

February 1, 2007

Mr. Jay Bestgen
MoDOT Design Division
1320 Creek Trail Drive
Jefferson City, Missouri 65109

Re: Practical Design 2007 Awards for Excellence - I-35/I-670

Dear Mr. Bestgen:

We appreciate the opportunity to submit this application for the MoDOT/ACEC Practical Design 2007 Awards for Excellence. The application is attached for your review.

The project we are submitting is **J411400**, the replacement of the Westbound Truman Road bridge over I-35/I-670 in the southeast corner of Kansas City's downtown loop. The Truman Road bridge, part of a trio of interdependent structures over the highway (Oak and Locust over I-35/I-670 are the other structures), had been rated as MoDOT District 4's top priority for repair and replacement. In light of downtown Kansas City's recent building development surge that includes such projects as the KC Live entertainment district and the Sprint Arena, the focus on the Truman Road bridge was quickly accelerated so that construction of the project would be completed before the Sprint Arena opens for business.

Faced with an aggressive design schedule, MoDOT and HNTB collaborated on a project that meets the purpose and need and meets the objectives of Practical Design.

Innovation and creativity were key in formulating reasonable design solutions in this challenging urban environment. Efficiencies were created at many levels by reusing existing infrastructure where possible. In the end, the final design includes three new bridges, three new retaining walls, a relocated exit ramp, and new lane configurations that will accommodate future work to the downtown loop.

In addition, safety was not compromised, and the best project was delivered for the least amount of cost. By working closely with the City of Kansas City, Missouri on fencing and lighting enhancements (costs paid for by the City of Kansas City), the new bridges over I-35/I-670 will bring a new level of functionality for MoDOT and Kansas City and they will bring an impressive aesthetic enhancement.

Below is a brief summary of how this project compares to the Practical Design 2007 rating guidelines. We are excited to submit project **J411400** for consideration in the 2007 Awards for Excellence.

Scope of Project:

MoDOT was charged with replacing a structurally deficient Truman Road Bridge before the Sprint Arena opens in downtown Kansas City. Design must be compatible with future improvements identified for the downtown loop and must be compatible with potential capping of I-35/I-670.

A. Scope Comparison:

Before practical design, the bridges would have been built long enough to provide for the future lanes on I-670. The project, as-designed, saves on cost by minimizing bridge length to meet the current need only. Also, prior to practical design, the westbound Truman Road bridge was planned as two separate structures. By making Locust Street one-way at the

bridge, one component of the westbound Truman Road bridge and the Locust bridge were combined into one structure while still providing the same functionality. The bridges can still accommodate future expansion of additional lanes with some modifications.

B. Purpose and Need:

This project meets the project's purpose and need by replacing three bridges before the Sprint Arena opens. This project represents the most appropriate, efficient, effective and safe design by replacing the three bridges while reusing a significant portion of existing infrastructure.

C. New techniques, methods and non-traditional design for this project included the following:

- Eliminated one bridge by converting Locust to one-way traffic at the bridge, and combined one component of the westbound Truman Road bridges with the Locust bridge into one structure.
- Reused existing southerly bridge abutments for the Oak and Locust bridges.
- Westbound Truman bridge is prestressed concrete girder - short spans. (efficient design)
- Westbound Truman bridge on T-pier bridge rather than MSE wall with fill. The T-piers serve a dual purpose: 1. Avoided impacts to existing AT&T building, and 2. The shoulder of the westbound lanes on I-670 was able to be tucked underneath the pier caps to make room for all the required lanes.
- Eleven-foot lanes and reduced shoulder width on I-670 allow for four westbound lanes while utilizing existing highway pavement.
- A cantilever on the concrete retaining wall located along the realigned exit ramp was another design aspect that allowed for the maximum number of traffic lanes through the project area.
- Design exceptions for 15'-6" vertical clearance (rather than normal 16'-6") allows for utilizing existing I-670 pavement rather than new pavement on a lower profile grade.
- Lanes on the Oak Street bridge were narrowed to 11' feet to provide for use of existing abutment while still allowing six lanes of traffic.
- One sidewalk on Oak was widened from 5' to 8', which satisfied need for additional pedestrian access across I-670.
- Utilized soil nail wall instead of MSE along the westbound I-670 exit ramp, which reduced excavation requirement.

D. Cost Savings

- Original estimate to meet the purpose and need: \$20 million
- Pre VE cost: \$15 million
- Budget \$13.12 million
- Bid Cost: \$13.78 million

E. Roadway user expectations

This project minimizes delays by keeping all highway lanes open during construction. Some lane shifts and adjustments are necessary, but the number of lanes open before the project will be the same as during the project. In addition, when I-670 needs to be closed, it will only be on weekends and will be coordinated with Bartle Hall and Rehab (J411573 & J411762) project closures. The schedule for this project is considered to be aggressive. Therefore, construction time and any related impacts to the traveling public will be kept to as short a time span as possible. After the three new bridges are constructed, access over I-670 will again be returned to the preconstruction condition. The realigned westbound exit ramp will provide expanded downtown access options. Traffic flow for westbound I-670 will also be improved in two ways: 1. Increased from one to two through westbound lanes, and 2. Elimination of the weave from northbound US-71 to the downtown exit at McGee.

2007 APPLICATION FORM

(required for each entry)

Job No. J411400 Route I-35/I-670 County Jackson

STIP Description (Scoping or Construction, state which STIP) 05-09 06-10 07-11

Replace bridges and curb of retaining walls for westbound Truman road over I-35 and south leg of downtown loop from Holmes to McGee. Project involves retaining wall and bridges A-822, A-823-4, A-823 and A-824. To be let in combination with 411573 and 411762. Major project made possible by Amendment 3.

Project Manager (could have both)

MoDOT Mary Miller

Consultant Jim Kinder

Active core team members as approved by the MoDOT PM (may include consultants)

Ron Temme Matt Killion Wayne Duryee

Susan Nelson Steve Porter Tom Westerman

Robert Rhodes Derek Jander Linda Clark

Bruce Harvel Dale McGregor

Project Contacts (will have both for consultant entry)

District Mary Miller

Consultant \$ Jim Kinder

STIP budget \$ 13.12

or Award cost \$ 13.78

Value Engineering study during design? yes no (if yes) Project Stage Preliminary

VE Contact person Tom Allen

Construction-stage VE (VECP)? yes no (if yes) Explain _____

Total VECP savings \$ NA VECP Contact Person NA

Why is this entry the "poster" image for MoDOT's practical design philosophy?

(In layman's terms - 100 words or fewer - attach additional sheet if necessary) _____

See attachment

Send entries to: MoDOT Design Division, ATTN: Jay Bestgen
1320 Creek Trail Dr.
Jefferson City, Missouri 65109

All entries must be received no later than close of business on February 1, 2007

Attachment

Why is this entry the “poster” image for MoDOT’s practical design philosophy?
(In layman’s terms -100 words or fewer - attach additional sheet if necessary)

Innovation, creativity, and collaboration were key components in delivering a practical solution to replace critical infrastructure needs. What could have been a \$20 million job to accomplish the purpose and need was reduced to \$13.8 million for three new bridge structures and other various improvements. Using the study as a springboard for practical design strategies, this project incorporated existing pavement and bridge substructure wherever possible, efficient bridge layouts, retaining walls, design exceptions for vertical clearance, and new lane configurations to obtain the best value for the least cost. This project accommodates future modifications to the downtown loop.

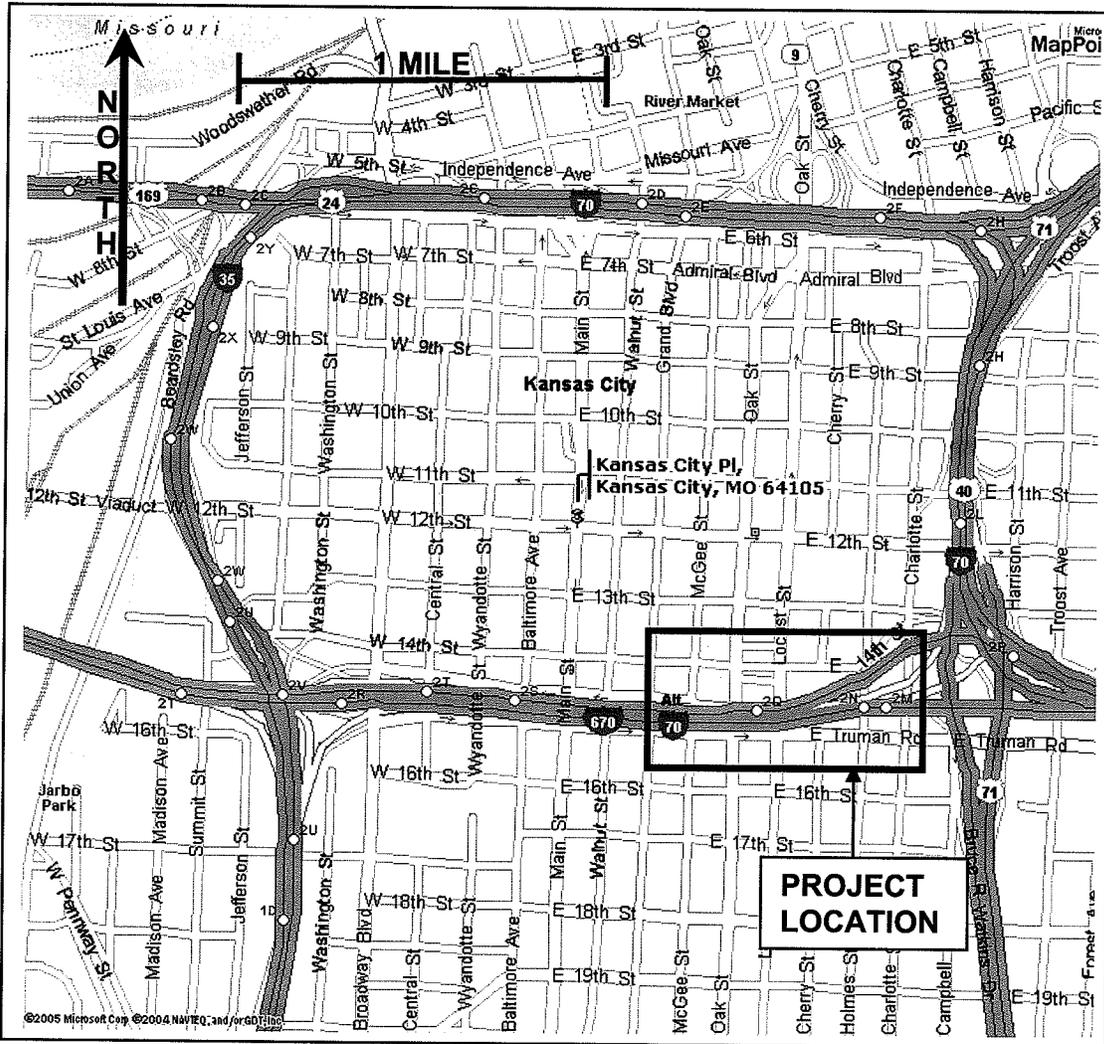


EXHIBIT I
PROJECT LOCATION
JOB NO. J4I1400

HNTB	PROJECT	STATE	DISTRICT
	I-50/	MO	4
	I-670		
	JOB NO. J411400		
	COUNTY JACKSON		



BRIDGES TO BE REPLACED

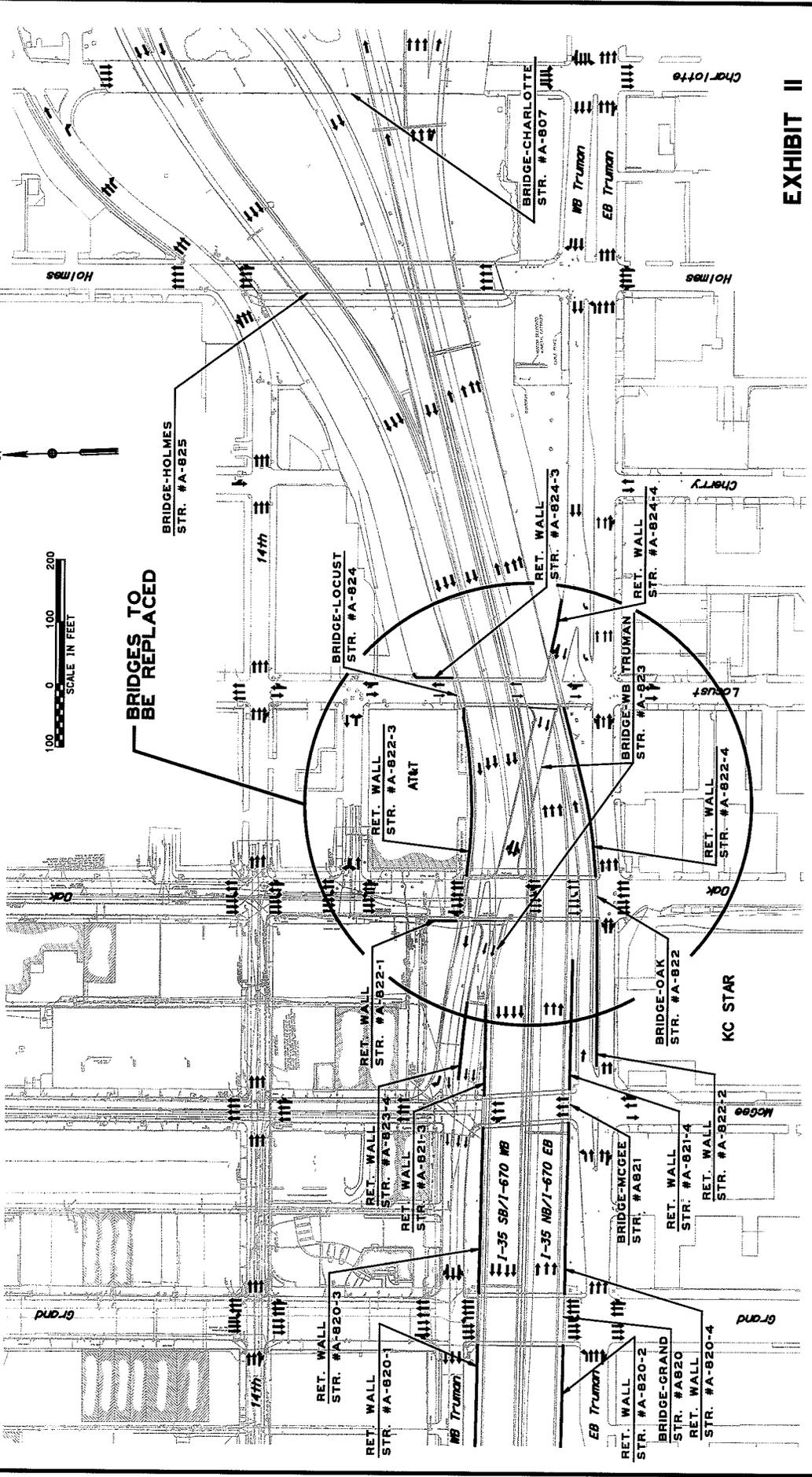
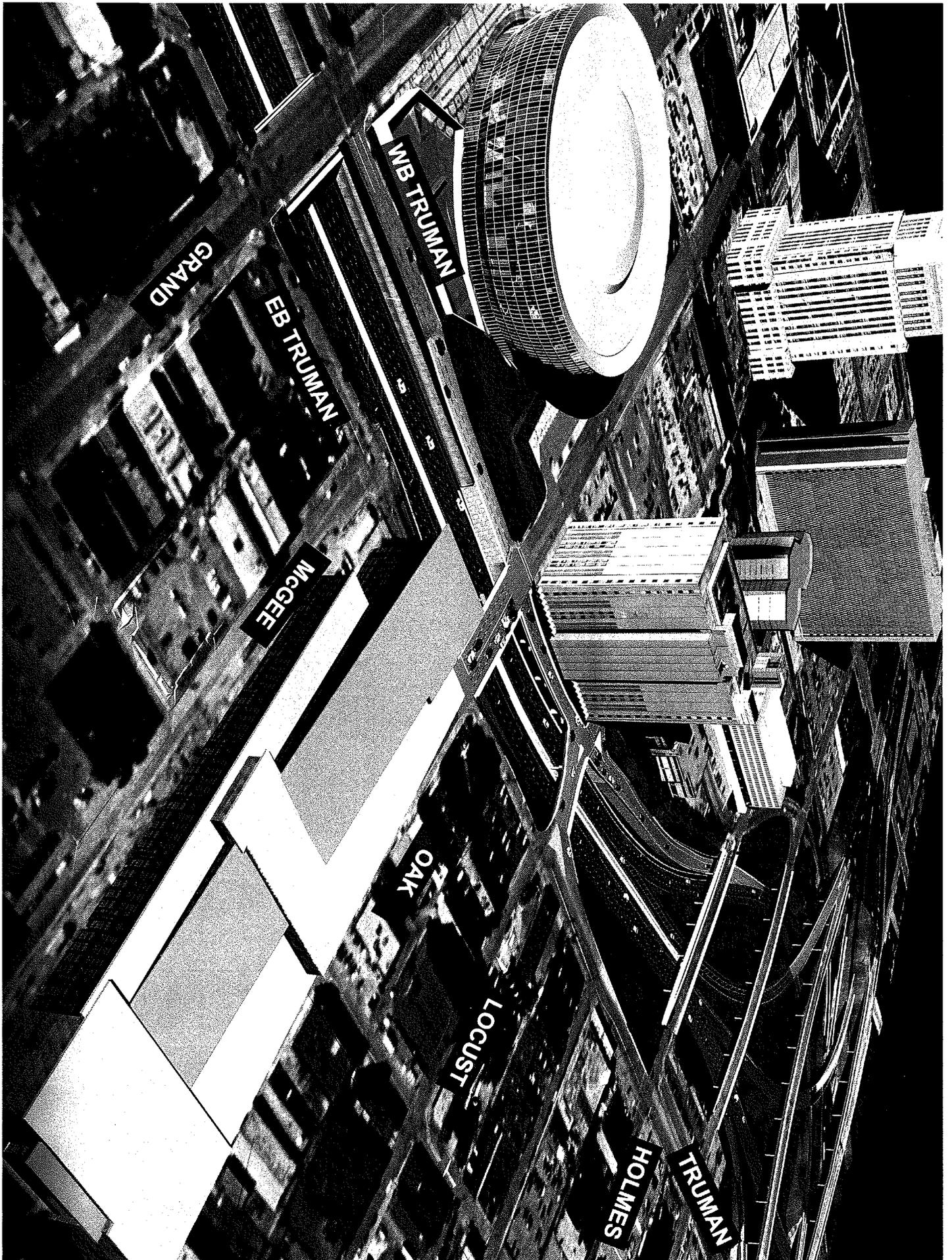


EXHIBIT II
EXISTING CONDITIONS



GRAND

EB TRUMAN

WB TRUMAN

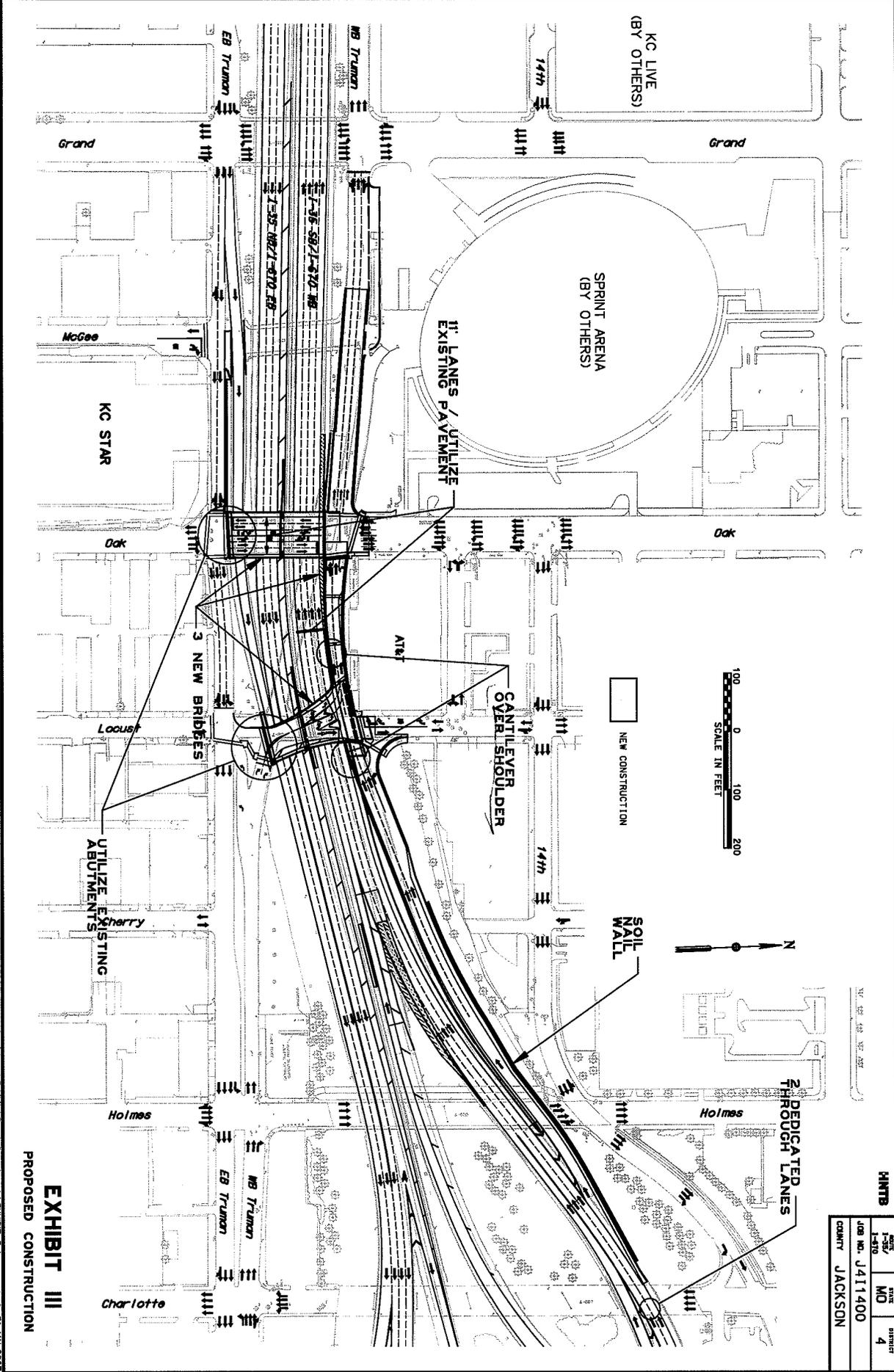
MCGEE

OAK

LOCUST

HOLMES

TRUMAN



DATE	REV	BY	CHKD
1-28-07		JACKSON	
1-31-07			
JOB NO. J411400		SHEET NO. 4	
COUNTY JACKSON		PROJECT	

EXHIBIT III
PROPOSED CONSTRUCTION

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