Memorandum

Project: North Avenue/US6B Enhanced Transit Corridor Study

To: Dana Brosig, Mesa County
Dean Bressler, Mesa County

From: Michelle Morgan, PE, Muller Engineering Company

Date: June 22, 2022

Subject: Preliminary Drainage Memorandum

This preliminary drainage memorandum has been prepared based on certain key assumptions made by Muller Engineering Company (Muller) which substantially affect the conclusions and recommendations. These assumptions, although thought to be reasonable and appropriate, may not prove to be true in the future. The conclusions and recommendations of Muller Engineering are conditioned upon these assumptions.

Background information, design basis, and other data have been furnished to Muller by Mesa County, which Muller has used in preparing this memorandum. Muller has relied on this information as furnished and is neither responsible for nor has confirmed the accuracy of all information.

Introduction, Background and Objective

North Avenue/US6B is an east-west non-rural arterial and non-rural principal highway classified as a Minor Arterial that passes through commercial development in the City of Grand Junction. Mesa County is interested in developing a comprehensive corridor study for North Avenue/US6B that will provide a roadmap for advancing the corridor toward the envisioned Enhanced Transit Corridor. The corridor study focuses on analyzing potential transit enhancements and analyzing implementation of a multimodal path along the length of the corridor – building off recent improvements to North Avenue completed by the City of Grand Junction from 12th Avenue to 23rd Avenue.

The following preliminary drainage analysis focuses on multi-use path improvements from 28½ Road to 29½ Road. The overall proposed design consists of:

- 8’-10’ detached or attached sidewalk on the north and south side of North Avenue
- Curb ramp improvements at select intersections
- Bus pullout improvements

This memorandum describes the existing site drainage conditions, the preliminary hydrologic and hydraulic analyses, and the preliminary proposed recommended drainage improvements.

Existing Drainage Conditions

Generally, the surrounding terrain slopes from northeast to southwest with slopes in the range of 0% - 2%. Runoff is conveyed overland and via storm drain from the project site, ultimately discharging into the Colorado River. US 6/North Avenue is a crowned roadway with curb and gutter that drains east to west. Storm drain and irrigation facilities parallel the north and south sides of North Avenue. The storm drain system includes small areas of ditching, driveway culverts, curb and area inlets, sidewalk chases and pipes. The storm pipes are primarily 12" RCP and in most instances combine with existing irrigation facilities. See the attached storm drain/irrigation maps provided by the City of Grand Junction.

Proposed Drainage Conditions

The overarching objective of the proposed drainage design is to maintain the existing conditions to the extent practicable. Since the proposed improvements mostly entail sidewalk improvements, it is assumed for the preliminary design that there will be minimal impact to the runoff flow rates. Therefore, no hydrologic or hydraulic calculations were performed for this phase of the design. Additionally, it is assumed at this time that the existing storm drain system is functioning adequately and storm drain improvements to improve the site drainage are not needed.

The proposed improvements will impact some of the existing driveway culverts, inlets, and sidewalk chases. Hence, the proposed drainage improvements involve relocation of inlets, new sidewalk chase drains, and new pipes to reconnect the storm drain as needed.

Existing irrigation ditches and some of the associated structures that flank the project corridor are also impacted by the proposed improvements. Though many of the ditches are filled with dirt, it is assumed that they need to remain functional. To accommodate the sidewalk improvements much of the open irrigation ditches will be replaced with shallow, 12" reinforced concrete pipe (RCP). This design approach will need to be coordinated and confirmed with the irrigation ditch owner in the future design phases of the project.

Water Quality

The project site lies within both CDOT's and Grand Junction's MS4 permit boundary. However, since the majority of the project improvements involve installation of sidewalk, water quality treatment is not a requirement of either's MS4 permit.

Conclusion

The North Avenue/US6B Multi-Use Path from 28½ Road to 29½ Road Improvement project involves construction of 8' to 10' sidewalks along the north and south side of North Avenue. These improvements are anticipated to have minimal impacts to the site runoff and the hydraulic capacity of the existing storm drain system. The proposed drainage improvements include relocation of existing inlets and installation of sidewalks chase drains and storm pipes to maintain the current collection and conveyance of runoff to the extent possible. Irrigation facilities impacted by the proposed improvements will be improved as necessary to maintain the ability to convey irrigation flows. Coordination with the irrigation ditch owner is needed in the next phase of the design to confirm the preliminary irrigation design approach.

Attachments

City of Grand Junction GIS Storm Sewer Maps

City of Grand Junction

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Printed: 3/29/2022

1 inch equals 149 feet

Scale: 1:1,792

CITY OF Grand Junction COLORADO GEOGRAPHIC INFORMATION SYSTEM

City of Grand Junction

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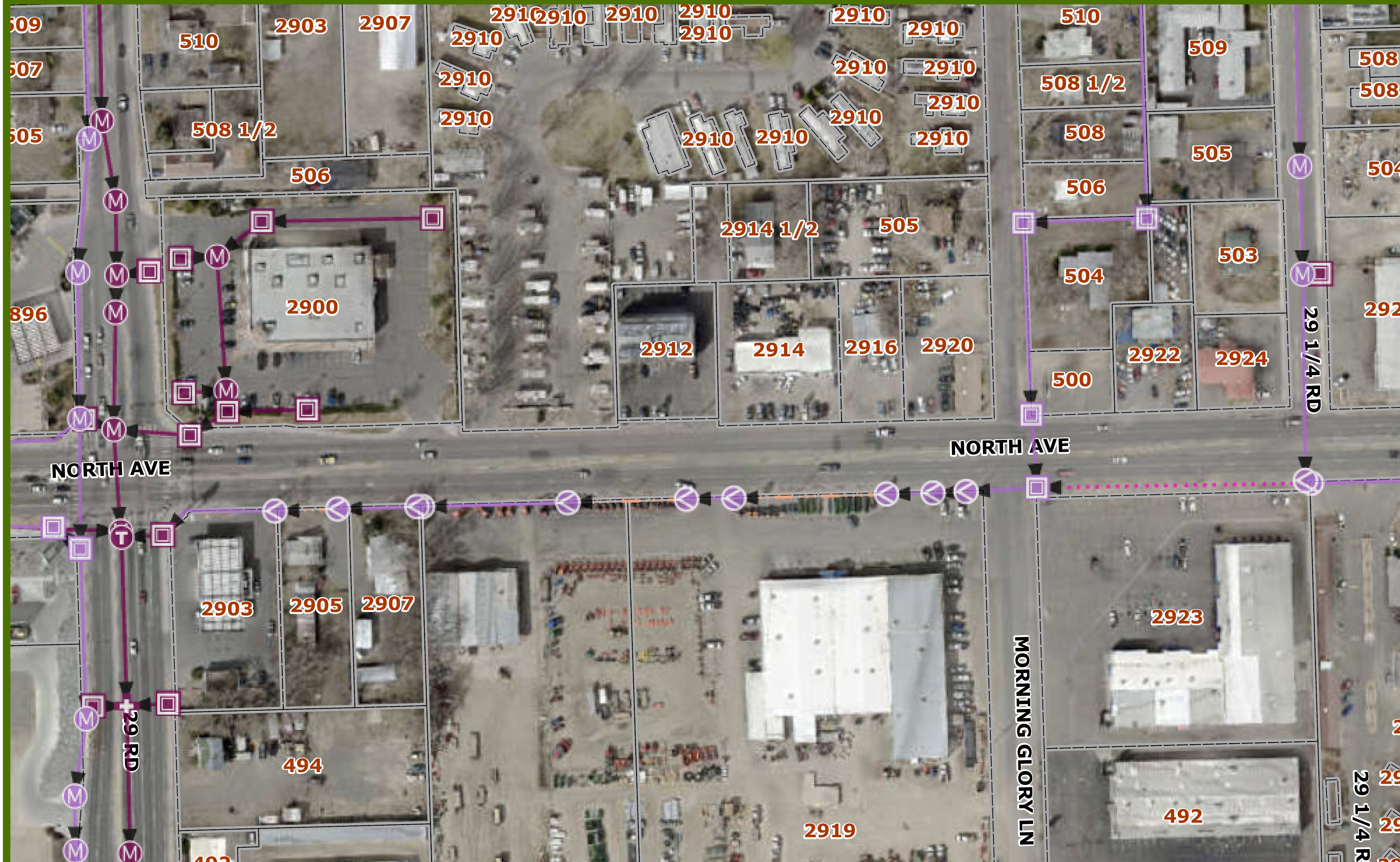

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