCB under Lindsey Street. In addition, channel improvements are proposed for a distance of 100 feet upstream and 500 feet downstream of the new bridge. The proposed channel will have a 38 foot wide concrete bottom with 1:1 concrete side slopes 3 feet up the banks. The remaining side slopes will be either grass or grass paver blocks on a 3:1 slope tying into the existing ground elevation. The proposed channel improvements are needed to discharge the water more efficiently at the bridge without

increasing the Water Surface Elevation (WSE). The WSE is similar to the BFE and determined from the updated and more accurate modeling information.

McLellan explained that Leidos has inserted the proposed bridge structure and channel improvements into the CEM to determine the effect on the WSE. The CEM with the proposed bridge and channel improvements included is referred as the Post Project Conditions Model (PPCM). The PPCM model indicates there will be a decrease in the predicted WSE due to the bridge and channel improvement project. The WSE will drop by approximately 0.1' to 0.2' from the bridge north to Station 12+224, a distance of approximately 1,255'. The water surface will drop by approximately 0.8' to 2.4' from the bridge south to Station 10+508, a distance of approximately 411'.

McLellan noted that due to other concerns in the Imhoff Creek watershed, the City of Norman contracted in 2015 with another floodplain expert, Meshek and Associates of Tulsa, Oklahoma to determine possible improvements to Imhoff Creek south of Lindsey Street. He stated that Meshek and Associates is currently designing a stream bank stabilization project along Imhoff Creek downstream of Lindsey Street. Their work includes the hydrologic and hydraulic modeling of the entire length of Imhoff Creek from Andrews Park south to the Canadian River. Meshek's model, when it is completed, will use recently updated rainfall data that was not available to either Leidos or PBS&J at the time of their studies. Staff anticipates using Meshek's model to prepare the LOMR application after the Lindsey Street Corridor Project is completed. Based on the preliminary results from the Meshek model, it is expected that the final 100 year floodplain boundaries will be smaller than the current

corrected models of Leidos and PBS&J. This will lessen the impact of the corrected floodplain on the surrounding properties.

McLellan explained how FEMA requires that a Letter of Map Revision (LOMR) be submitted to correct errors found in the published floodplain maps or BFE data. FEMA also requires that projects that change floodplain maps or BFE data be submitted to FEMA to obtain a LOMR. Staff recommends that upon completion of the current improvements in the Imhoff Creek floodplain, a single LOMR application be submitted to FEMA to correct errors in the entire Imhoff Creek floodplain maps and BFE data. Three other Imhoff Creek projects are currently under consideration by the City of Norman; one in Andrews Park adjacent to the new Central Library, one to repair the channel liner south of Lindsey Street that was damaged in the May 2015 floods and the other project near Imhoff Road where major erosion has taken place. By including Imhoff Creek Bridge and other projects in the single LOMR application, the City will reduce expenses incurred by doing multiple LOMRs. By doing a single LOMR, property owners affected by changes in floodplain boundaries or BFEs will be notified once thus avoiding multiple notifications to the same property owners and creating confusion. McLellan stated that more importantly, the resulting corrected FEMA floodplain maps for Imhoff Creek will be more accurate and comprehensive than the current maps.

McLellan then discussed the Applicable Ordinance Sections:

4(b)(1)(b)(c) Fill Restrictions in the Flood Plain– McLellan explained how the use of fill is restricted in the floodway because storage capacity is removed, natural drainage patterns are adversely altered and erosion problems can develop, however Sections (b) and (c) allow fill for the construction or repair of public roads and bridges, and river or stream bank stabilization or reinforcement projects. According to the new bridge and channel plans, more material is being removed from the floodplain than is being brought in; therefore, this project meets the requirements of this ordinance section.

4(b)(17)(iii) City Council approval of stream bank or flow line modifications – McLellan explained that any modifications of the stream banks or flow line that would be regulatory floodway unless the work is being done by the City of Norman staff as part of a routine maintenance activity require City Council approval. He then explained how this project is not considered routine maintenance.

5(a)(viii) No Rise Considerations- McLellan discussed that a certification of no rise in the Base Flood Elevation (BFE) on any adjacent property as a result of the proposed work is required. He then stated that the applicant's engineer has certified that this project will not cause a rise in the corrected BFE (WSE) based on best available data, which meets the City's ordinance requirements.

McLellan then stated that it was Staff's recommendation that Floodplain Permit Application

#558A be approved.

O'Leary then introduced Aruna Mathuranayagam from Leidos, Inc. who gave a presentation overview of the Lindsey Street Project improvements and example CONSPAN structures. Ellen Stevens then presented on how the hydraulic modeling methods were used to design the new bridge in conformance with FEMA and Norman's floodplain ordinance requirements.

O'Leary then asked the applicant if they had any comments. None were made and there were no questions from the committee. Sturtz made a motion for approval and it was seconded by Connors. Approved 6-0.

Item No. 3, Miscellaneous Discussion

O'Leary then stated that there is 1 pending application for the next Floodplain Permit Committee meeting on March 7, 2016 and that there are no pending applications at this time for the March 21st, 2016 meeting.

A motion was then made to adjourn the meeting by Sturtz, which was seconded by Danner. Approved 6-0.