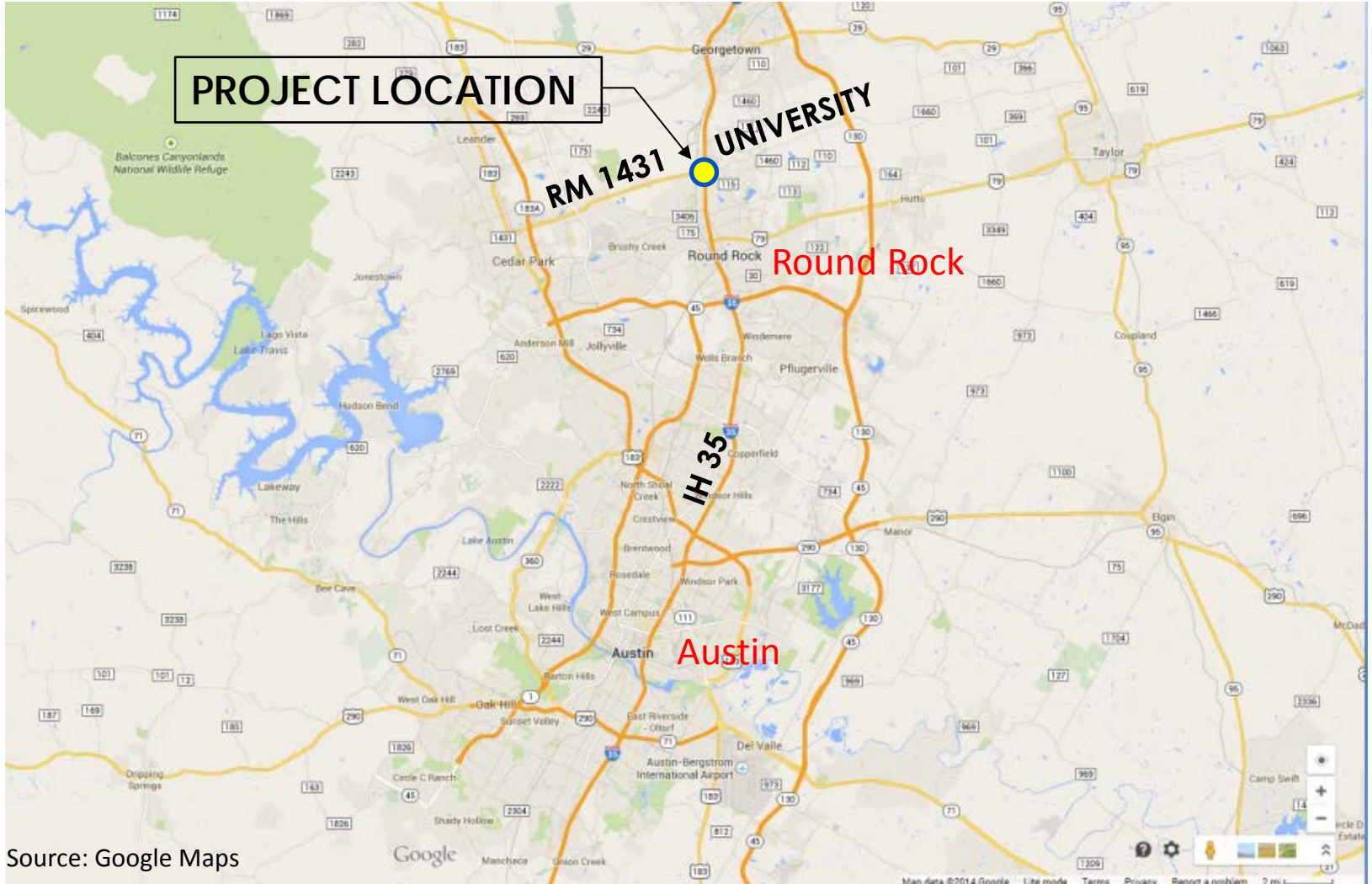


RM 1431 Diverging Diamond Interchange (DDI)

TexITE Meeting
9/5/2014

Project Location Map



Existing Geometry



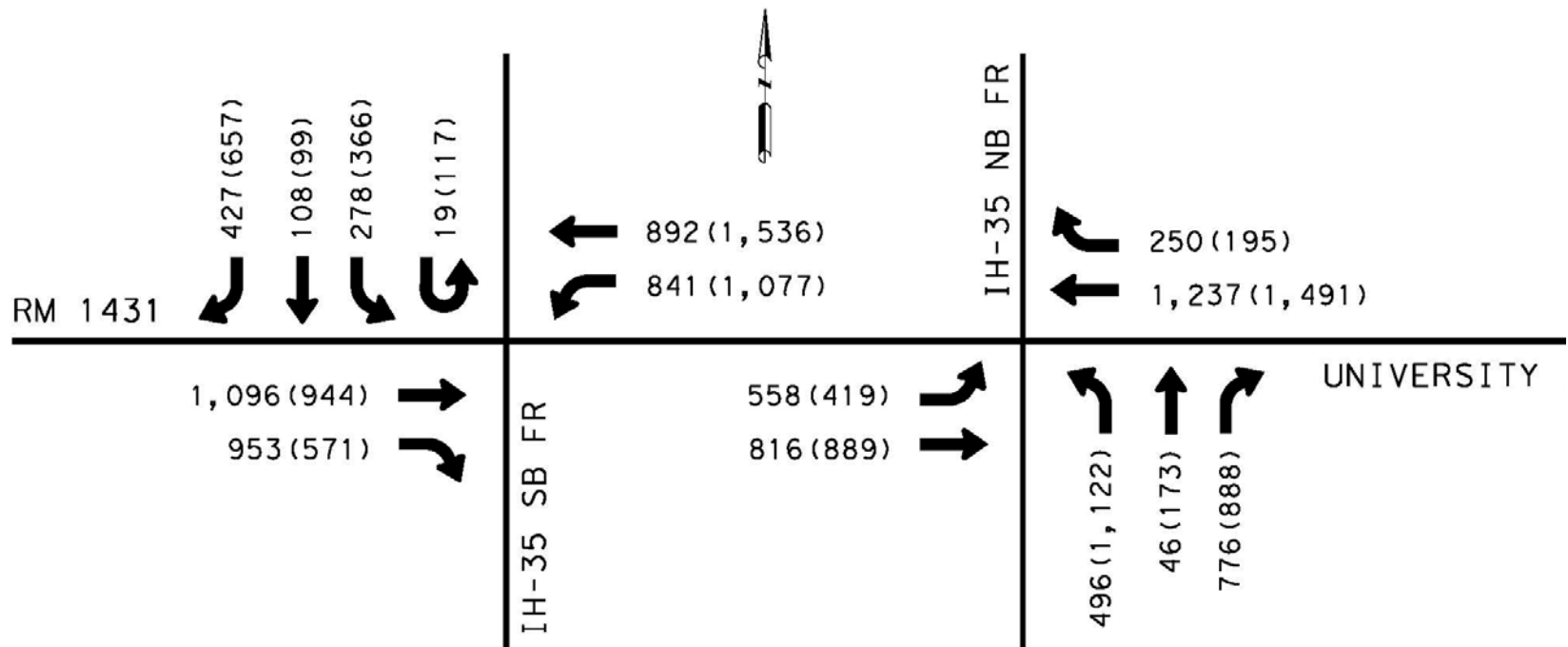
Source: Google Maps

Existing Geometry



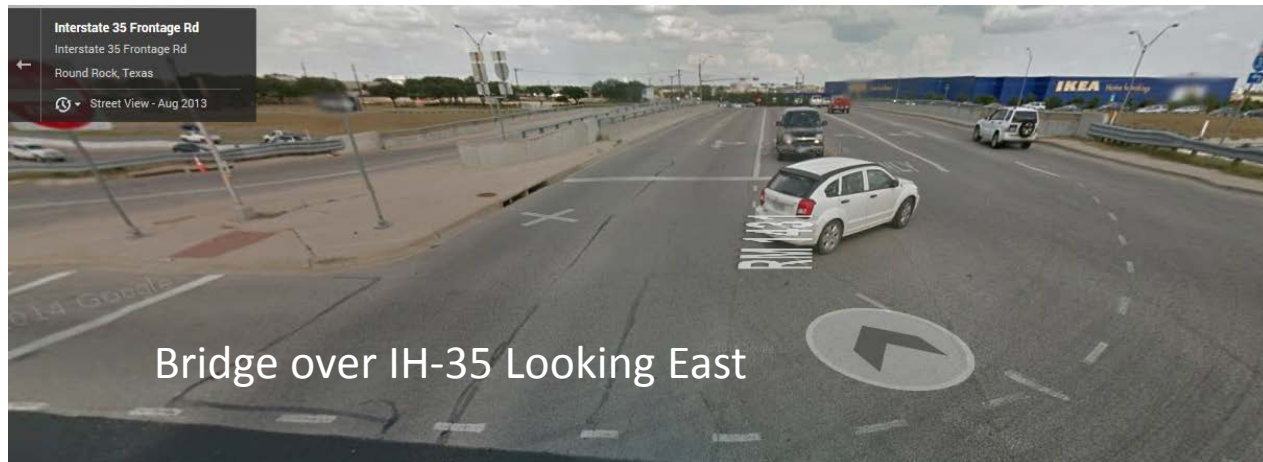
Source: Google Maps

Peak Hour Traffic Volumes



AM (PM) PEAK HOUR VOLUMES

Intersection Images



Source: Google Maps

Intersection Images



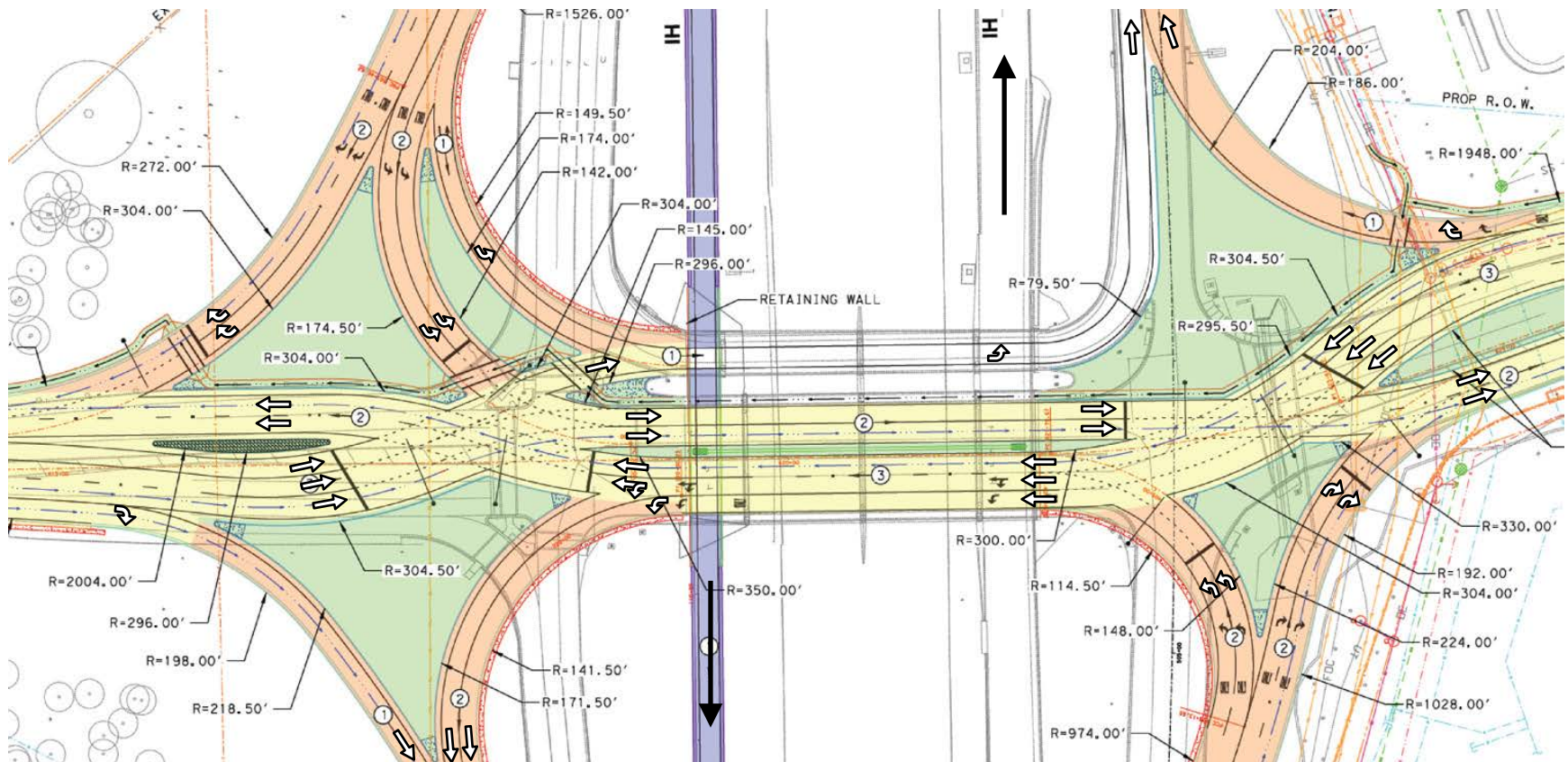
University Blvd. Looking East

Source: Google Maps

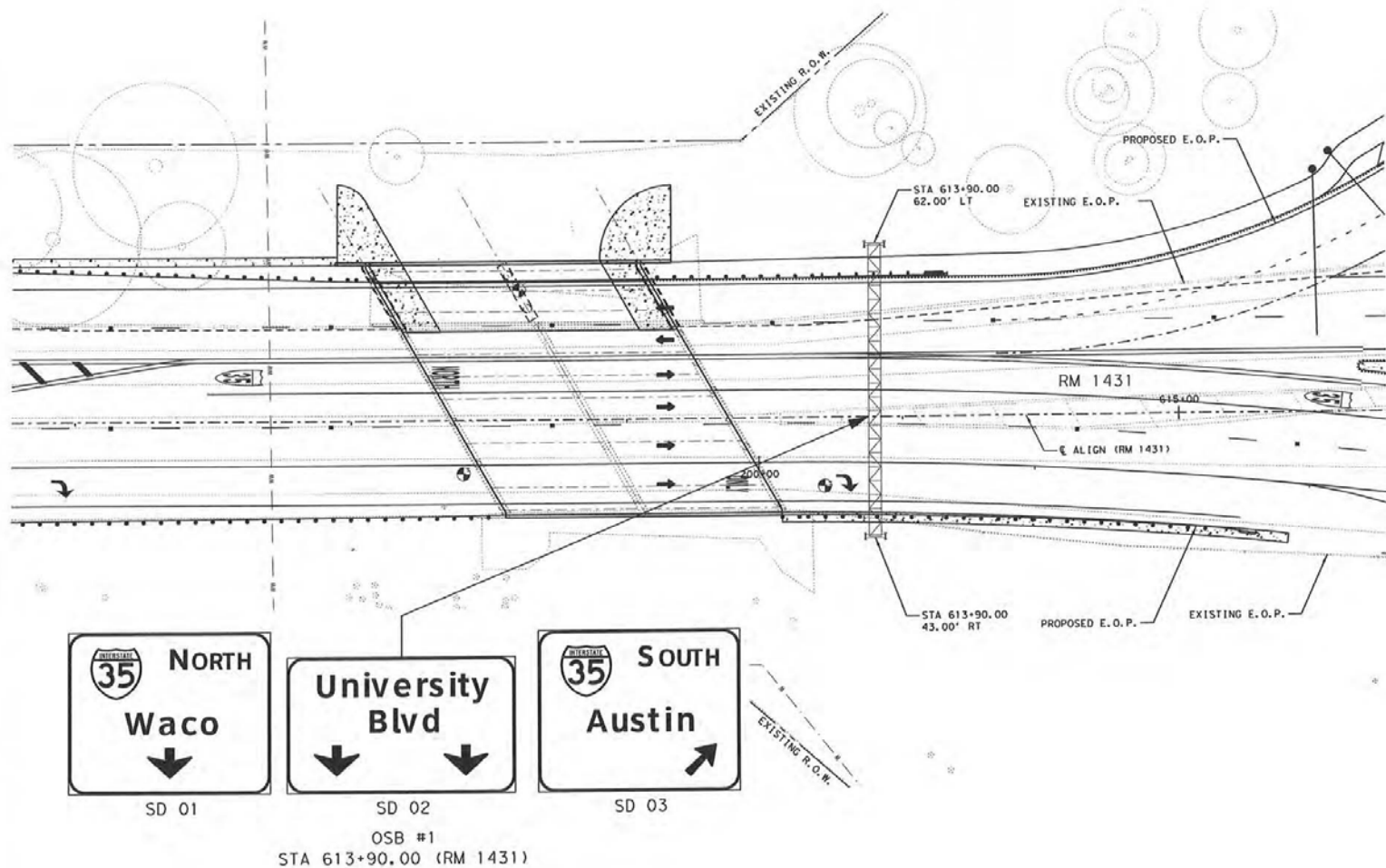
Key Aspects of the DDI

- No thru movements allowed on the frontage roads through the DDI
- Collector/distributor roads are provided to handle those thru volumes
- Operational efficiency highly dependant on:
 - lane configuration
 - traffic patterns
 - separation between sides

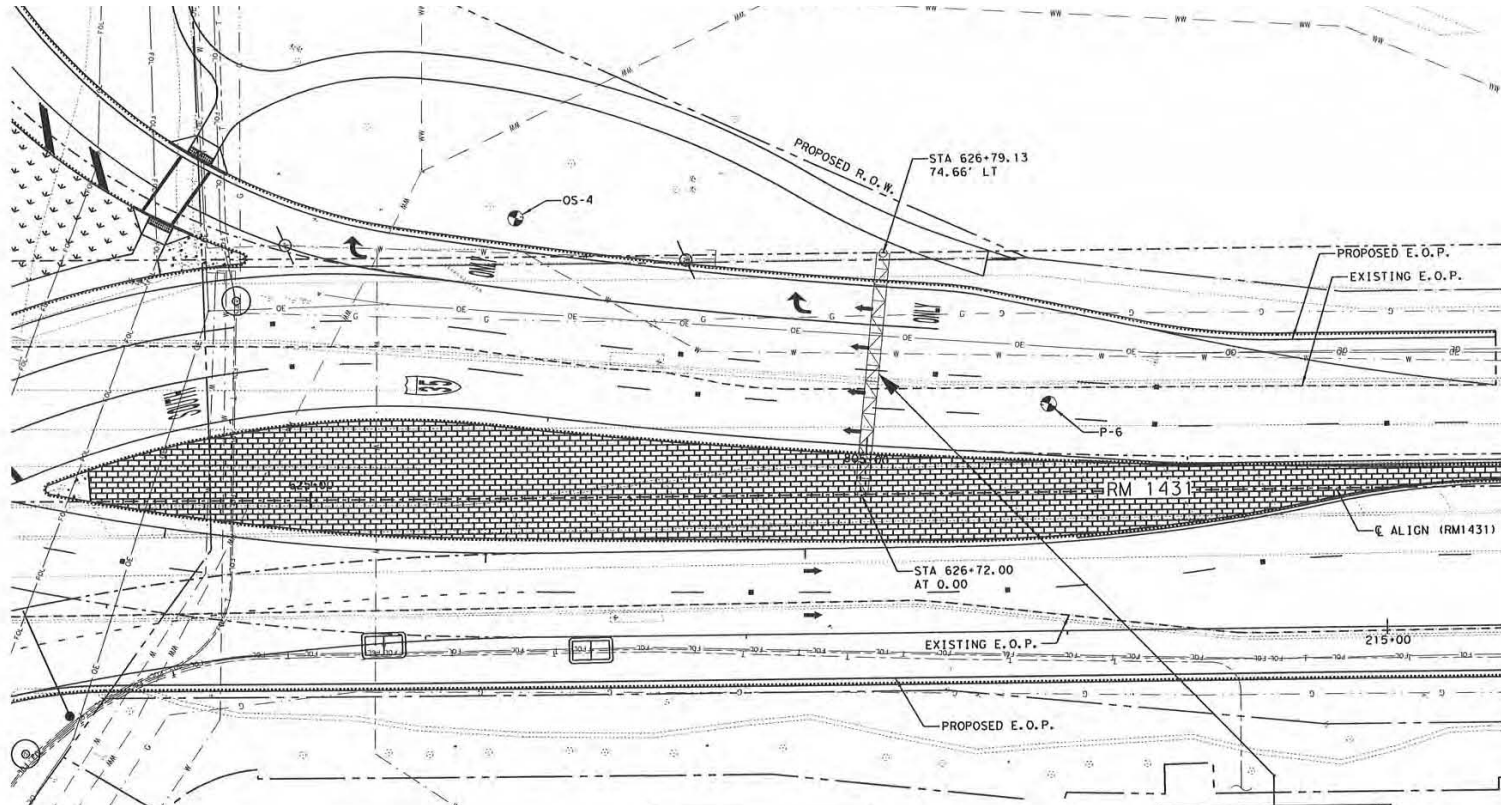
Proposed Geometry



Overhead Guide Signs- EB



Overhead Guide Signs- WB



SD 04



SD 05

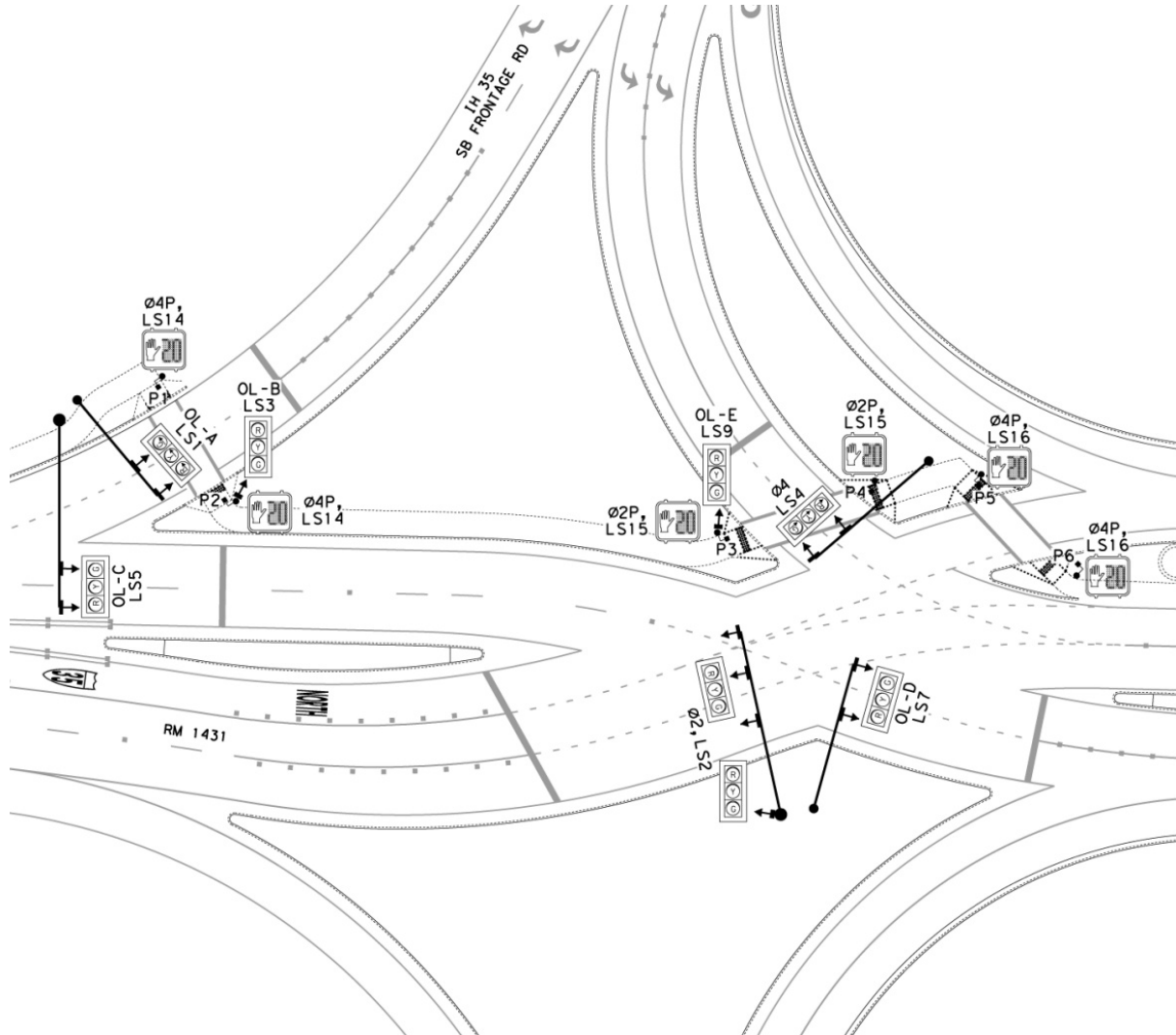


SD 06

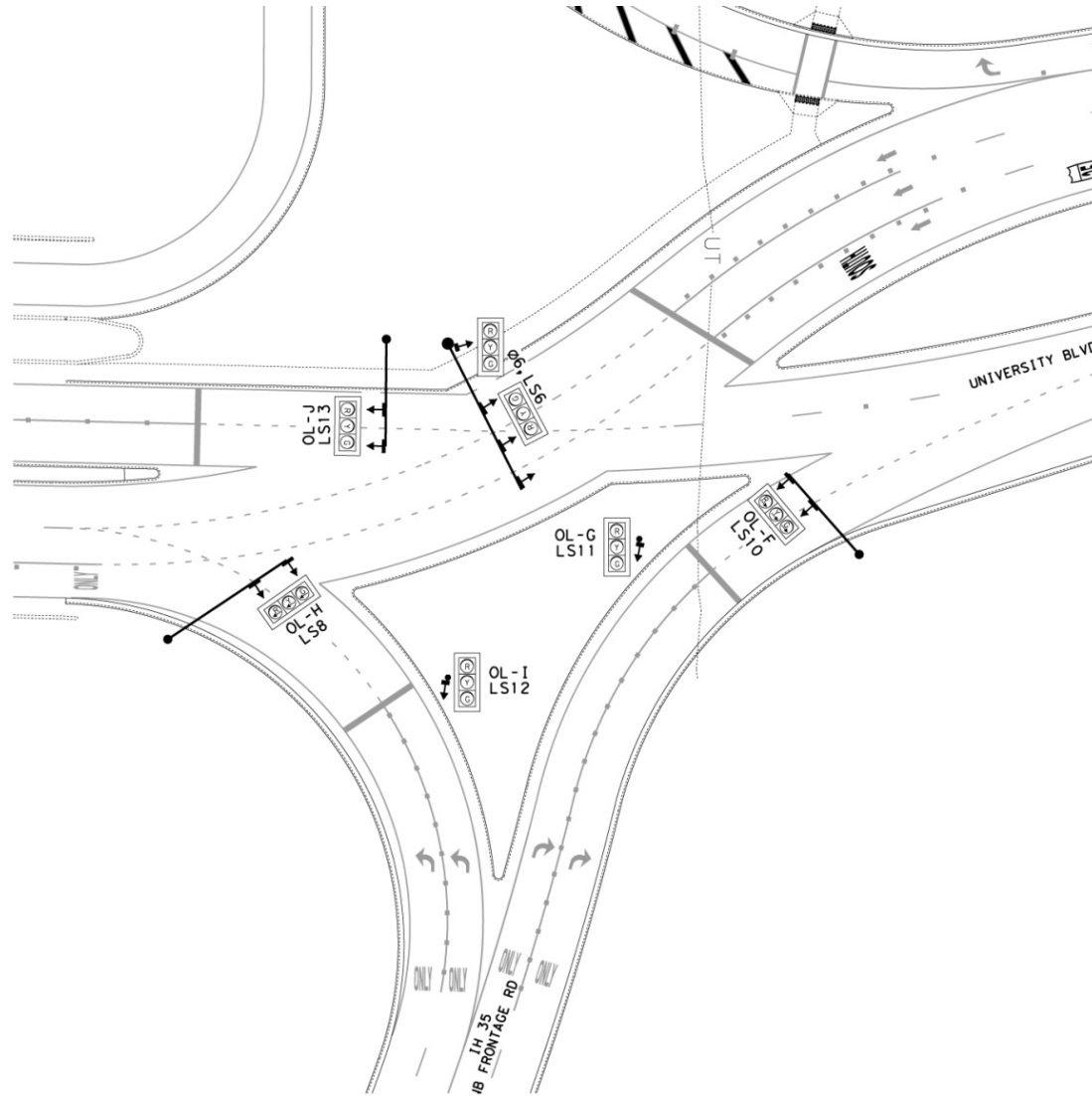
OSB #2

STA 626+72.00 (RM 1431)

Signal Configuration- West Side

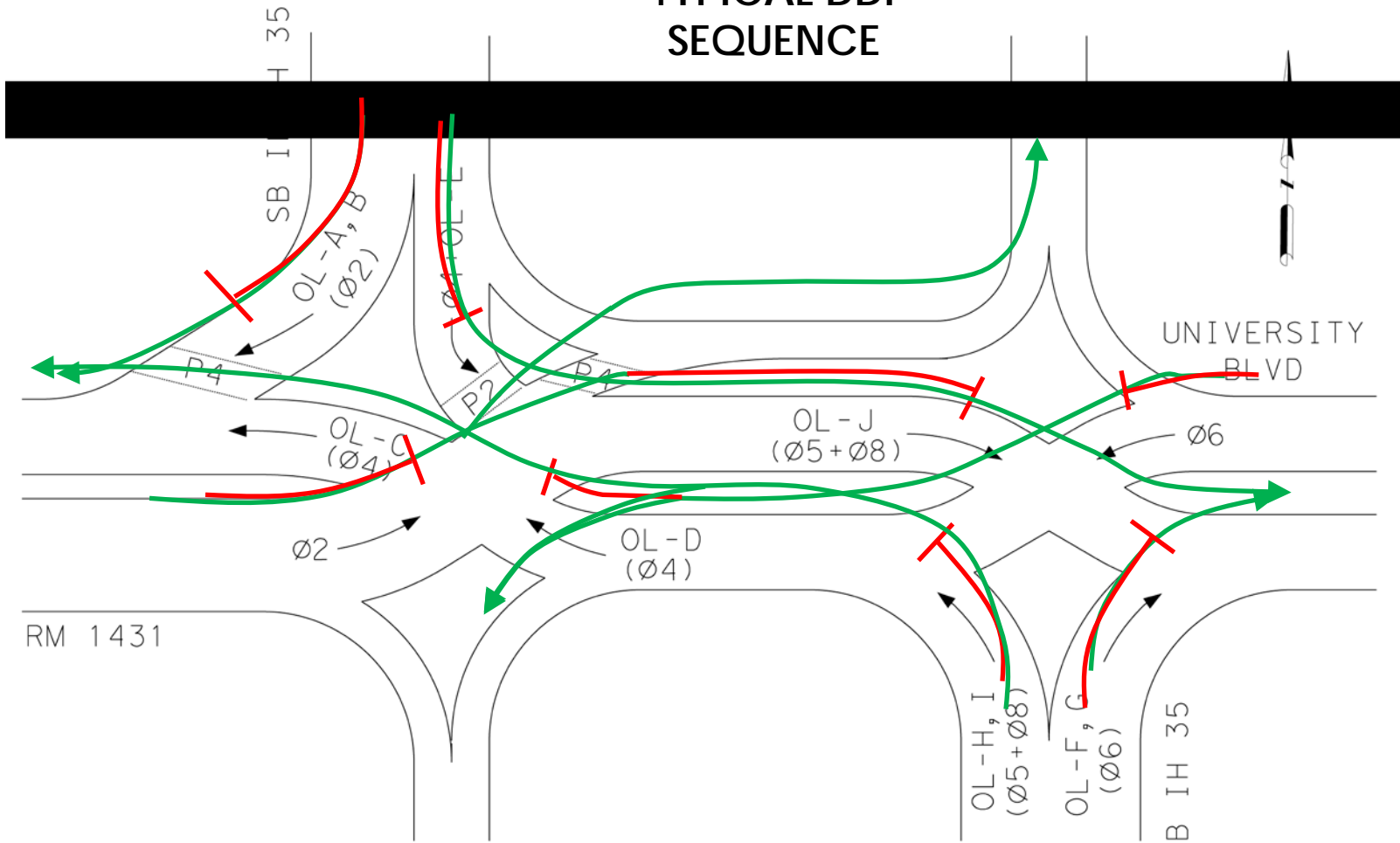


Signal Configuration- East Side

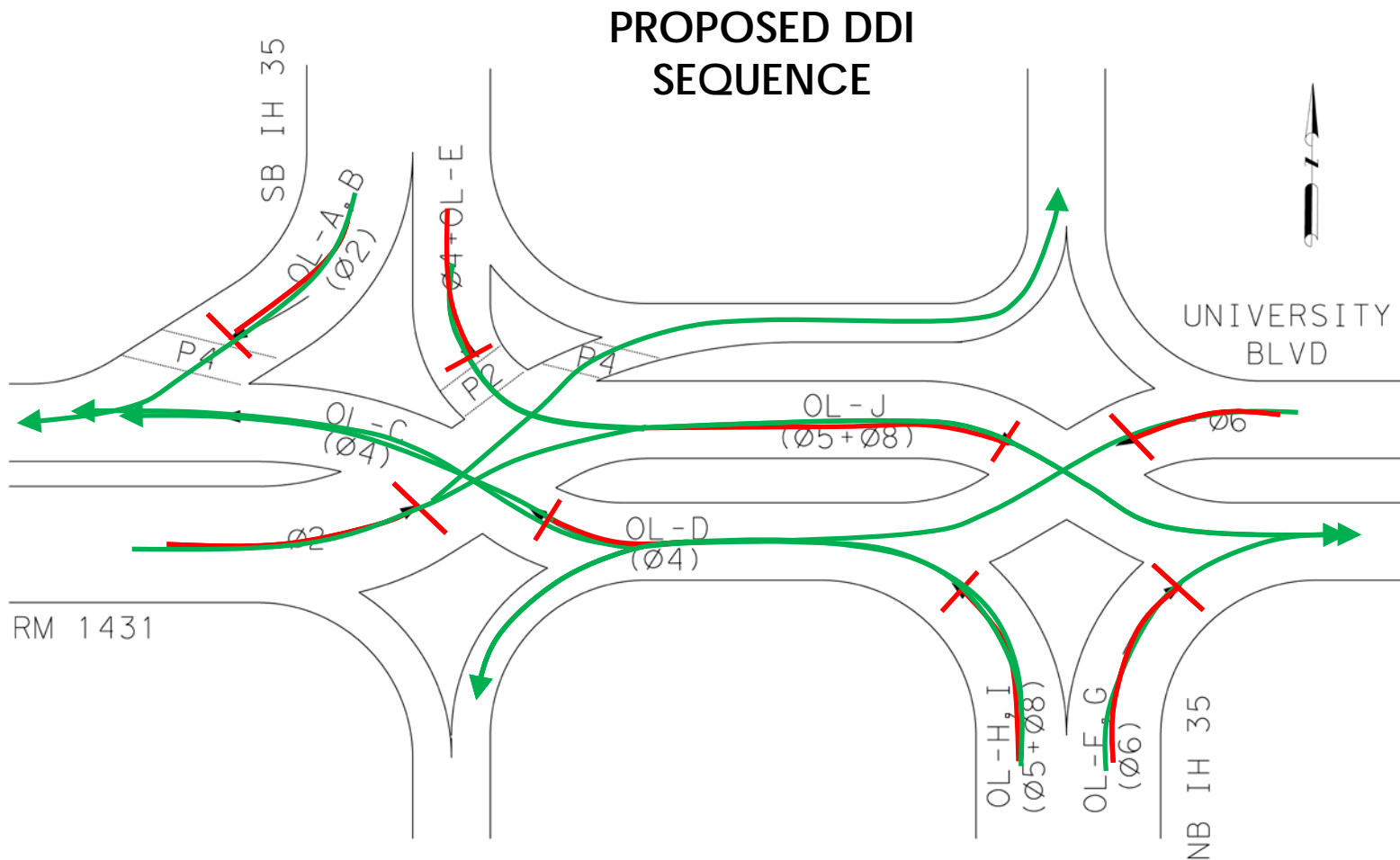


Signal Phasing

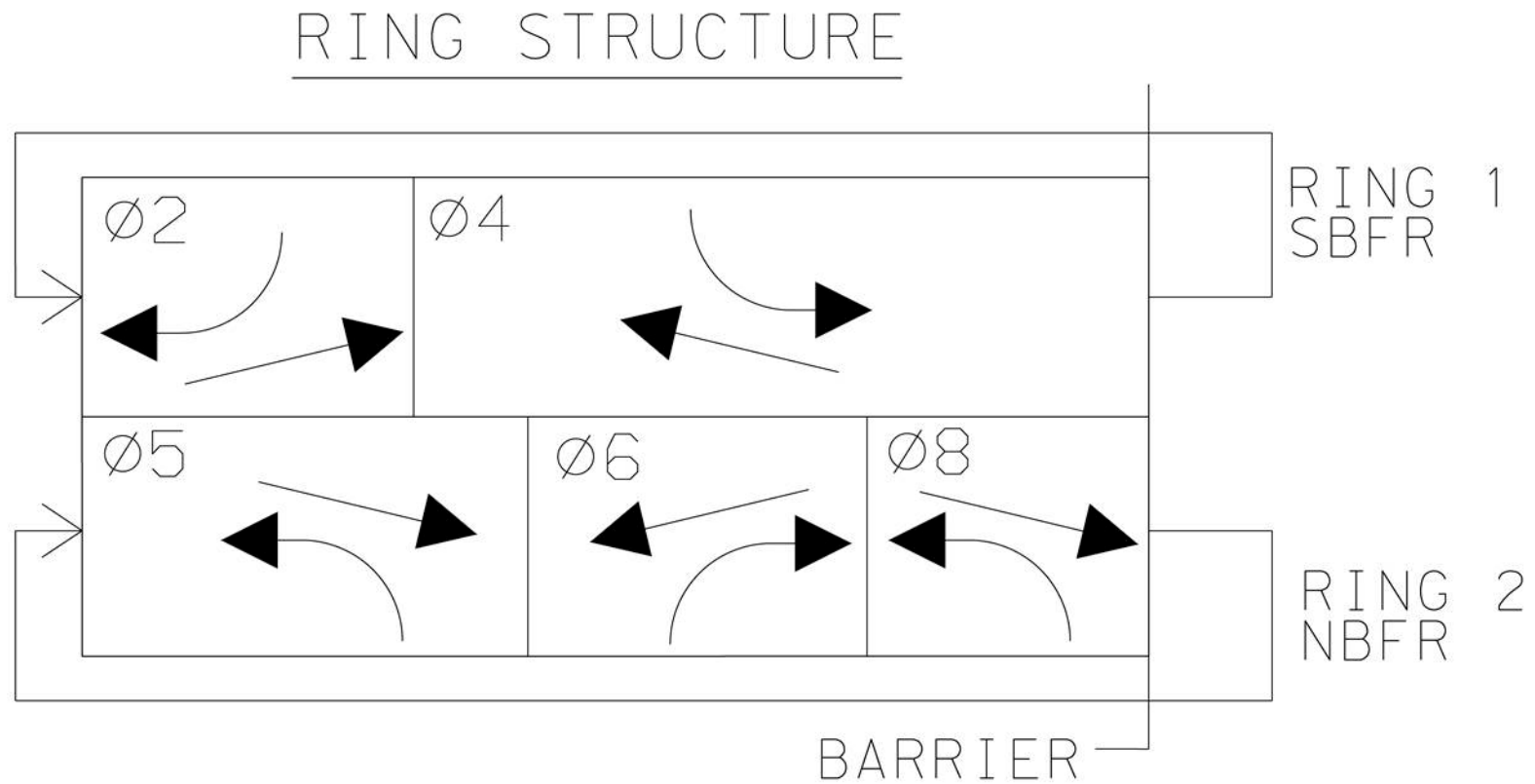
TYPICAL DDI SEQUENCE



Signal Phasing



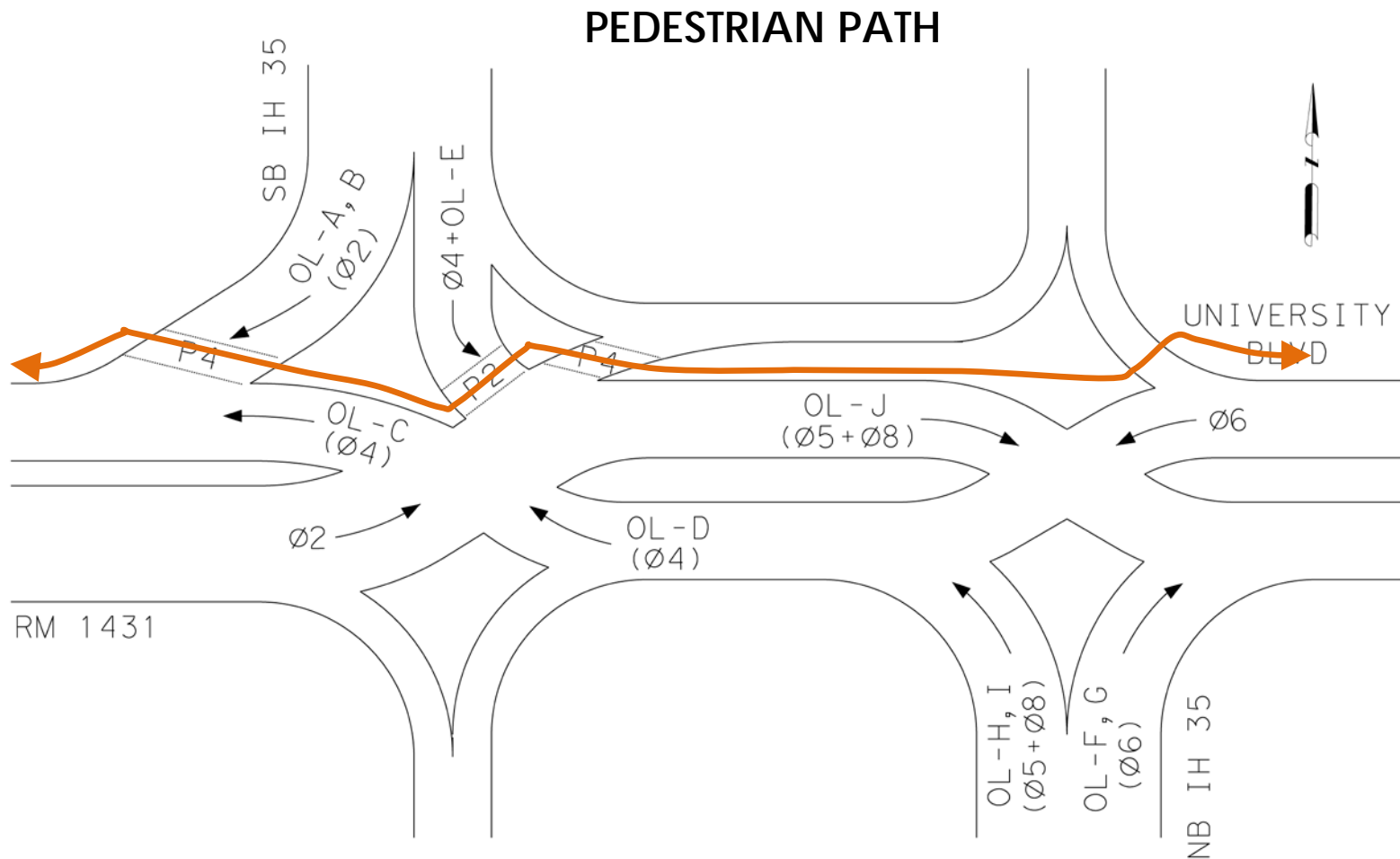
Phasing Diagram



Operational Efficiency of the DDI

- Operational efficiency highly dependant on:
 - lane configuration- availability of separate lanes for various movements
 - traffic patterns- High thru volumes on arterial reduce efficiency
 - separation between sides- the more the better

Pedestrian Accommodations



Monitoring and Communications



PTZ Camera

Radio Antennas



Other Projects

- Widening of University Blvd. from 4 to 6 lanes by the City of Round Rock
- Retiming of the signals from IH-35 to Sunrise Road by the City of Round Rock

Estimated Benefits

- Vissim micro simulation for the system-
 - RM 1431/University Blvd. from IH 35 to Sunrise Road
- 70% annual delay reduction for the system
- At IH-35:
 - AM peak hour- LOS E (67.2) to LOS C (23.9)
 - PM peak hour- LOS F (120.5) to LOS D (38.3)

Source: HDR Traffic Study

Recommendations

- Address truck traffic, bicycles and pedestrian traffic early in the design process
- Coordinate closely the roadway design with the traffic signal design
- Develop the TCP during the preliminary design phase
 - The switchover from diamond to DDI operations is the critical phase

Thoughts for the Future

- Consider DDIs instead of typical diamond interchanges as reconstruction projects come up.