



MEMORANDUM

Missouri Department of Transportation

Design District 6

TO: Jay Bestgen
Assistant State Design Engineer

From: Lesley Hoffarth
Project Director, The New I-64

Date: February 1, 2007

Subject: Route I-64, St. Louis County
Job No. J6I0978
Practical Design, 2007 Awards for Excellence

The New I-64 Project is MoDOT's first design-build project and it is also the largest single project ever undertaken by MoDOT. This high profile project reconstructs over 10 miles of congested urban freeway in the St. Louis region. The heart of this project is the reconstruction of the I-64/I-170 interchange.

The I-64 project was initially to be designed in house in full compliance with all requirements of the PDM, which included items such as 70 mph design speeds for mainline pavements, 16'-6" clearance for all bridges, and 12-ft. shoulders left and right for the multi-lane interstate route.

The full design had many access points to local roads to be included within the I-64 / I-170 interchange limits, and provided a complex system of ramps, with challenges of providing clear signage to meet driver expectations.

The cost estimate for the bridges within the I-64/I-170 interchange was over \$69 million.

The project was changed from an in-house design-bid-build project to become the State's first design-build project. The design-build project includes a highly constrained budget. MoDOT knew that the application of practical design was essential to be able to build the entire project. MoDOT strived to draw innovation out of the teams proposed to design and construct this project. The design-build contractor was given a set budget for design and construction costs, and they proposed a plan that met all of the goals of the project at a lower cost.

The successful proposer, Gateway Constructors, was able to use the principles of practical design to significantly reduce the complexity of the interchange, reducing the three-level interchange to a two-level interchange. The design speed for the mainline was reduced from 70 mph to 60 mph, to meet the posted speed limit. Shoulder widths were reduced to meet AASHTO standards and still provide the drainage and vehicle break-down storage functions.

The complexity of the in-house design of the interchange was simplified by new concepts to provide access to local roads without providing direct interstate ramps to each roadway. The result of these new concepts provided for more straight forward highway signing, fewer very

quick decisions required by motorists while negotiating the interchange, a reduced number of ramps and bridges, and a design which is more in line with driver expectancy.

Using the 60 MPH posted speed as the design speed, the only design exception required was for horizontal sight distance on the directional ramps and bridges. Although there is reduced horizontal sight distance for observing a 2-ft. object within the roadway caused by the bridge parapet walls, the curved nature of the directional ramps allows motorists to see other vehicles ahead in the flow of traffic.

The bridges for the revised interchange are estimated at \$32 million. The cost savings due to practical design of this interchange alone is over \$37 million.

Attachments

2007 APPLICATION FORM

(required for each entry)

Job No. J610978 **Route** I-64 **County** St. Louis

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

Rebuild I-64 from Spoeede to Kingshighway. This application focuses on the I-170 interchange.

Project Manager (could have both)

MoDOT Lesley Hoffarth

Consultant Gateway Constructors

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

Ron Morris

Mary Cay O'Malley (HNTB)

Linda Wilson

Jim Schmidt

Greg Budd (FHWA)

Dave Lenczycki (HNTB)

Mike Castro

Larry Burke

Kim Reid

Rich Johnson

Project Contacts (will have both for consultant entry)

District Greg Horn

Consultant \$

STIP budget \$ 69,101,620

or **Award cost** \$37,247,230

Value Engineering study during design? yes
constructability

Project Stage DEIS, FEIS,

VE Contact person Tom Allen

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

Total VECP savings \$ **VECP Contact Person**

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)

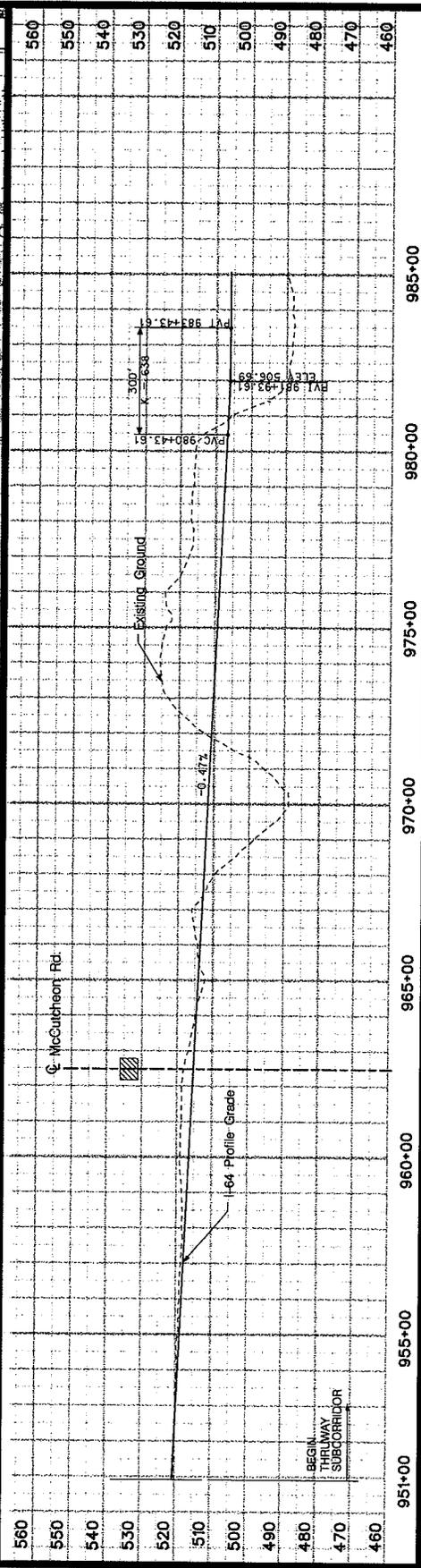
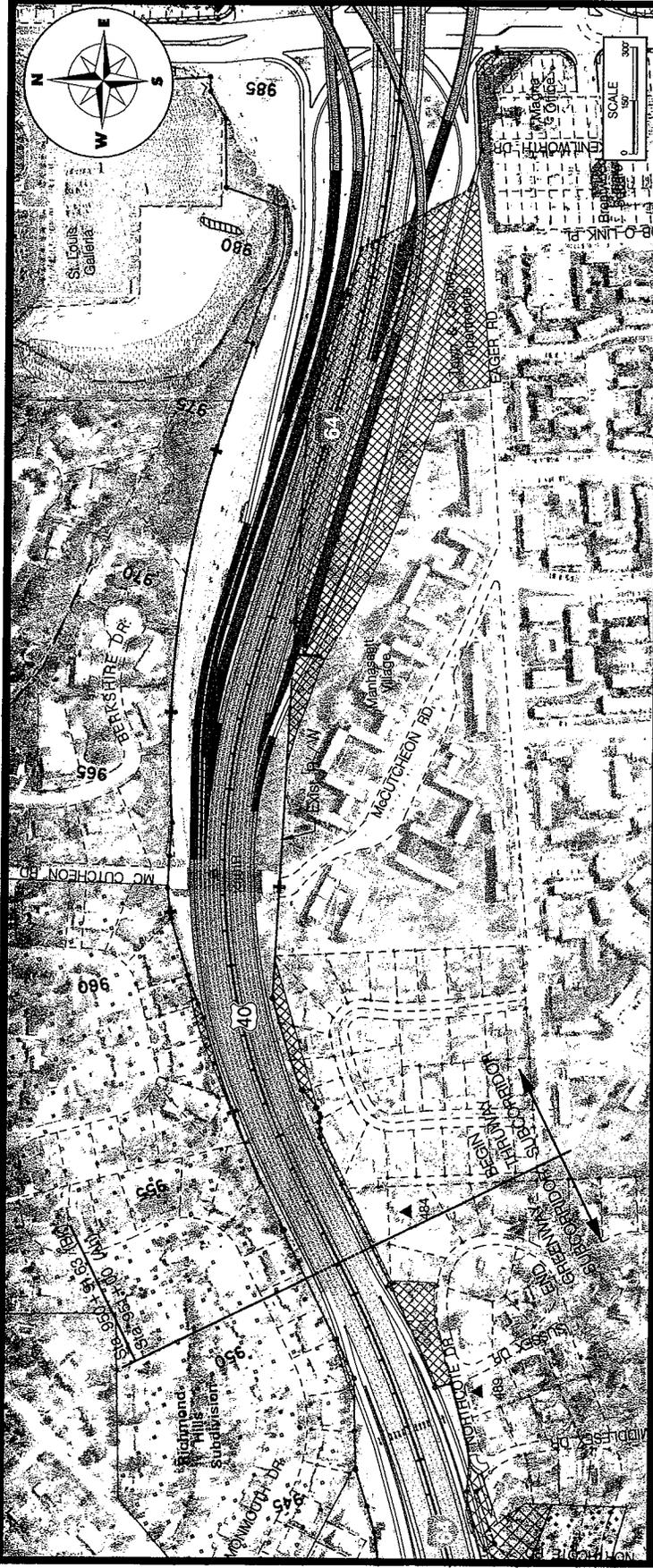
The New I-64 Project is MoDOT's first design-build project and it is also the largest single project ever undertaken by MoDOT. This high profile project reconstructs over 10 miles of congested urban freeway in the St. Louis region. During the Environmental Impact Statement, the cost estimate for the bridges within the I-64/I-170 interchange was over \$69 million. This design was based on traditional MoDOT design standards. Knowing that the application of practical design was essential to be able to build the entire project, MoDOT strived to draw innovation out of the teams proposing to design and construct this project. The successful proposer, Gateway Constructors, was able to reconfigure the interchange to significantly reduce the complexity of the interchange, reducing the three-level interchange to a two-level interchange. The design changes resulted in a streamlined design that handles traffic efficiently and saved over \$37 million.

Send entries to: MoDOT Design Division, ATTN: Jay Bestgen

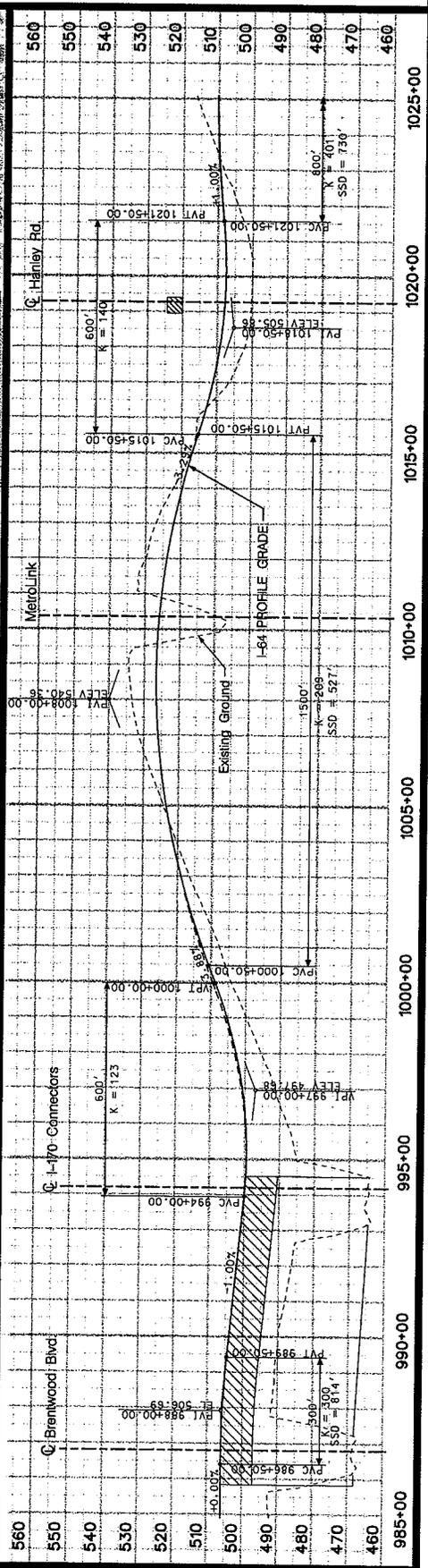
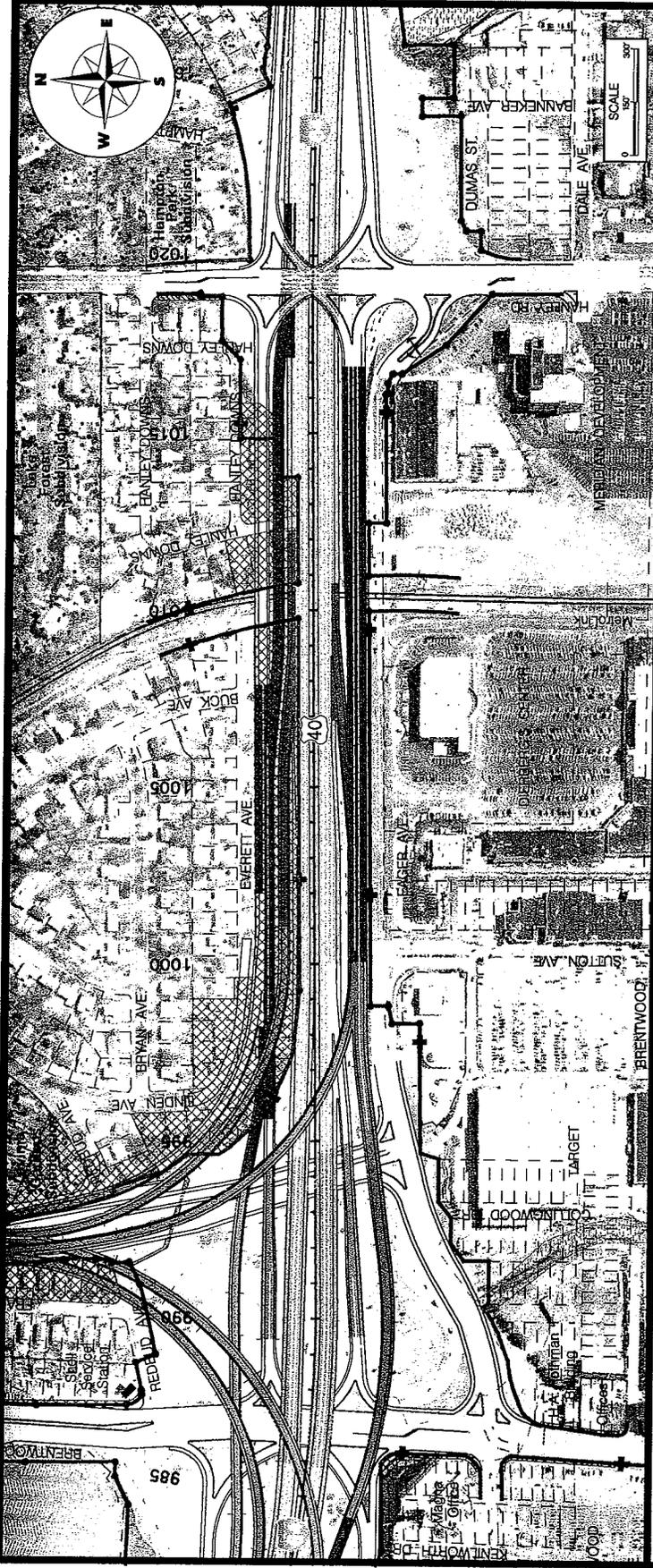
1320 Creek Trail Dr.

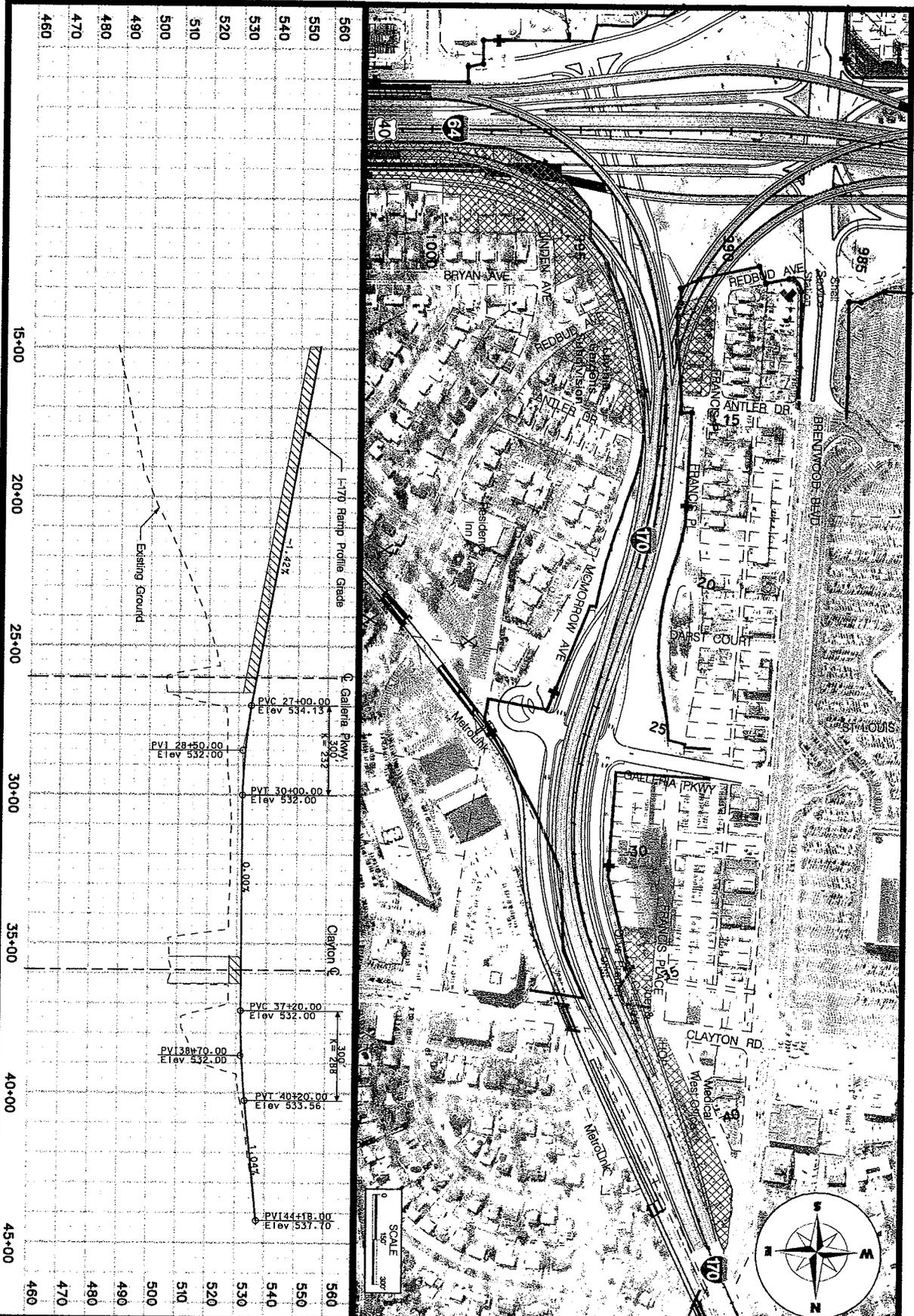
Jefferson City, Missouri 65109

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



Thruway Subcorridor



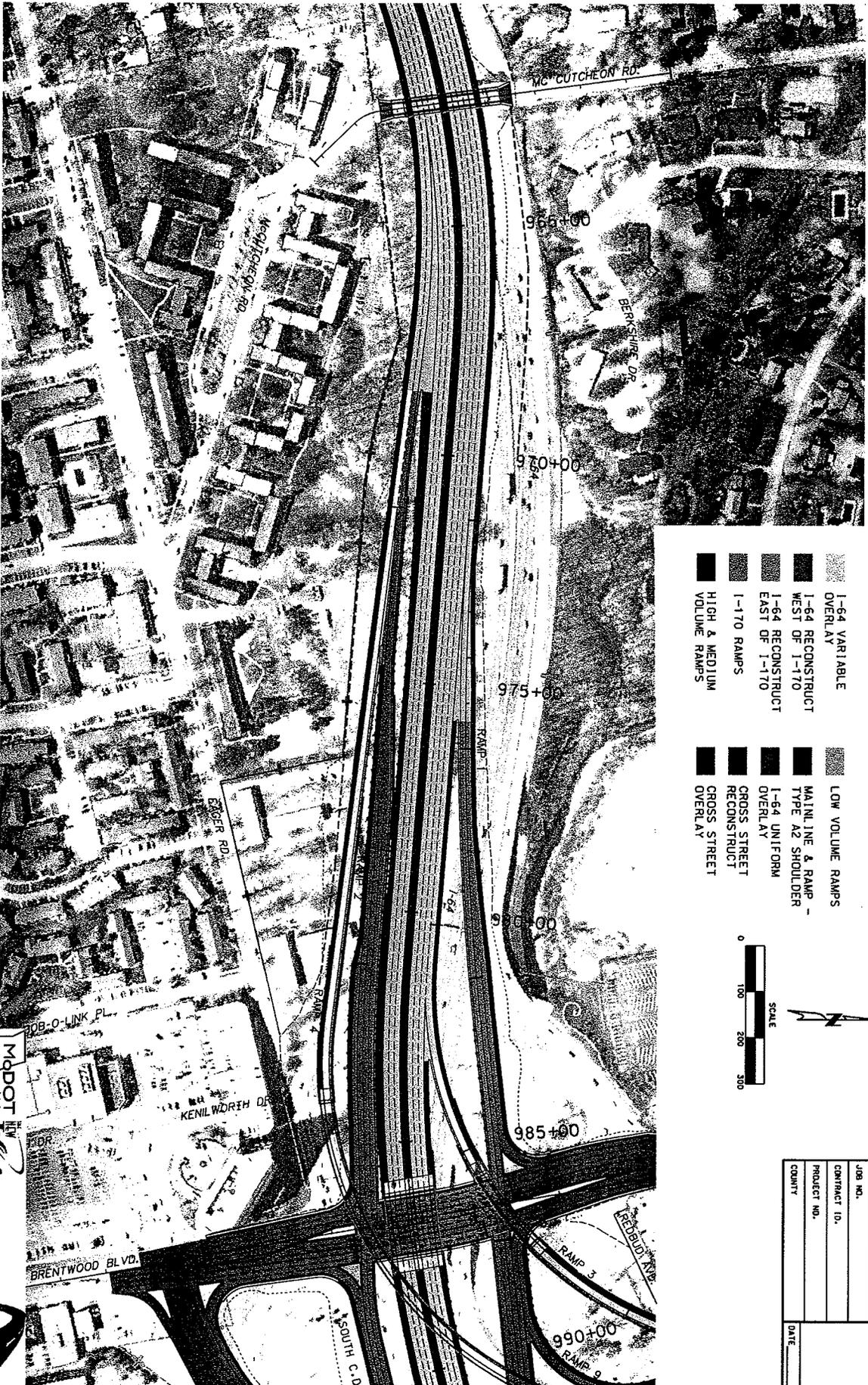


Thruway Subcorridor

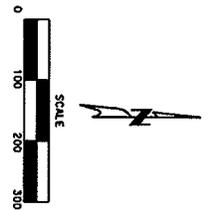


I-64 Environmental Impact Statement
 PLAN AND PROFILE
 Plate T19 - Alternative 3 - I-170





- I-64 VARIABLE OVERLAY
- I-64 RECONSTRUCT WEST OF I-170
- I-64 RECONSTRUCT EAST OF I-170
- I-170 RAMPS
- HIGH & MEDIUM VOLUME RAMPS
- LOW VOLUME RAMPS
- MAINLINE & RAMP - TYPE A2 SHOULDER OVERLAY
- I-64 UNIFORM OVERLAY
- CROSS STREET RECONSTRUCT
- CROSS STREET OVERLAY



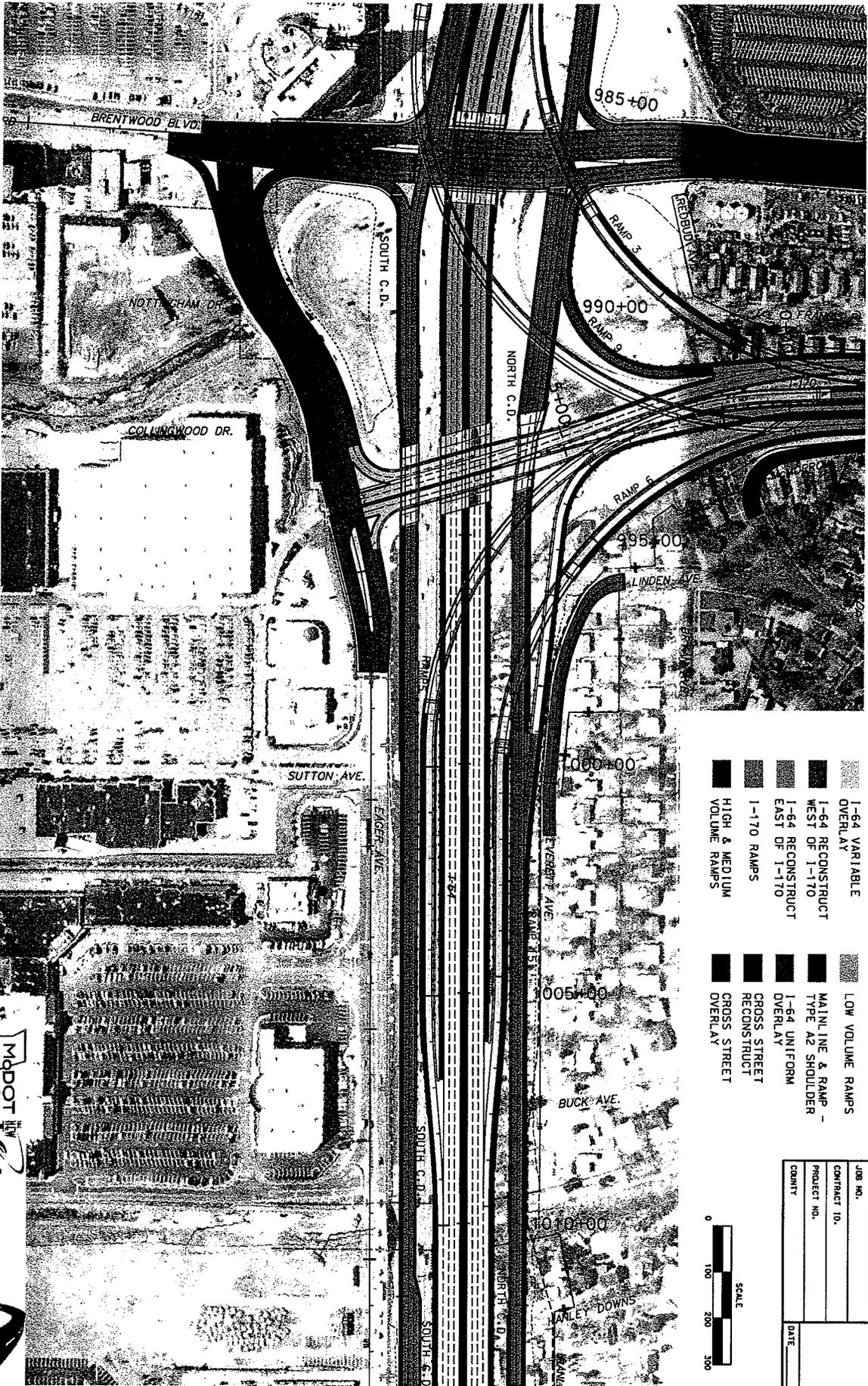
DATE	STATE	DISTRICT	PROJECT NO.
	MD		RD10
JOB NO.		CONTRACT I.D.	
PROJECT NO.		COUNTY	
DATE			



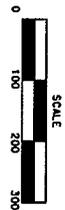
164 Gateway Constructors

 Granite • Fred Ulmer • Melissa Sougier

10_roadway_ProposalPlan.dgn 3/4/17 PM 10/17/2008

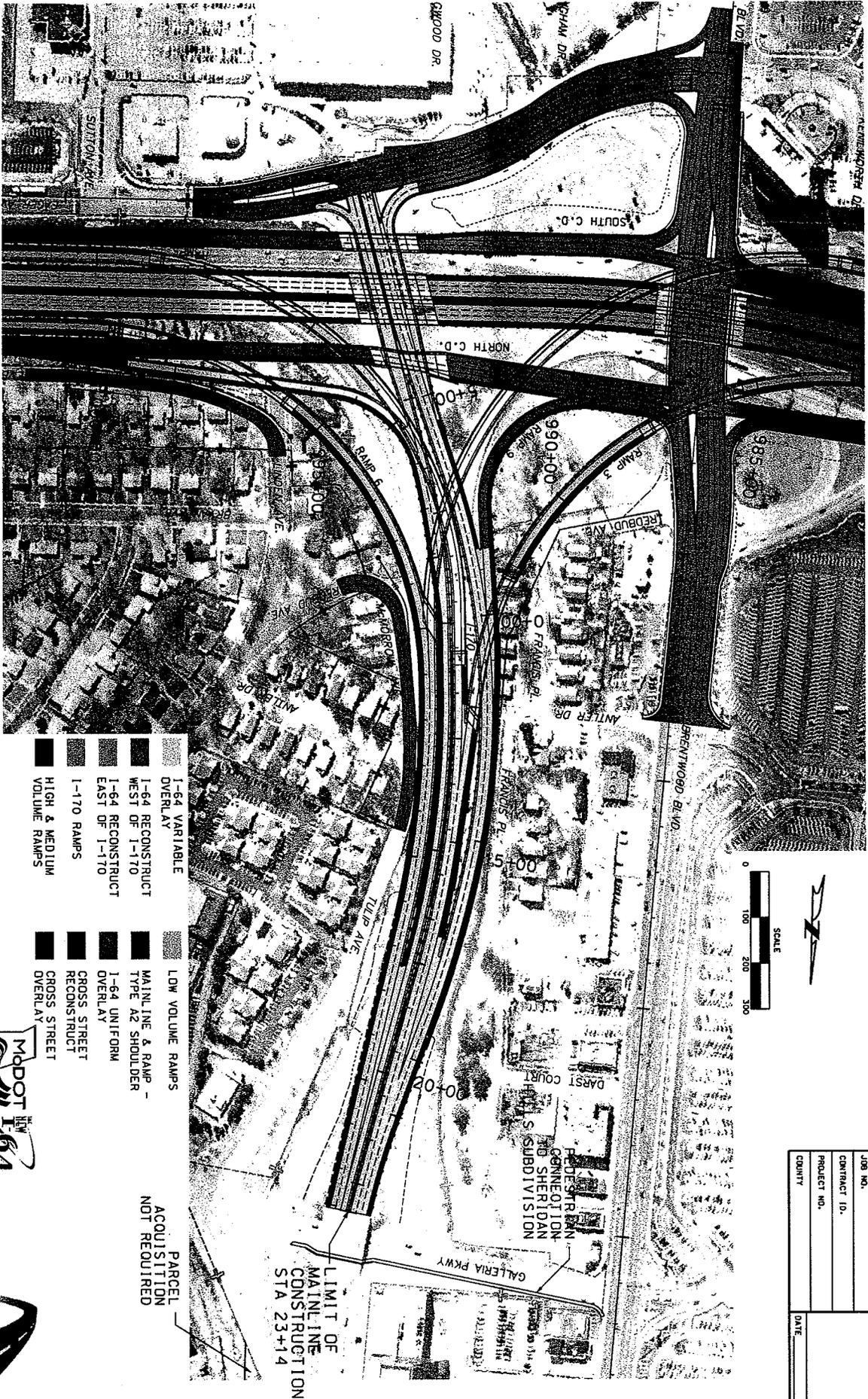


- 1-64 VARIABLE OVERLAY
- 1-64 RECONSTRUCT WEST OF 1-170
- 1-64 RECONSTRUCT EAST OF 1-170
- 1-170 RAMPS
- HIGH & MEDIUM VOLUME RAMPS
- LOW VOLUME RAMPS
- MAINLINE & RAMP - TYPE A2 SHOULDER
- 1-64 UNIFORM OVERLAY
- CROSS STREET RECONSTRUCT
- CROSS STREET OVERLAY



JOB NO.	CONTRACT	SHEET NO.
CONTRACT 10.		RD 11
PROJECT NO.		
DATE		


MDOT 164 Gateway Constructors
 Granite • Fred Ulmer • Allison Bonger
 11. Roadway Proposal Plan.dgn 3/4/23 Plt 10/17/2008

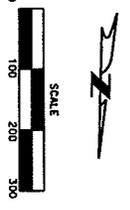


- 1-64 VARIABLE OVERLAY
- 1-64 RECONSTRUCT WEST OF 1-170
- 1-64 RECONSTRUCT EAST OF 1-170
- 1-170 RAMPS
- HIGH & MEDIUM VOLUME RAMPS

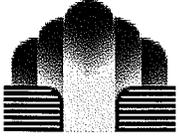
- LOW VOLUME RAMPS
- MAINLINE & RAMP - TYPE A2 SHOULDER
- 1-64 UNIFORM OVERLAY
- CROSS STREET RECONSTRUCT
- CROSS STREET OVERLAY

PARCEL ACQUISITION NOT REQUIRED

LIMIT OF MAINLINE CONSTRUCTION STA 23+14



DATE	MO	YEAR	SCALE
	MO		RD12
JOB NO.		CONTRACT ID.	
PROJECT NO.		DATE	
COUNTY			



Lesley S Hoffarth /D6/MODOT

02/23/2007 03:51 PM

To Kathryn P Harvey/SC/MODOT@MODOT, Jay
Bestgen/SC/MODOT@MODOT
cc Gregory J Horn/D6/MODOT@MODOT

bcc

Subject I-64 Practical Design

Here is the team that worked on the I-170/I-64 interchange:

Owner's Team

Lesley Hoffarth

Ron Morris

Mary Cay O'Malley-HNTB

Greg Budd - FHWA

Jim Schmidt

Dave Lenczycki-HNTB

Gateway Constructors' Team

Jim Klemz-Parsons Transportation Group (PTG)

Steve Arent - PTG

Barry Erlandson - PTG

Tom Viriding - PTG

Carl Cushnie - PTG

Don Rasmussen - Granite

Bob Leingang-Millstone Bangert

Tom Hayes - Fred Weber