



SUMMARY OF CONSTRUCTABILITY REVIEW MEETINGS

The Iowa DOT held one-on-one meetings with interested contractors to review the staging, constructability, and risks associated with the I-480/I-29/Broadway Interchange Project to gain feedback on methods to make the construction safer to the traveling public and construction workers, consider traffic maintenance, and to be more cost- and schedule-efficient. Meetings were held on June 14th and June 15th, 2017 with representatives from the following construction companies that requested a meeting:

- » Case Foundation Company
- » Jensen Construction Company
- » Peterson Contractors, Inc.
- » Hawkins/Cramer/United, JV

The following attendees facilitated the discussion with each contractor:

- » Scott Schram (District Engineer); Dan Redmond (District Construction); Jim Muetzel (Project Management Office); Wes Mayberry (Project Manager)
- » Joe Jurasic and Micah Loesch (FHWA)
- » Jim Kinder and Lee Holtman (HNTB Design)
- » Keith Quernemoen (Council Bluffs Interstate PM/GEC)

The discussions included the following scope:

- » Interstate 29 (I-29) and the Interstate 480 (I-480) mainline roadways;
- » Directional ramps that comprise the I-29/I-480 system interchange;
- » I-480/41st Street interchange;
- » The I-29/N. 35th Street and I-29/Avenue G interchange pair; and
- » The I-29/9th Avenue interchange.
- » Concrete Girder Bridges
 - » 1A & 1B: I-29 over 9th Ave: 105 LF, 1 span, 14,525 SF
 - » 2A & 2B: I-29 over 2nd Ave: 204 LF, 3 spans, 20,876 SF
 - » 3A & 3B: I-29 over US 6/Broadway: 239 LF, 3 spans, 24,458 SF
 - » 4A & 4B: I-29 over Avenue G: 239 LF, 3 spans, 28,482 SF
- » Steel Girder Bridges
 - » 5: I-480 EB to I-29 SB over 40th St: 306 LF, 2 spans, 22,885 SF
 - » 6: I-480 EB to I-29 SB over SB Frontage & 2nd Ave: 1,424 LF, 8 spans, 63,962 SF



Meeting Summary – June 14 & 15, 2017

- » 7: I-480 EB to I-29 NB over Core Area: 1,895 LF, 10 spans, 66,387 SF
- » 8: I-29 NB to I-480 WB over 40th St.: 269 LF, 2 spans, 18,733 SF
- » 9: I-29 NB to I-480 WB over Core Area: 2,218 LF, 14 spans, 98,818 SF
- » 10: I-29 SB to I-480 WB over WB Broadway: 960 LF, 6 spans, 33,886 SF

Below is a summary of the issues discussed and ideas presented by the contractor participants to mitigate risks and reduce cost to the project.

Structures

- » Is median embankment in before bridges? Is access to the substructures considered? Can the median area be a laydown area? Access to the median pier north of Broadway may be difficult if embankment is there.
- » Piers in embankment, need to consider how long need to wait before constructing post settlement
- » Consider continuity of bridge crews in the staging.
- » Put as much substructure work as possible prior to Stage 2D.
- » Drilled shafts vs. driven piles; input is that drilled shafts are quicker and can work at night without noise issues.
- » Prefer driven pile because prime contractor can perform it and control it; shafts are messy with a larger footprint, slurry tanks, 2 cranes, support equipment, drill rig, etc.
- » Drilled shafts may help with minimizing cofferdams and dewatering.
- » H-pile rather than drilled shafts, keeps in contractor control; no demonstration shafts
- » Bridge rail aesthetics; if slipform is a possibility, it would go a lot faster
- » Cross street bridges, keep footings shallow and consider length of spans to minimize impact to traffic on cross streets; consider lengthening bridges if it helps the footing construction adjacent to traffic.
- » Consider lengthening Broadway bridges to north and south if it eliminates a settlement time at the abutment, relative to early grading work that could be performed.
- » Accelerated Bridge Construction: Precast panels or stay in place forms saves a lot of time and safety, no stripping
- » Accelerated Bridge Construction: Would rather accelerate conventional construction; time savings is not as significant as might think; it's not necessarily cheaper
- » Early access to piers is critical for early/winter construction
- » Steel procurement time is ok with the way it is staged; letting timing helps this
- » MSE: Use conventional back fill, not light weight fill or special rock, so contractor can control the construction
- » Mass concrete specification: Can it be changed to get the temperature raised based on data and analysis prior to construction? This would make significant difference in making schedule. DOT to look into this
- » Barrier rail mix design; ensure that mix design reflects form stripping after 12 hours
- » Spec items: if shafts, slake durability test, do it early, proves strength of shafts to move on early; CSL testing, required 3-7 days, other places do it 5 to 40 days, get false readings early due to concrete still maturing, can hold up contractor; suggested having conversation with OBS regarding



drilled shafts; load cell test ahead of time, do demonstration shaft during design, then get real data on shaft and don't have to do it during construction and can get to work right away

Grading & Settlement

- » OH transmission lines at Avenue D; relocate or show the voltage so contractor can account for clear distance
- » Consider light weight foam or geofoam
- » Demolition: Homes would be removed in early salvage & removal contracts
- » Ground improvements and early fills, can any grading occur prior to the October 2019 letting
- » Settlement periods: Consider anything we can do to implement geotechnical mitigation to eliminate concern for being able to accelerate schedule; possibly add rigid inclusions to accelerate where possible; appears as a cost add but helps in schedule
- » Geo piers are cheaper and common in vertical construction, but contractor hasn't had good luck in using them
- » Borrow sources, concerns expressed about access in/out at Borrow 27;
- » Existing optional borrows south of US 275 are best case, need to get a better access to interstate
- » Night hauling will be likely
- » Earthwork quantities not significant relative to overall size of project; majority of earthwork is prior to I-29 shut down

Maintenance of Traffic and Access

- » Can we work 24 hours a day? May need input from City.
- » Available interstate detours make FHWA supportive of full closure.
- » Comment that the frontage roads could get beat up by end of construction, may need to repave it
- » Early installation of message boards, prior to full closure, so that drivers get familiar with the signing. Provide early warning of interstate detour weeks in advance; provides early awareness of closure. Use news and media advertisements for full closure.
- » Access: From west on I-480, in and out of project area, may be congested. Area between I-480 river bridge and 40th street bridge is tight.
- » Head to head traffic on interstate is a DOT concern for existing pavement and bridges
- » Comment was made from the Contractor about the condition of the existing pavement and if it could handle head to head traffic. May need a patching job before going to head to head.
- » If I-29 is closed, it opens up the area for staging, plant sites, etc.
- » Traffic Control will be much cheaper with the full closure
- » Committed to provide pedestrian access between east and west sides of I-29 in environmental document; haven't committed to maintaining every crossing. Trails exist at 9th Ave, 2nd Ave, and Avenue G.
- » Contractor preference to shut down cross streets to peds/bikes on during bridge construction. Opportunity to maintain at-least one crossing at a time.

Construction Schedule and Contracting

- » Iowa DOT Director committed to providing access to stakeholders; minimizing local traffic detours through residential streets; trying to avoid head-to-head traffic scenarios; SHRP2 is pushing expedited construction and FHWA is supportive



- » Important that job stays on the schedule for an October letting; keep the 3-4 month window for awarding contract, establishing schedule, and starting work; take advantage of full season at start
- » Schedule would include extended hours but not necessarily all night work
- » This project fits in well with current work on CBIS finishing up and planned work after 2022
- » Prior to start, home demolition would be completed; utilities are a major concern for delay on the frontage road start
- » 3.5 year window if minimal settlement times and get full construction seasons; there's only so much area available at any time due to maintaining traffic and not really a resource issue
- » Input from several contractors contractor is that closing I-29 is a great option. This would improve access, safety (for public and workers), speed of construction, efficiency of crews, and impacts to traffic, and quality of finished product. Detour pavement and temporary construction would be minimal. Temporary work uses a lot of resources. The full closure option seems to be preferred by the contractors.
- » Contractor indicated that the burn rate for cost and resources is similar to current project work ongoing within the CBIS program.
- » Contractors' input on estimated duration of construction between 2.5 and 6 years, depending on whether the project was constructed under the full I-29 closure vs. maintaining interstate traffic and if the project was a single contract vs. multiple contracts. Several Contractors stated it would take twice as long to build the project if it were broken up.
- » Input from contractors was that coordination and scheduling would be difficult and costly if the project were broken up into multiple contracts. There is more potential for claims and issues between adjacent contractors if it were multiple contracts. Several preferred a single contract.
- » One contractor indicated that there may be competitive pricing if the project was broken up into multiple projects and bid on by local contractors. They also indicated that this would take longer and would be assembling construction packages building only portions of bridges. Perhaps flyovers could be a 24 month package done first, and I-29 may be another 1-2 season job. This may keep I-29 open more. Or, consider doing I-29 and cross street bridge first; construct as much bridge substructure as possible during this time.
- » If multiple contracts, could have an offline embankment contract; however, not a lot of areas to separate out; could break it out by stages
- » DOT would consider providing motivation with incentive/disincentive for early completion if full closure of I-29 was implemented
- » Consider prioritization of reopening closed movements and provide phased incentives for early openings
- » Contactor suggested to assign a total duration of full closure of I-29 but don't dictate when it starts or ends.
- » Suggestion to consider requiring a % of local labor or local contractor participation. Big JVs will partner with locals to get local advantages.

Follow Up Actions

- » Mass concrete specification: Can it be changed to get the temperature raised based on data and analysis prior to construction? This would make significant difference in making schedule. DOT to look into this
- » Barrier rail mix design; ensure that mix design reflects form stripping after 12 hours



- » Consider lengthening Broadway bridges to north if it eliminates a settlement time at the abutment, relative to early grading work that could be performed.
- » Early installation of message boards, prior to full closure, so that drivers get familiar with the signing. Provide early warning of interstate detour weeks in advance; provides early awareness of closure. Use news and media advertisements for full closure.