

CEEn-2016CPST- 009

BRT Bus Station Location and Traffic Flow Enhancement Study

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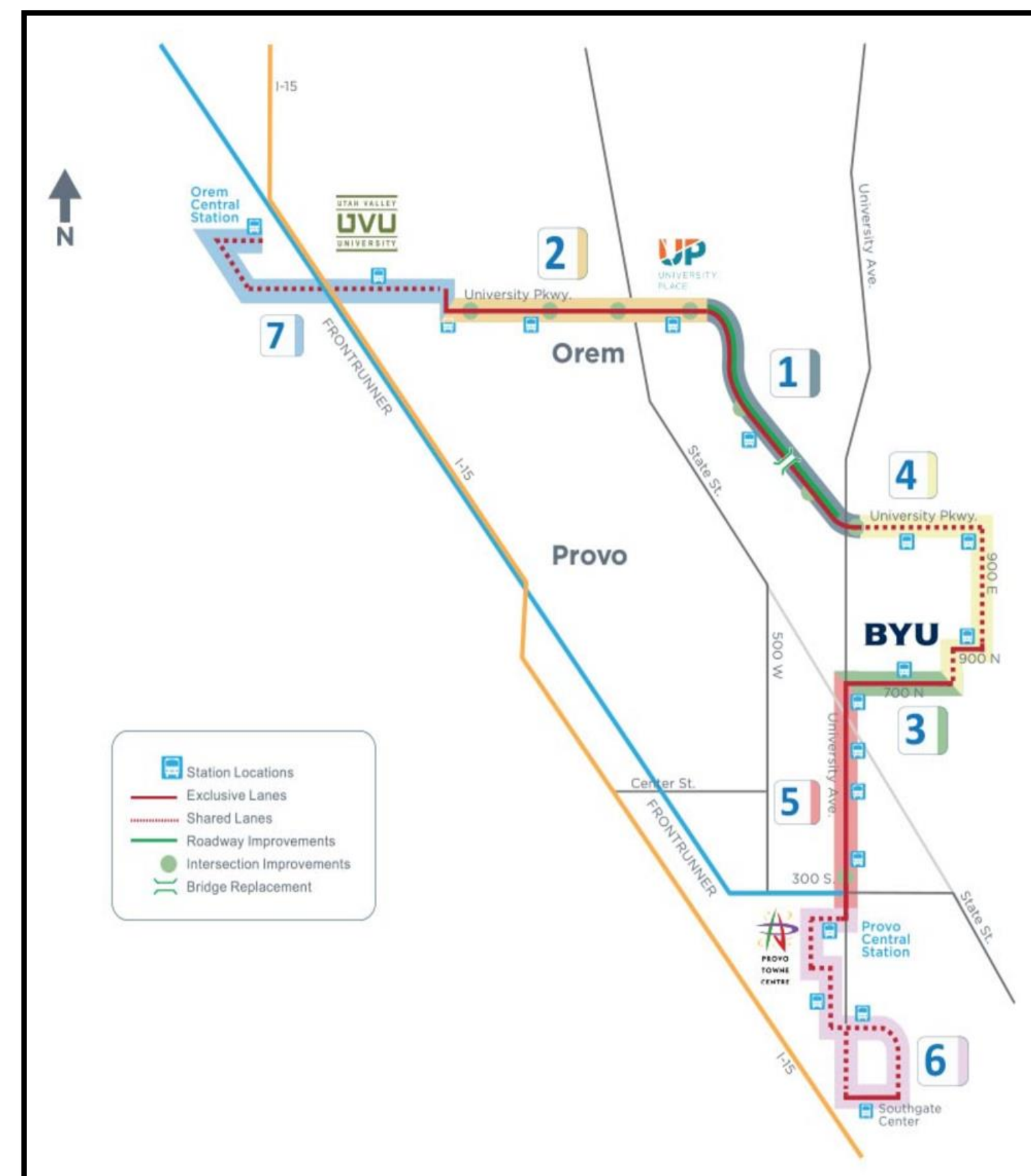
OVERVIEW

AECOM is helping the Utah Transit Authority (UTA), and other organizations such as the Utah Department of Transportation (UDOT) and the cities of Orem and Provo, to design a bus rapid transit (BRT) system that will provide improved public transportation in Orem and Provo. The goal of this capstone project was to design appropriate BRT station locations on 900 North between 700 East and 900 East in Provo, UT. Also, the 700 East / 900 North intersection needs to be redesigned in order to provide direct flow of traffic from 700 East to 900 North.

TRAFFIC ANALYSIS

A traffic analysis was performed at the 700 East / 900 North intersection for the existing design and the new design. There is an anticipated increase in the delay and number of stops on the eastbound leg with the new project. However, it is anticipated that there will be a significant improvement in delay and stops per vehicle on the northbound and westbound legs. Overall, traffic performance for all intersection legs improves. This is due to the high traffic volumes on the northbound and westbound legs. While the eastbound leg is worse in plus project conditions, the volume is relatively low. Therefore, its delay impacts the intersection less as a whole.

Scenario	Delay (sec/veh)				Stops / Veh			
	EB	NB	WB	Tot	EB	NB	WB	Tot
Existing	0	11	2	5	0.00	1.00	0.35	0.54
Plus Project	12	1	0	2	1.00	0.10	0.35	0.16

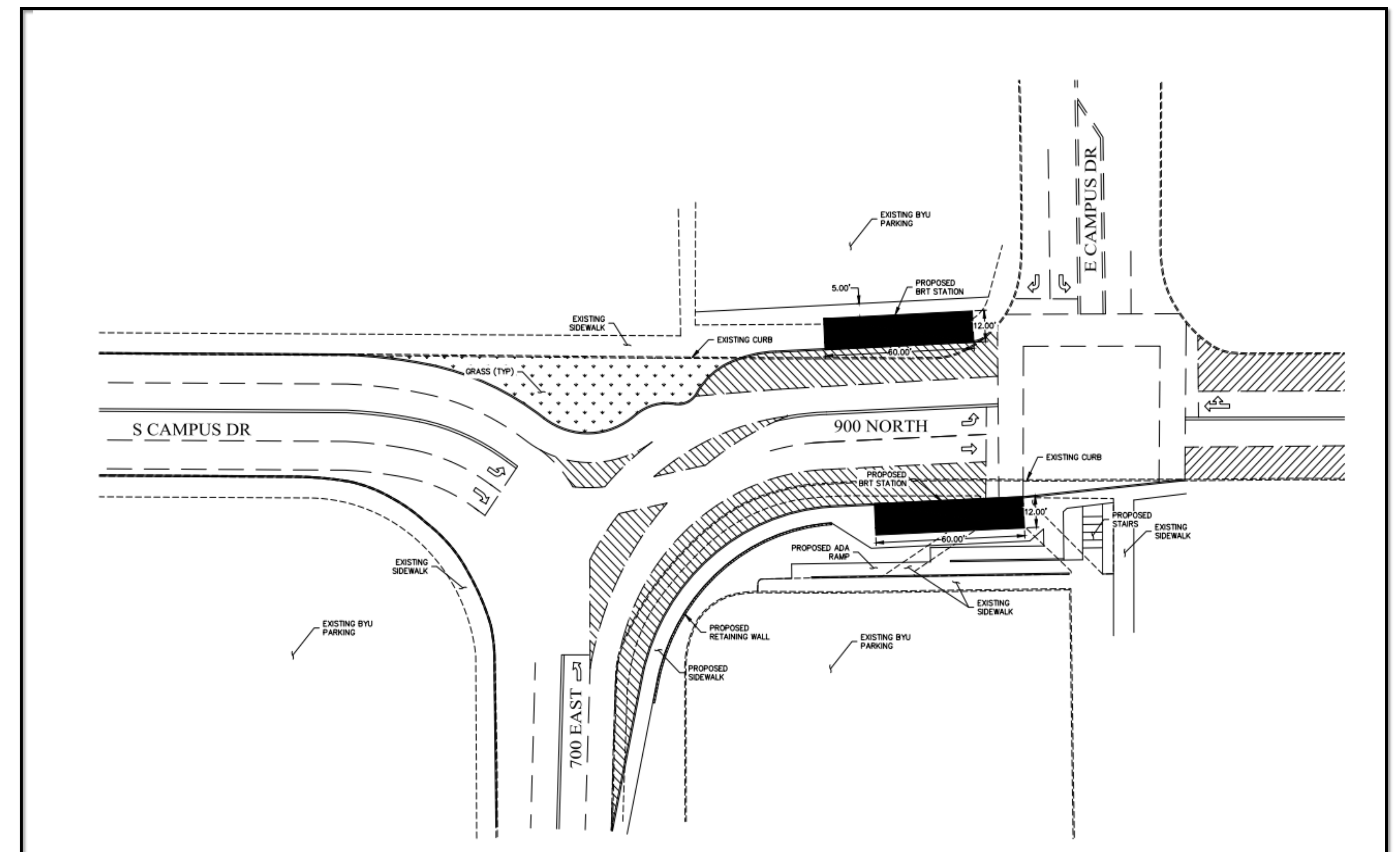


PROJECT REQUIREMENTS AND LIMITATIONS

The following are the requirements and limitations of this project:

- Limited impacts to existing BYU parking lots and no impacts to private property.
- BRT stations will be 12 feet wide, 60 feet long, and include a 13-inch platform.
- The redesign must meet Americans with Disabilities (ADA) requirements.

BRT STATION AND INTERSECTION DESIGN



The two BRT stations were located to the west of the 900 North / East Campus Drive intersection, with the south BRT stations intruding into said intersection to allow for the turning radius of the BRT bus. BRT dedicated lanes were designed from the 700 East / 900 North intersection to the east towards 900 East. The westbound through/turn lane on 900 North is designated as a Business Access and Transit (BAT) lane, allowing both buses and turning vehicles to use the lane.

The 700 East / 900 North intersection was redesigned to allow direct traffic flow from 700 East to 900 North. The sidewalks to the south of the 900 North / East Campus Drive intersection were redesigned to comply with ADA ramp laws.

