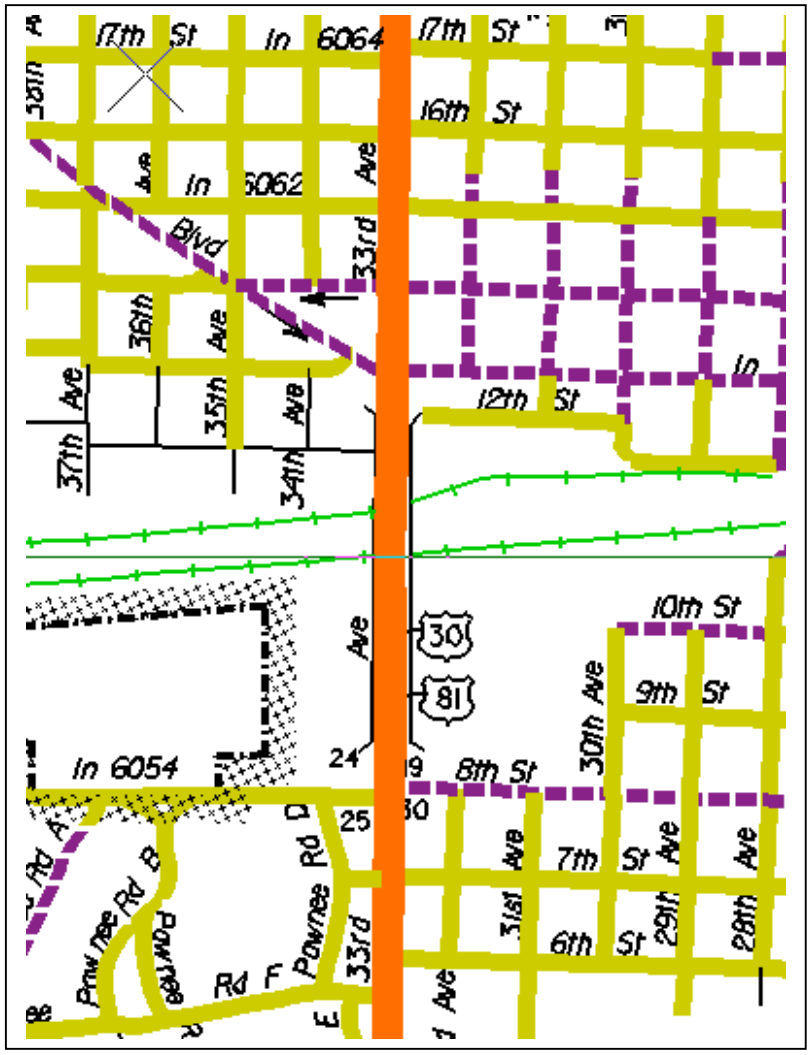
Memorandum

DATE: **October 29, 2003**

TO: **Randy Eldorado, Agreements Section**

FROM: **Jim Wilkinson, Location Studies Section**

SUBJECT: **NH-30-5(125)**
Columbus Viaduct Replacement
CN 31382
Summary of Project – transfer to Roadway Design / Consultant



This project consists of two parts: (1) replace the viaduct and (2) improve traffic capacity and operations just north of the bridge. The concept(s) and costs need to be identified. Project start and end points will have to be established as the study progresses. If transitions and temporary crossovers are considered, the project may start at 7th Street and end at 15th Street. This would be R.P. 378+32 to R.P. 378+85, a length of approximately 0.53 miles. Traffic volumes are:

	2003	2028
ADT	19990	27200
DHV	1960	2635
%HT	7%	7%

Replacement of the Viaduct

The existing viaduct S030 37847 spans the 12-track (including 2 mainlines) UPRR Columbus yard 816-734-H. With 21 spans, it is 775 feet in length, carries four lanes of traffic divided by a narrow median, and has 5-feet sidewalks on both sides for a total of 70'-10" width. The viaduct was built in 1930 and reconstructed in 1978. Although currently the structure is "adequate" with a sufficiency rating of 81.2, Bridge Division has determined it is not feasible to re-deck it, and there is concern about high maintenance costs. So they recommend replacement, by 2009.

Bridge Division is currently preparing (it should be finished in two or three weeks) a TSL that I expect will show rehabilitation of the existing piers, 23-ft. clearance to top of track, a minimal (3-inch) profile grade raise, and elimination of some short end spans i.e. the viaduct will be shorter. Figure $100/SF for conventional bridge construction for the new viaduct. UPRR is planning on upgrading to CTC (Centralized Track Control) in 2004, i.e. they will be re-configuring their yard. Khalil Jaber has more details on this. Our TSL will assume that UPRR will design their yard configuration around the existing pier locations.

It is felt at this time that a detour would not be used. This is the only viaduct in Columbus and it would be a high traffic volume to send over at-grade crossings in town. To allow head-to-head traffic one lane in each direction during construction, Bridge Division has said the replacement viaduct can be built half-at-a-time with MSE walls using sacrificial sheet piles, which can be built around existing piers/columns. If the new structure is built to a minimum required width – the same geometry except 7-ft. sidewalks – Bridge Division estimated a 6.5-ft. minimum centerline shift and a 76-ft. to 80-ft. wide structure. If we build the new structure wider (total 91-ft. to 93-ft.) we can maintain the existing centerline; the median would be wider. By the way, ADA will be a consideration for the sidewalks because the grade is around 6 percent.

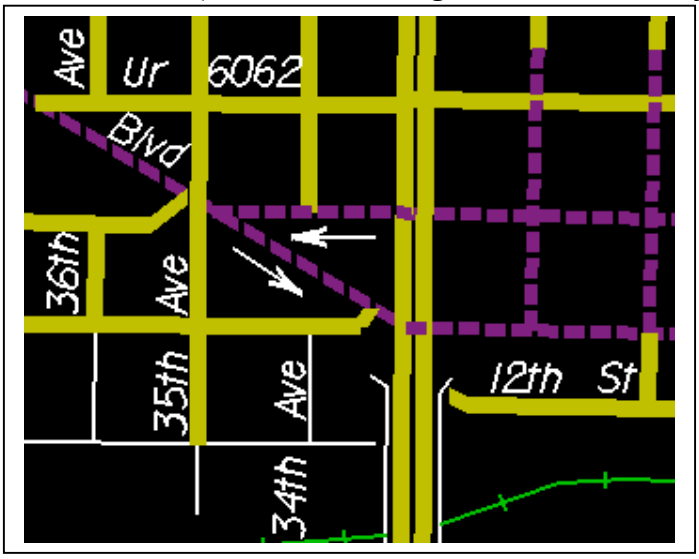
Relocations are likely. On both sides there are homes and several businesses including convenience stores, a manufacturing concern, hotel, a large service company, an auto sales lot and an office building. It would appear that widening to the east side would result in the least ROW acquisitions, but this will have to be studied before any conclusions can be drawn.

The following Reconstruction project, at the south end of the viaduct, was let April 13, 2003: 5th St. – 8th St. project EACNH-30-5(124) CN 31368.

There needs to be coordination between NDOR and UPRR to determine the new viaduct concept and its impact on the community, what has to be acquired in order to build the project, and it will be another challenge to determine how to handle traffic during construction.

Improve Traffic Capacity and Operations just North of the Bridge

Traffic Engineering Division has already made a recommendation – see the attached PDF file - for improvements just north of the viaduct. They counted traffic (including a Heavy Vehicle classification) through the 14th Street intersection, in the summer of 2003. This included counts on Howard Boulevard at 14th Street. Then, Traffic evaluated how well this configuration of one-way streets works with highway traffic, to see if any improvements can be implemented. The idea of making Howard Boulevard two-way between 35th and 33rd Avenue, mentioned verbally during our study by City Engineer Merlin Lindahl (the idea was brought to his attention by a city councilman), was analyzed for advantages and disadvantages. Traffic Engineering concluded that the one-way system is working so they recommended leaving Howard Boulevard and 14th Street as one-way streets. They did recommend some changes to improve capacity and traffic operations, however, including the widening of Highway 30 (33rd Avenue) to accommodate more left-turn capacity. See the attached file for Traffic Engineering's recommendation.



What still needs to be studied, by drawing lines and comparing concepts, is:

- Should the widening be done on one side only, or both sides?
- What property and structures would need to be acquired?
- This work must be coordinated with the viaduct replacement.

Summary

This project consists of two parts: (1) replace the viaduct and (2) improve traffic capacity and operations just north of the bridge. The concept(s) and costs need to be identified. The project will be approximately ½ mile in length, including at least two city block lengths on either end of the viaduct. NDOR is developing the viaduct TSL, and has also done a traffic study and made recommendations for improvements just north of the viaduct. NDOR's current thinking is that a detour would be unacceptable, so the replacement viaduct is expected to be built half at a time and carry one lane of traffic in each direction during construction. There needs to be coordination between NDOR and UPRR to determine the new viaduct concept and its impact on the community, what has to be acquired in order to build the project, and it will be another challenge to determine how to handle traffic during construction.