


MICHIGAN STATE
UNIVERSITY

December 5, 2012

MEMORANDUM

To: Trustee Finance Committee

From: Fred L. Poston 

Subject: **Project Approval - Authorization to Proceed**
Steam Distribution - Replace Steam Tunnel from Library to IM Circle

RECOMMENDATION

BE IT RESOLVED that the Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with the project entitled Steam Distribution - Replace Steam Tunnel from Library to IM Circle and that it approve a budget of \$17,125,000.

BACKGROUND

Program Need:

The north campus arch-style steam tunnels are 87 to 102 years old and have significantly deteriorated. The structural anchors, pipe supports, and steam equipment within these tunnels are severely deteriorated and require replacement or repair for safe and reliable operation of the steam distribution system. The water main in this area is also at the end of its useful life and should be increased in size for effective fire-fighting capability and reliability. Communication lines are in the same tunnels as steam and condensate return lines, which is not optimal. The existing electrical duct banks serving this area are currently full, and in certain locations broken, requiring additional ducts to be installed for future electrical improvements to this region of campus.

The current substation at the IM Circle building is one of the few remaining locations connected to the deteriorating 4,160 volt distribution system that is being replaced by the 13,200 volt system as part of the long-range electrical plan. In anticipation of completing the conversion, this project will install a duct bank and vault to house the new substation. The components of the substation containing the panels, circuits, and wiring will be phased in over time.



OFFICE OF THE
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In the summer of 2013, the Michigan Department of Transportation will be reconstructing Michigan Avenue, necessitating the university to coordinate new road alignments at the Beal Street and Michigan Avenue intersection.

Description of the Project:

The project runs along Beal Street and West Circle Drive, starting approximately 250 feet west of the Kalamazoo Road and the West Circle Drive intersection to just north of the Library Building in the north academic district. This project is the second phase of a four-phase program to replace the deteriorating north campus arch steam tunnels, and includes selectively replacing the existing arch steam tunnel from IM Circle to vault 92, north of the Library, along with repair and replacement of steam piping, supports, and equipment within some existing steam tunnels. The project is also anticipated to include replacing the deteriorated cast-iron water main with a larger pipe to increase fire-flow capacity and reliability. Additional communication and electrical ducts will be installed from IM Circle to the area near the MSU Museum to replace damaged electrical ducts and provide additional capacity for communication and electrical growth.

The project will reconstruct segments of West Circle Drive with two traffic lanes and a bike lane, and a segment of Beal Street with two traffic lanes and two bike lanes to be consistent with current MSU transportation standards, including pedestrian, bicycle, and vehicular traffic flow and safety. The new intersection configuration at Kalamazoo Road and West Circle Drive will significantly improve the safety of pedestrians and bicyclists. In addition, this will reduce adjacent parking capacity from 56 parking spaces and 6 barrier-free spaces to 42 parking spaces and 6 barrier-free spaces.

The Architect/Engineer is Fishbeck, Thompson, Carr, & Huber Inc. The Construction Manager is Granger Construction.

Based on an assessment of the factors stated in the Project Planning and Approval process concerning Project Labor Agreements (PLA), the Vice President for Finance and Operations and Treasurer has determined that a PLA would not be required for this project.

Communication Feedback:

The campus community was given opportunities to provide feedback during the planning phase and any concerns have been addressed in the project design. The project design team met with both College of Music and IM faculty and staff, and sought community feedback, all of which informed the final design.

The Office of Campus Planning and Administration has reviewed this project and found it to be consistent with the Campus Master Plan and Planning Principles. The Campus Infrastructure Planning Work Group also supports the recommendation to proceed with the project.

As construction proceeds, the schedule will be reviewed with the campus community.

Project Cost and Timetable:

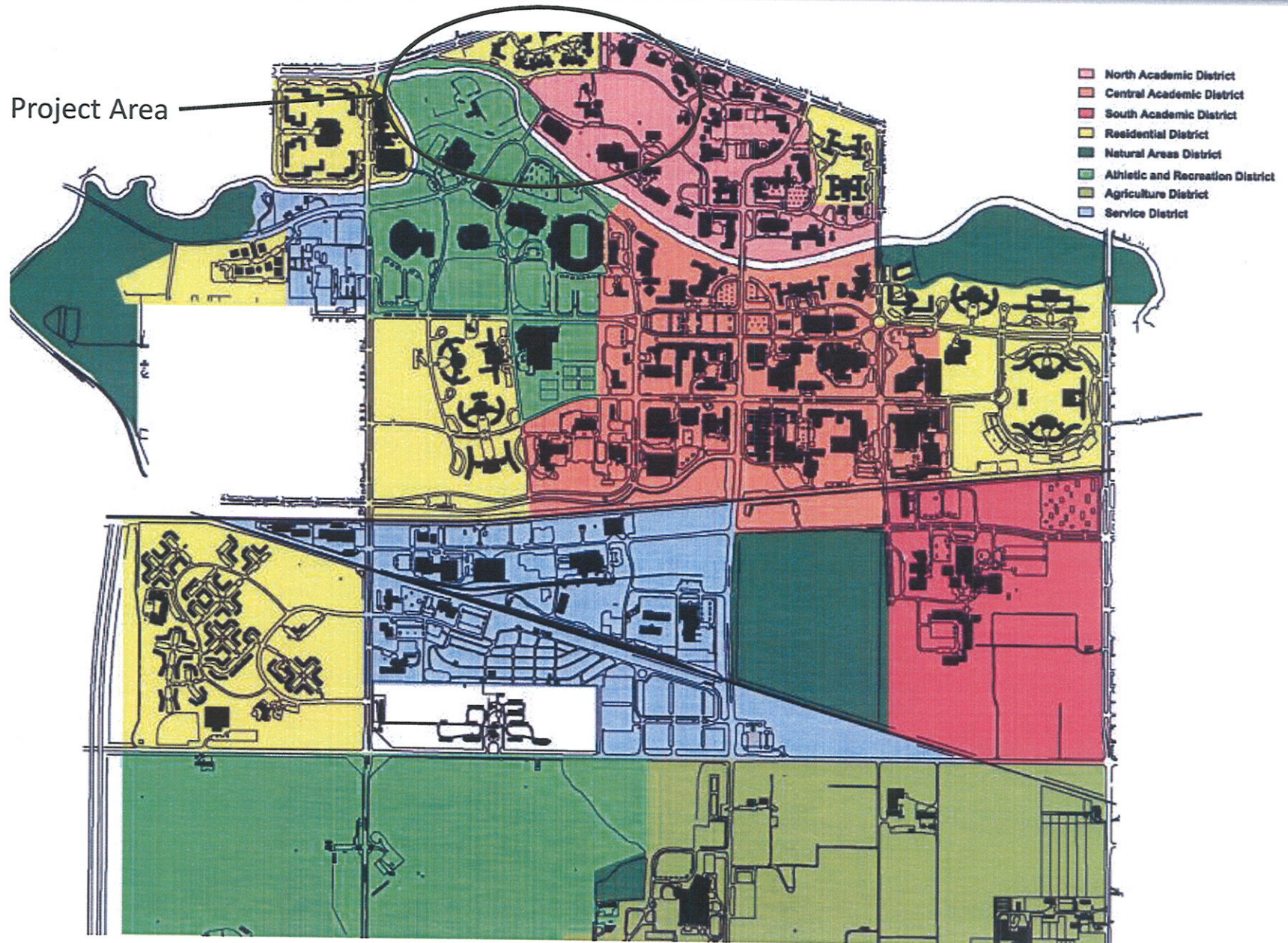
The budget for this Construction Manager project is \$17,125,000. The source of funds is a combination of tax-exempt financing with debt repayment from the general fund and Just-In-Time funds.

Construction is planned to begin in December 2012, with substantial completion in August 2013, and final completion by December 2014.

cc: R. Flinn, M. Haas, J. Kacos, G. Klein, B. Kranz, B. Latta, K. Lindahl,
M. McCabe, J. Mumma, R. Nestle, D. Quinney, K. Neils, L. Adams

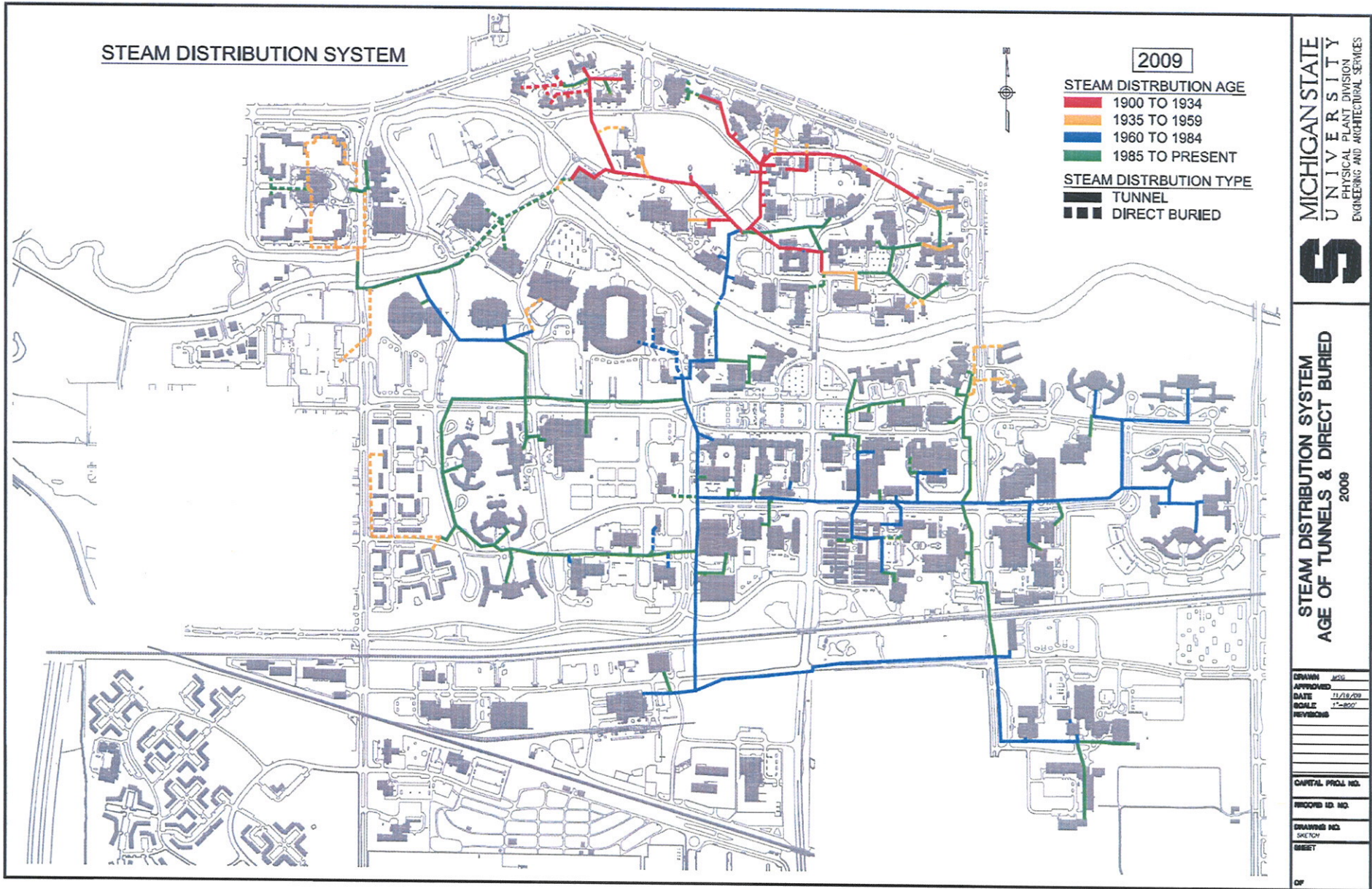
CP11258

Project Approval – Authorization to Proceed Steam Distribution – Replace Steam Tunnel from Library to IM Circle



Project Approval – Authorization to Proceed
 Steam Distribution – Replace Steam Tunnel from Library to IM Circle

MSU Steam Distribution – Age and Type of System

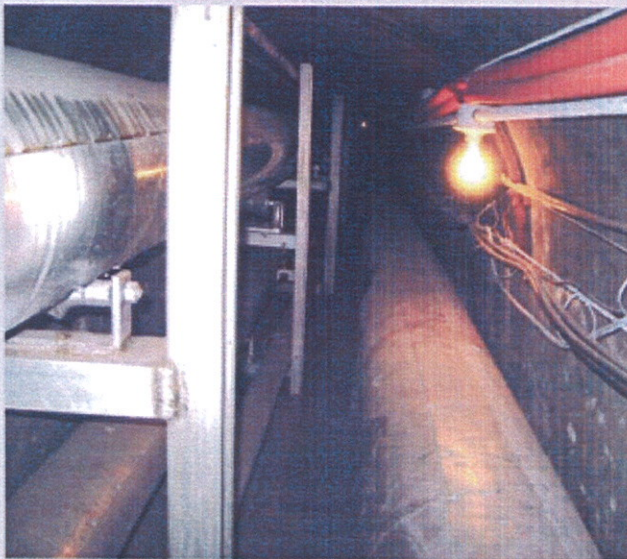


MICHIGAN STATE
 UNIVERSITY
 PHYSICAL PLANT DIVISION
 ENGINEERING AND ARCHITECTURAL SERVICES



► Arch Tunnels

- Vault 92 to Vault 93 (fig. 1.7)
 - Small tunnel 4' wide x 5' tall
 - Structural failure under road
 - No means of predicting performance
 - 1' to 2' cover over tunnel



Crack in North wall

Crack in South Wall



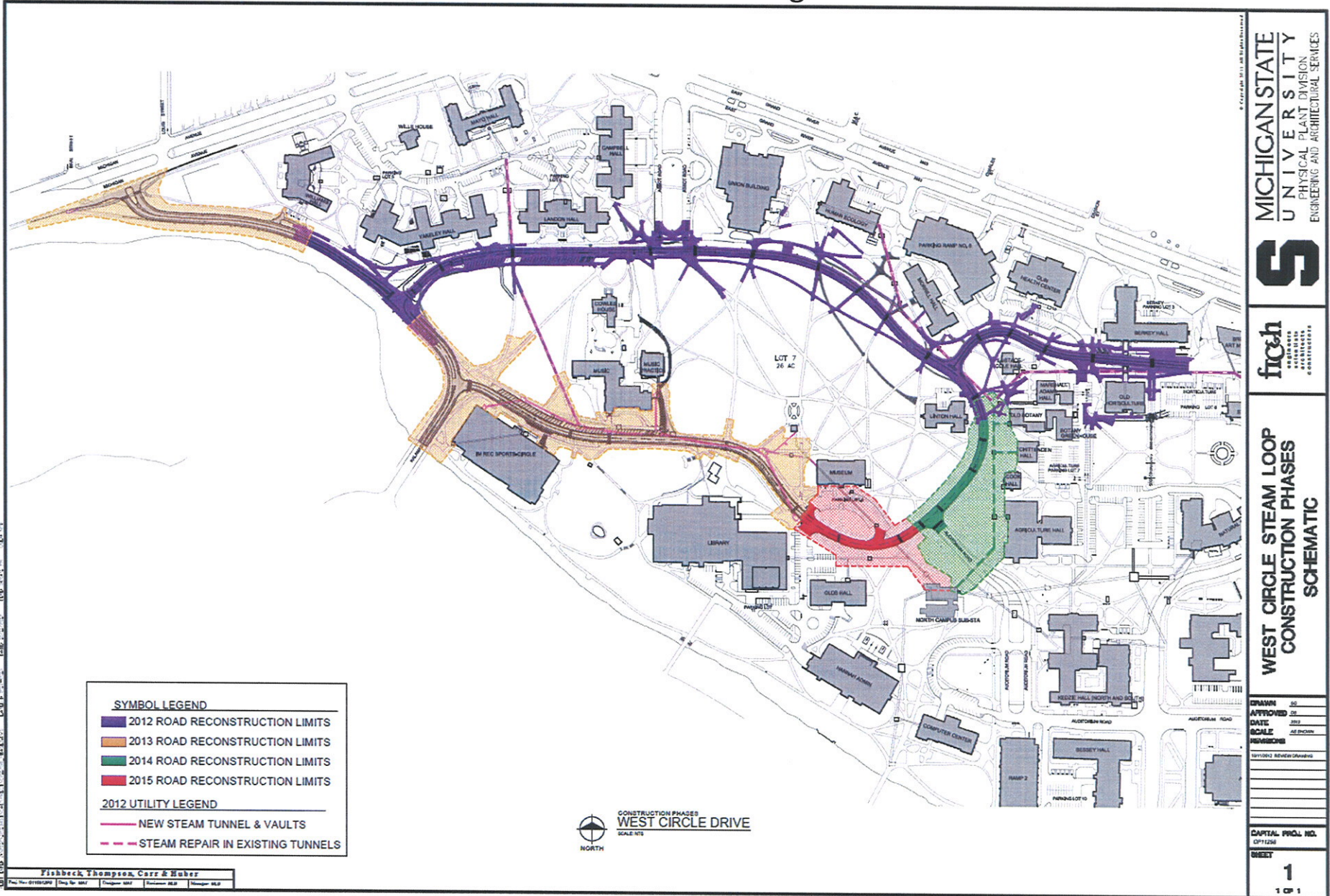
► Arch Tunnels

- Vault 93 to IM Circle (fig. 1.8)
 - Deteriorating concrete
 - 25% section loss
 - 50% stanchions failed
 - Base rusted out, loose at ceiling



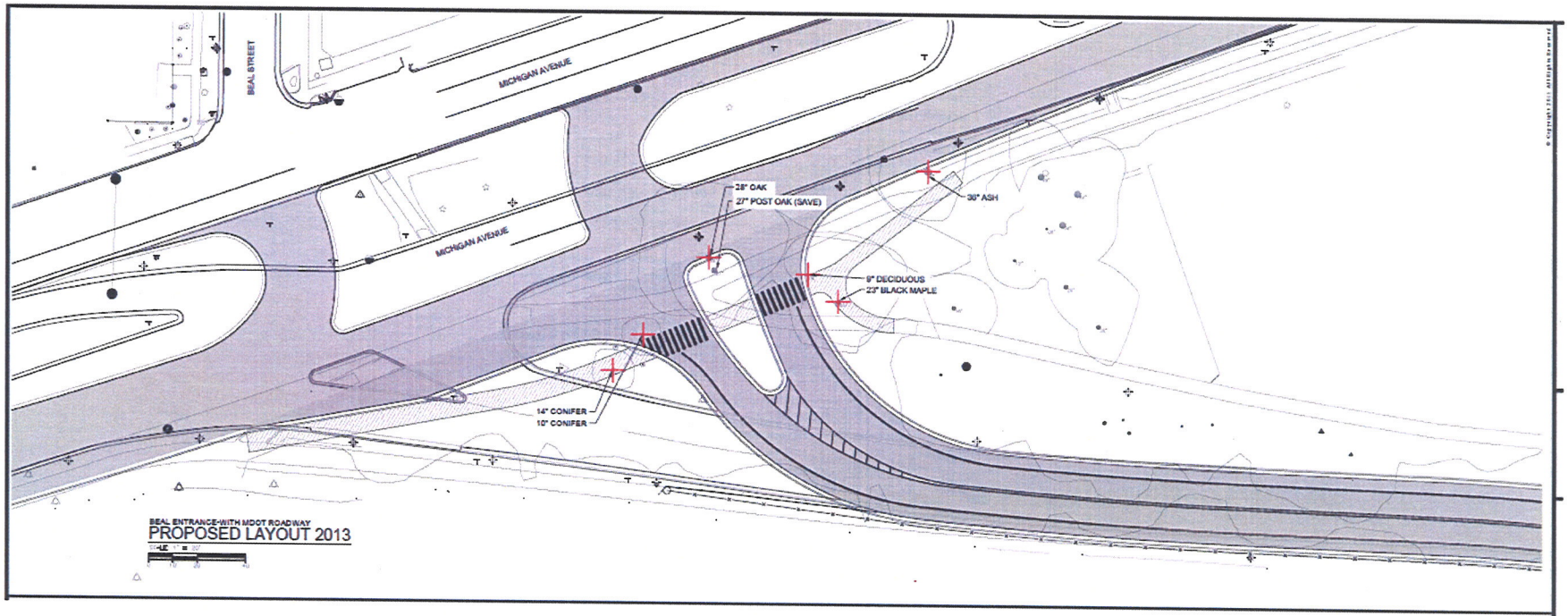
Project Approval – Authorization to Proceed Steam Distribution – Replace Steam Tunnel from Library to IM Circle

North Campus Arch Tunnel Replacement – Overall Phasing



Project Approval – Authorization to Proceed
Steam Distribution – Replace Steam Tunnel from Library to IM Circle

Beal/Michigan Intersection – Proposed Road/Intersection – Composite



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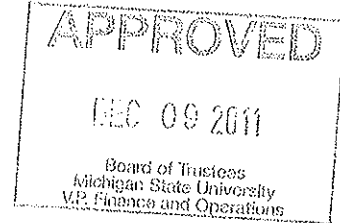
November 30, 2011

MEMORANDUM

To: Trustee Finance Committee

From: Fred L. Poston *F. Poston*

Subject: **Authorization to Plan**
Steam Distribution - Replace Steam Tunnel from Library to IM Circle



RECOMMENDATION

BE IT RESOLVED that the Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to plan for the project entitled Steam Distribution - Replace Steam Tunnel from Library to IM Circle.

BACKGROUND

Program Need:

The north campus arch-style steam tunnels are 87 to 102 years old and have significantly deteriorated. The structural anchors, pipe supports, and steam equipment within these tunnels are severely deteriorated and require replacement or repair for safe and reliable operation of the steam distribution system. The water main in this area is also at the end of its useful life and should be increased in size for effective fire-fighting capability and reliability. Communication lines are in the same tunnels as steam and condensate return lines, which is not optimal. The existing electrical duct bank is currently full and requires additional ducts to be installed for future electrical improvements to this region of campus.

General Description of the Project:

This project is anticipated to be the second phase of a four-phase program to replace the deteriorating north campus arch steam tunnels, and is anticipated to include replacing the existing deteriorated arch steam tunnel from IM Circle to vault 92, north of the Library, along with repair and replacement of steam piping, supports, and equipment within some existing steam tunnels. The project is also anticipated to include replacing the deteriorated cast-iron water main with a larger pipe to increase fire-flow capacity and reliability. Additional communication and electrical duct will be installed. West Circle Drive will be reconstructed with two traffic lanes and a bike lane to be consistent with current MSU transportation standards, including pedestrian, bicycle, and vehicular traffic flow and safety. On street parking removal will be investigated.



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The proposed project is located along Beal Street and West Circle Drive, between the Library and IM Circle in the North Academic District. The location of this project is consistent with the Campus Master Plan and Planning Principles.

Based on an assessment of the factors stated in the Project Planning and Approval process concerning Project Labor Agreements (PLA), the Vice President for Finance and Operations and Treasurer has determined that a PLA would not be required for this project.

Communication Plan:

During the planning phase, the campus community will be given opportunities to provide feedback on the project as it is being designed. Input from the project planning team will be solicited during the design phase.

Preliminary Project Cost Information:

Based on cost experience for similar projects and current pricing information, the preliminary project cost estimate is \$13,450,000. This estimate may change as planning progresses and the project scope is further defined.

This is a Just-In-Time project and the source of funds for the project is expected to be tax-exempt financing with debt repayment from the general fund.

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J. Mumma, R. Nestle, D. Quinney, L. Adams, K. Neils