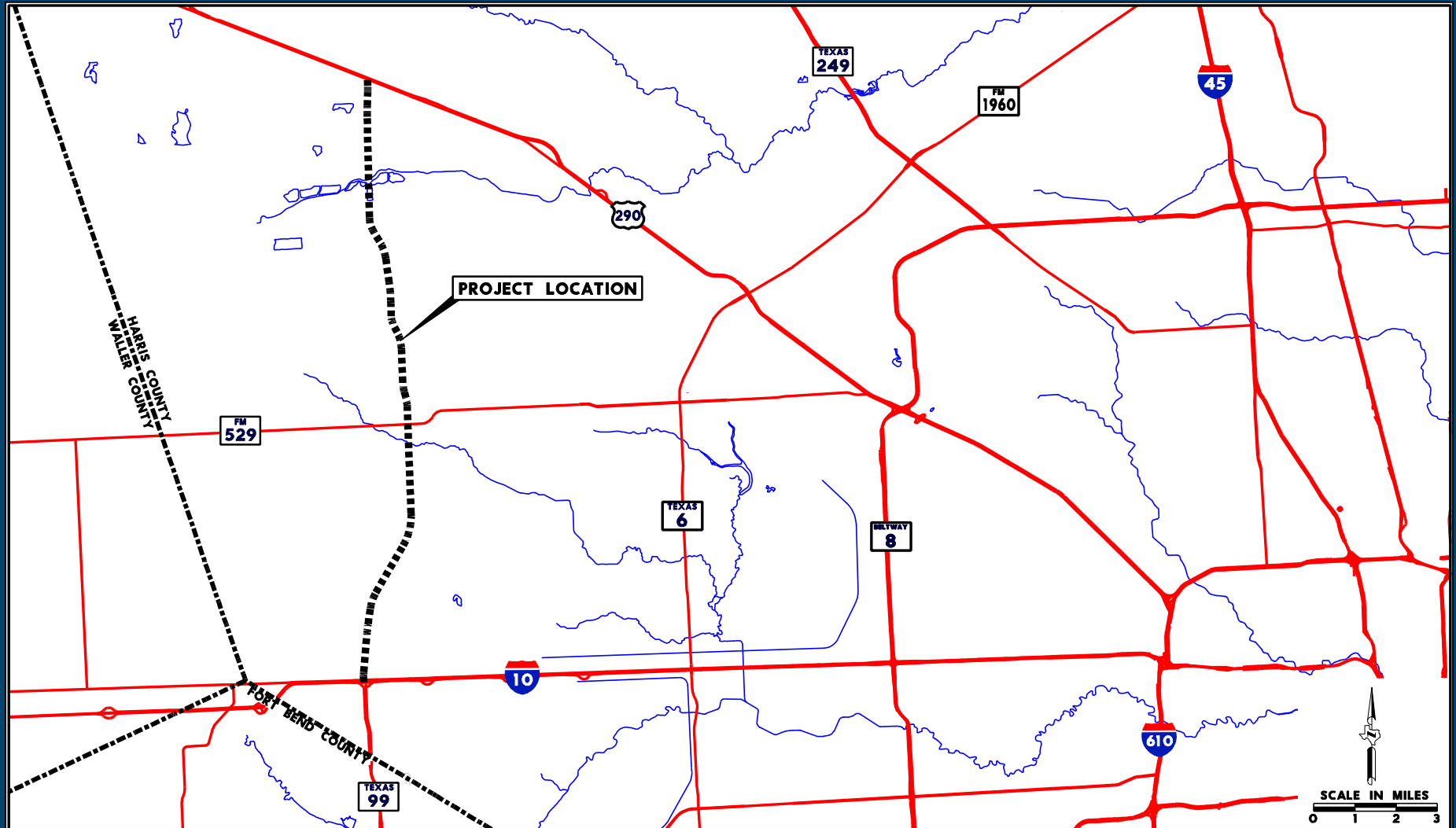


SPUI Design Considerations for the Grand Parkway in Harris County

South Texas ITE Section Meeting
San Antonio

Matthew Brannen, PE – Brown & Gay Engineers, Inc.
Doug Emery, PE – Harris County Toll Road Authority
Federico Mendoza, PTOE, PE – Brown & Gay Engineers, Inc.

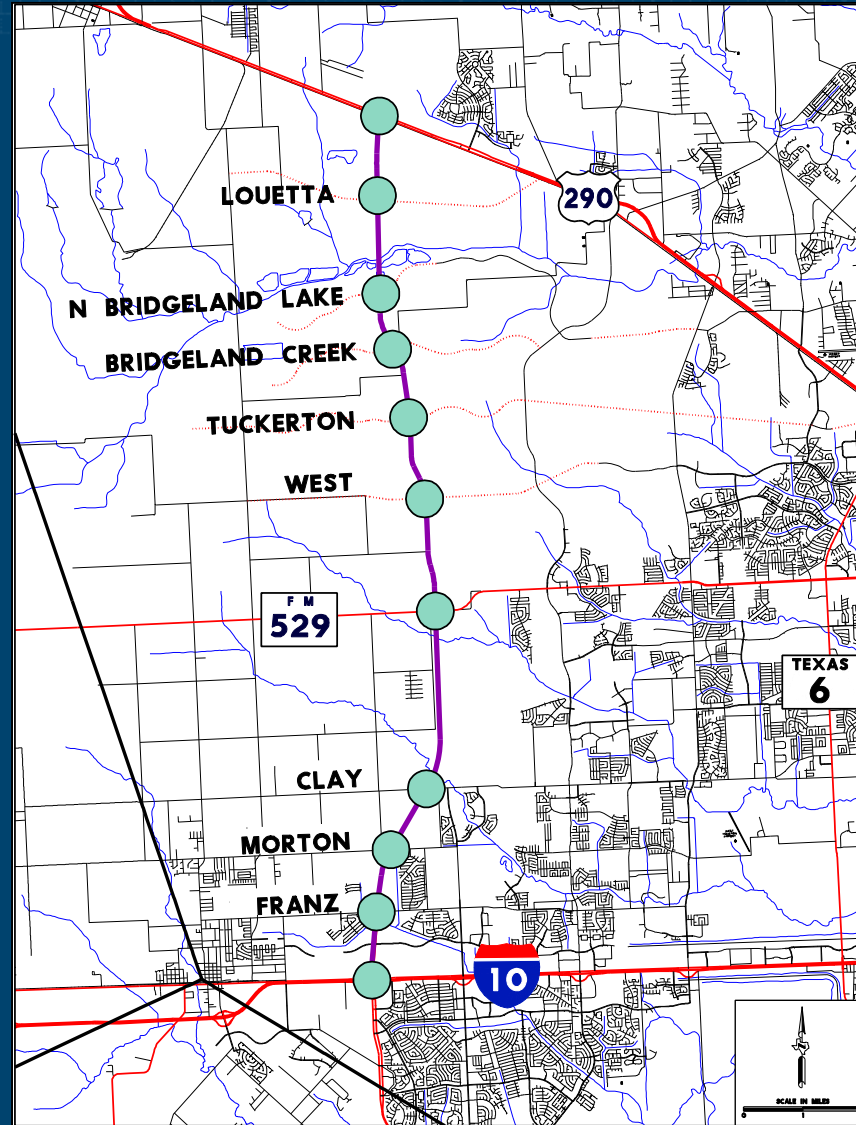
Project Location



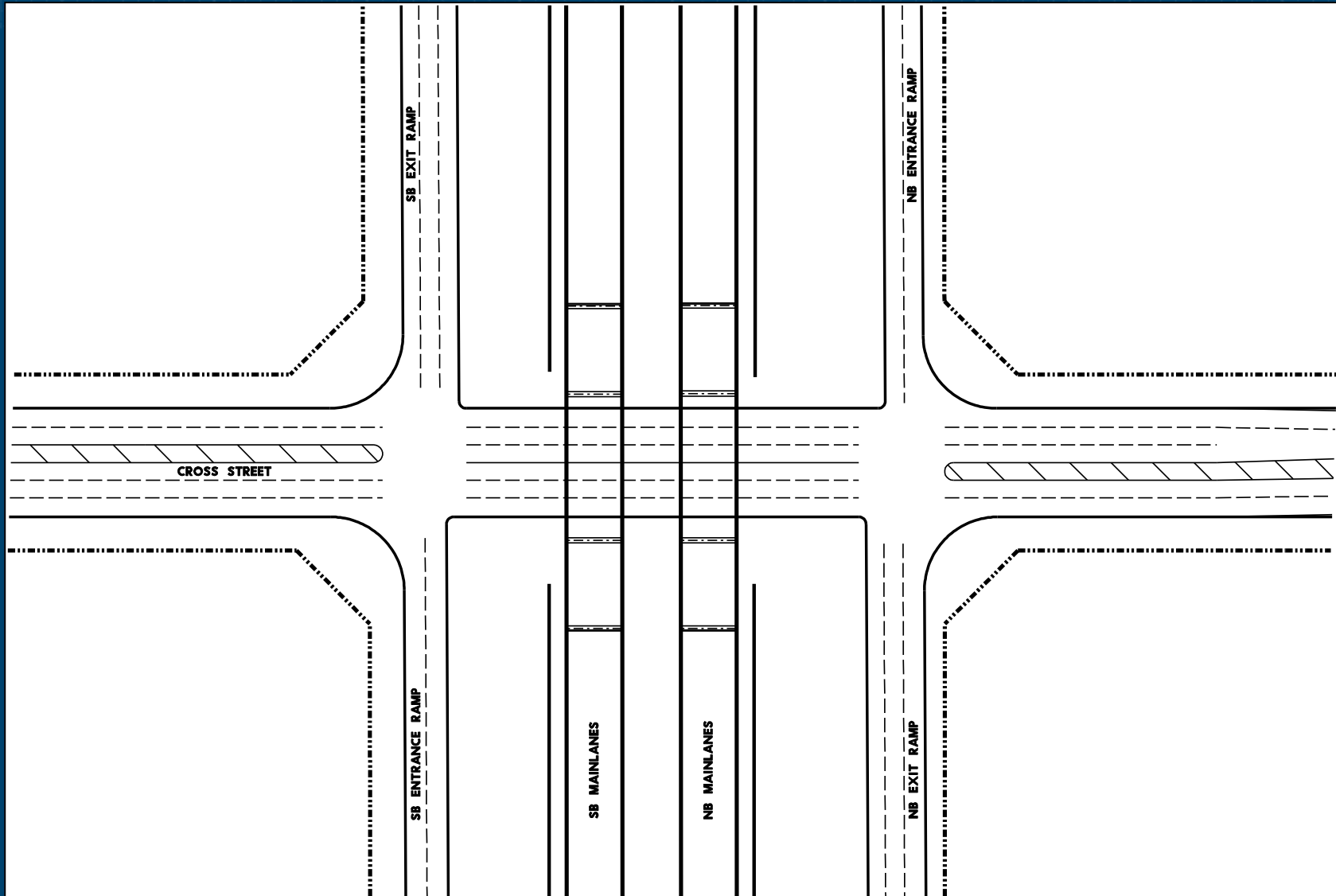
SPUI Design Considerations for the Grand Parkway

Harris County Toll Road Authority • Brown & Gay Engineers, Inc.

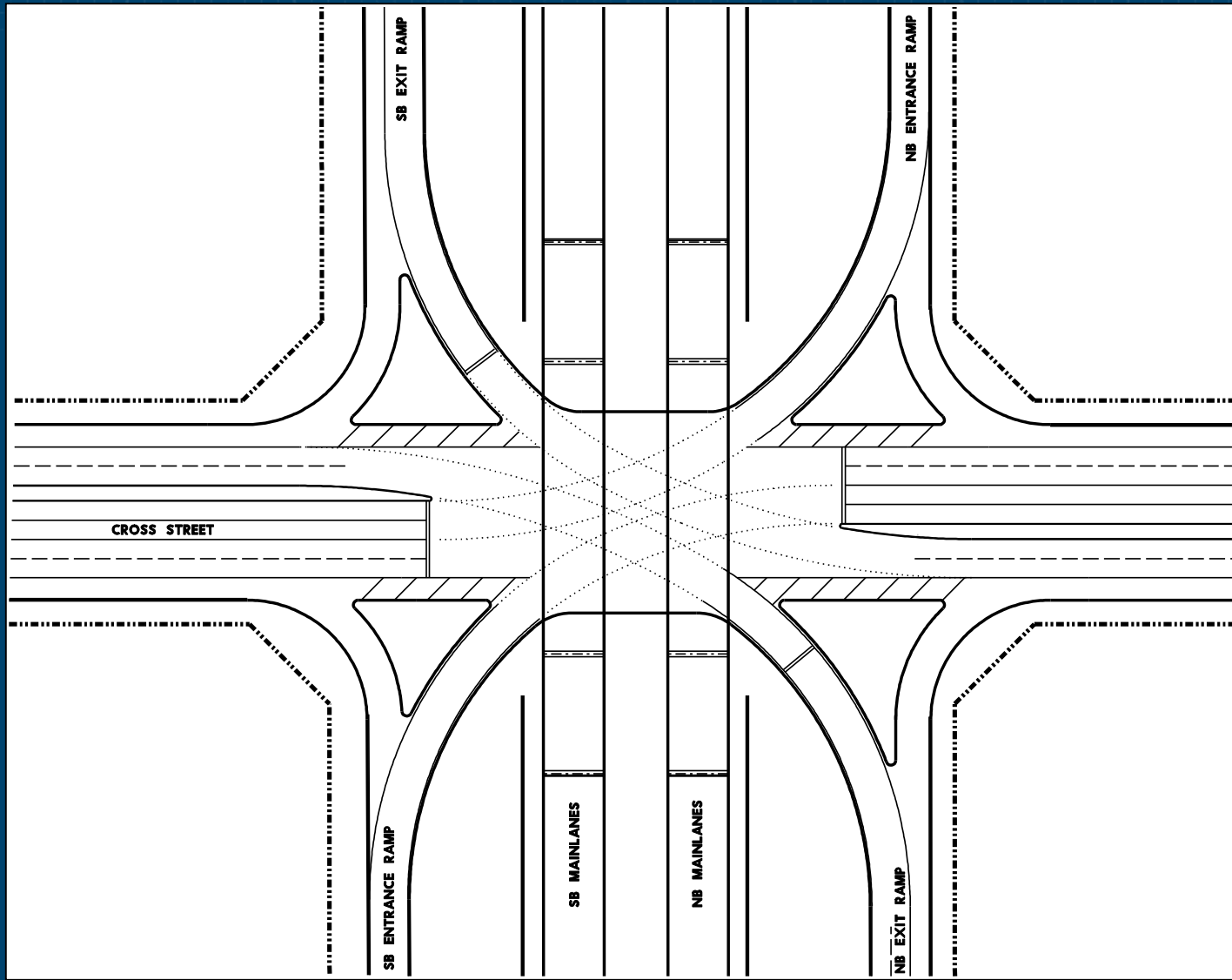
Interchange Locations



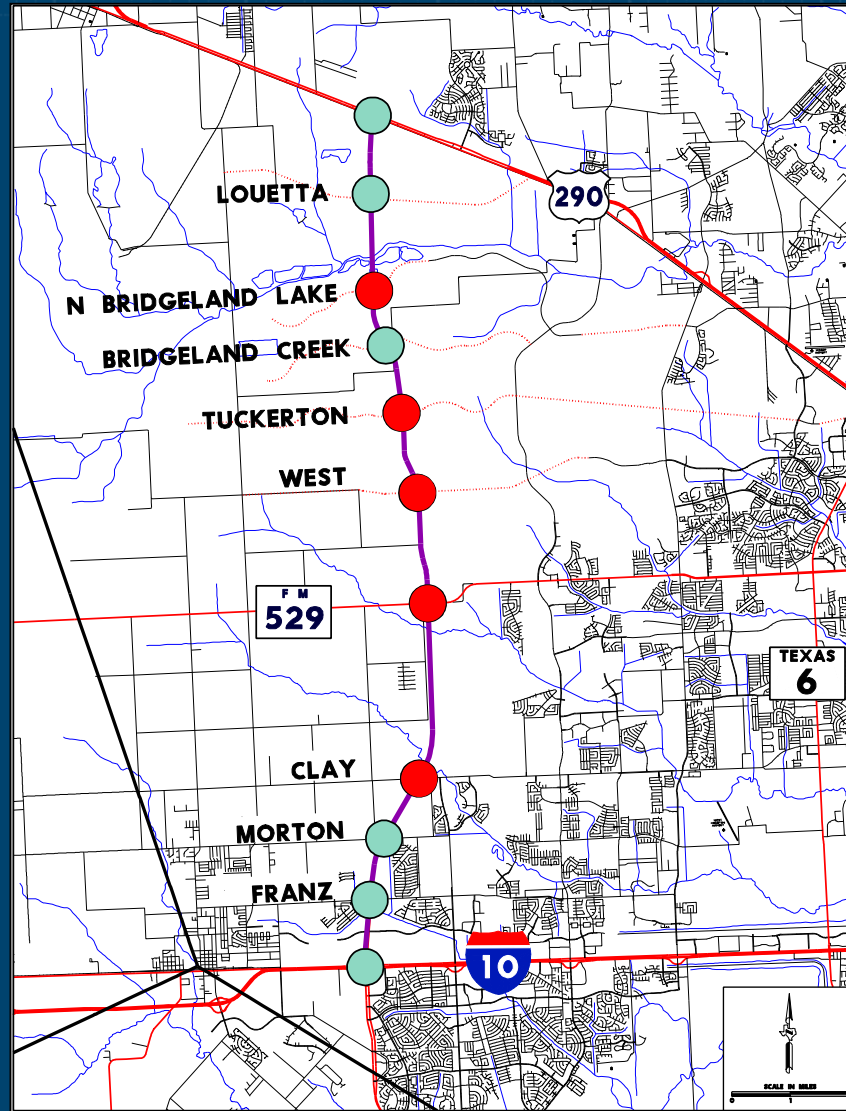
Diamond Interchange



Single Point Urban Interchange



SPUI Locations



SPUI Design Considerations for the Grand Parkway

Harris County Toll Road Authority • Brown & Gay Engineers, Inc.

Operational Improvements (2030)

Intersection	Level of Service		Intersection Delay (sec)	
	Diamond	SPUI	Diamond	SPUI
Clay Rd	C	C	30	25
FM 529	E	C	64	25
West Rd	D	C	36	24

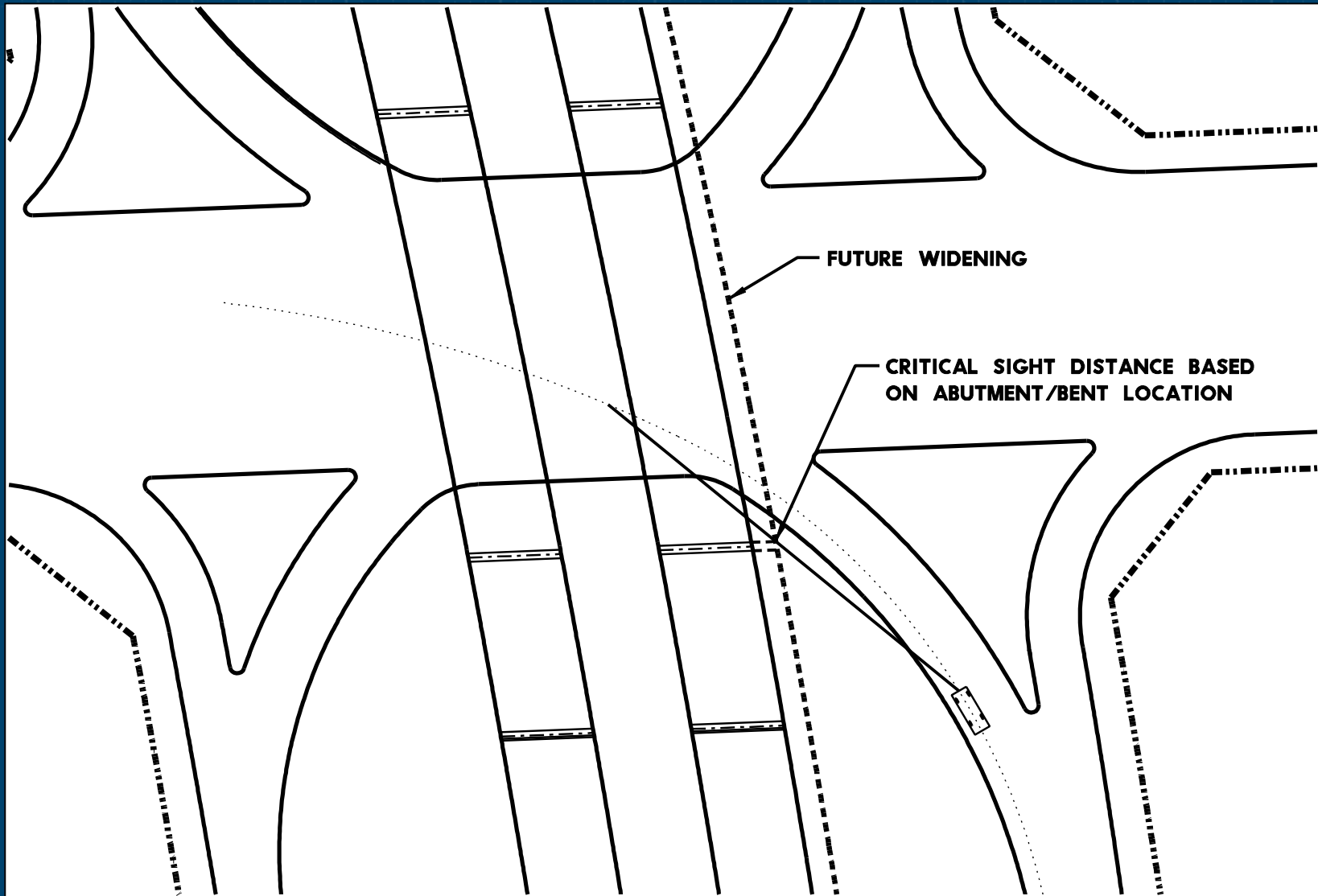
Design Considerations

- Design Speed
- Sight Distance
- Left Turn Geometry
- Bridge Span Configuration
- Signalization
- Pedestrian Movements
- “Single Point Urban Interchange Design and Operational Analysis”
 - NCHRP Report 345, Transportation Research Board

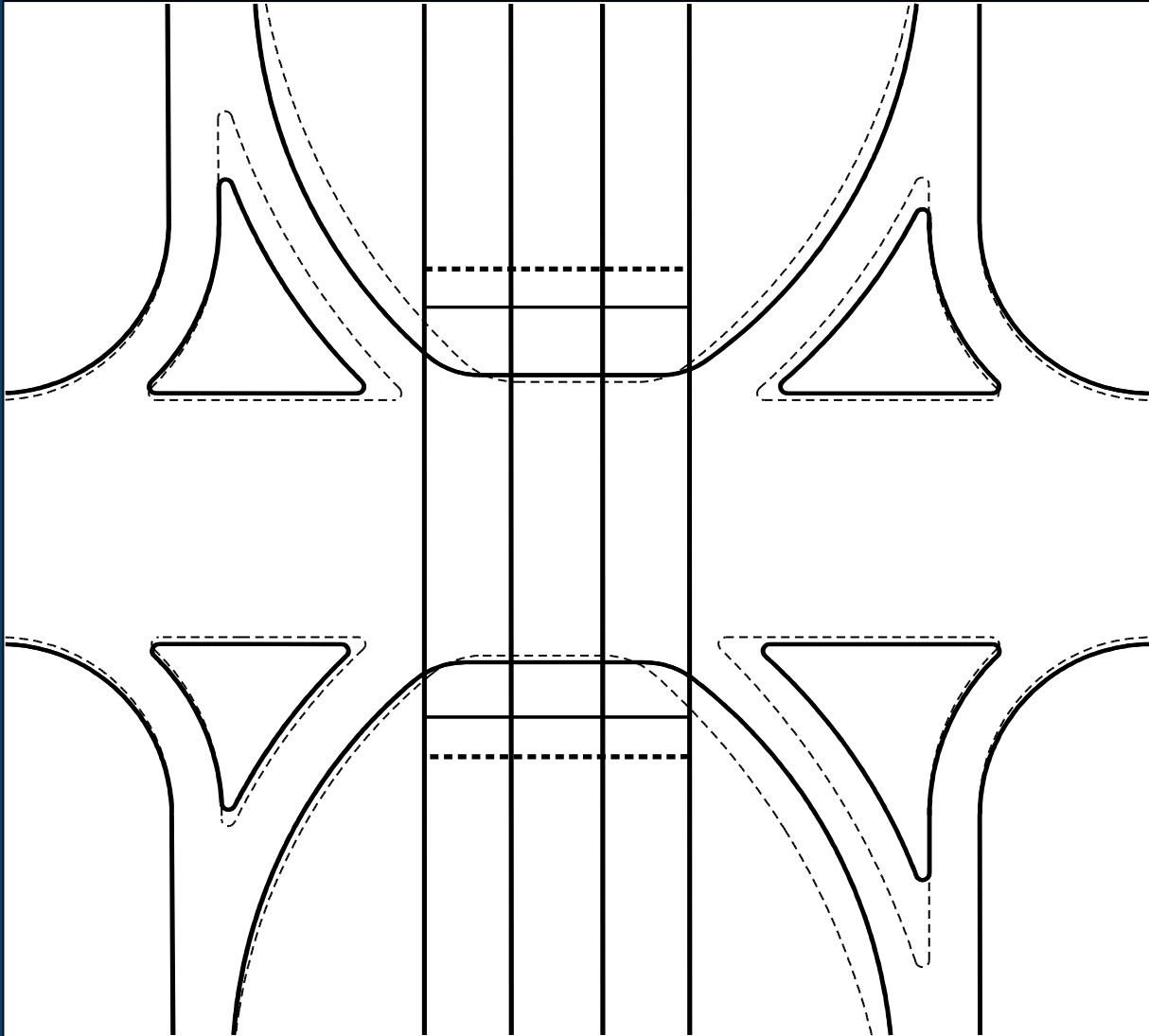
Design Speed

- 25 to 35 MPH recommended
- Increase in design speed = Increase in main bridge span length
- Increase in design speed = Lower clearance times

Sight Distance

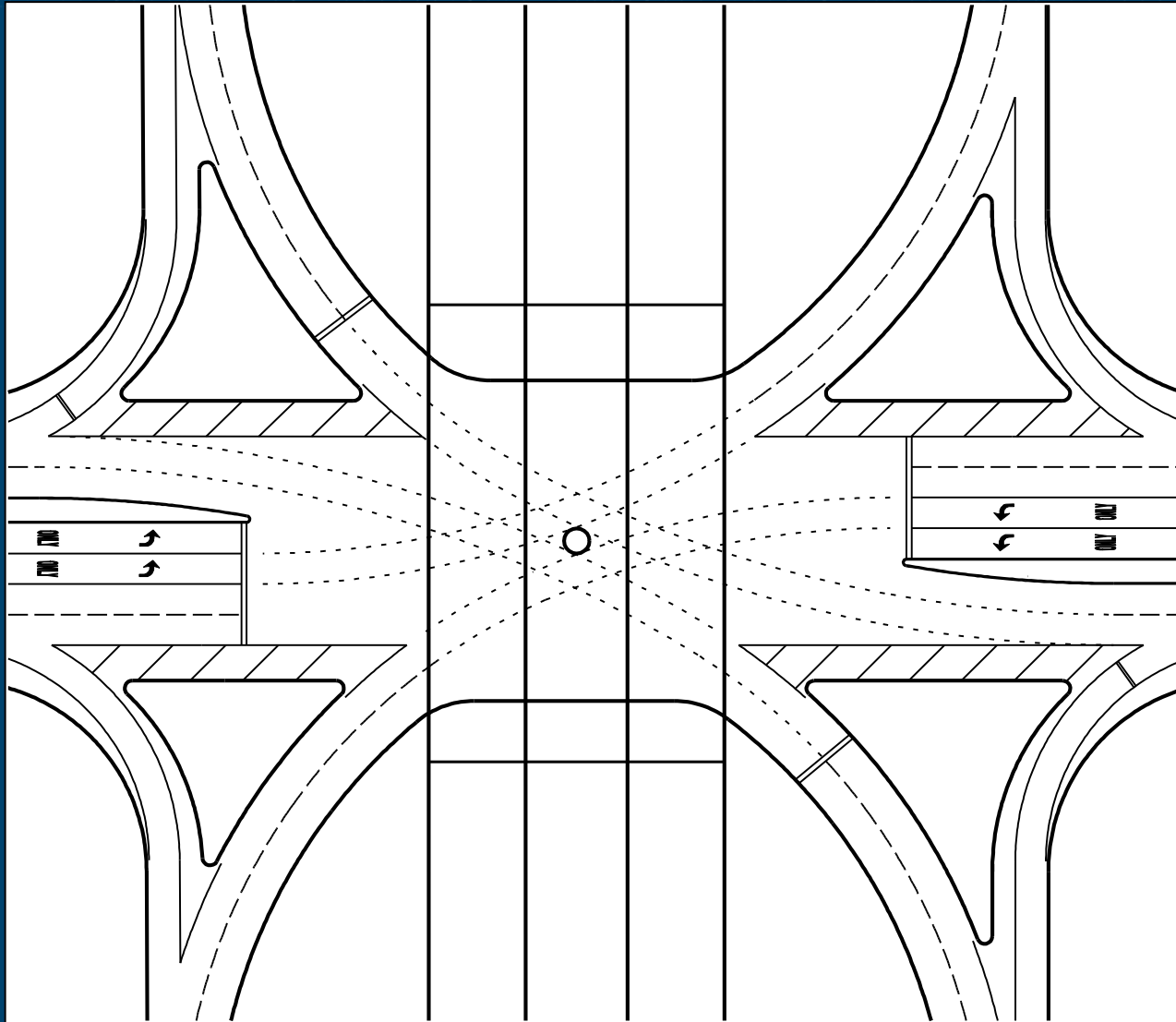


Left Turn Geometry



- Compound Curve
- Simple Curve

Left Turn Geometry



- Center Offset
- Median Width

Bridge Span Configuration



Image Courtesy of Google Street View

Single Span

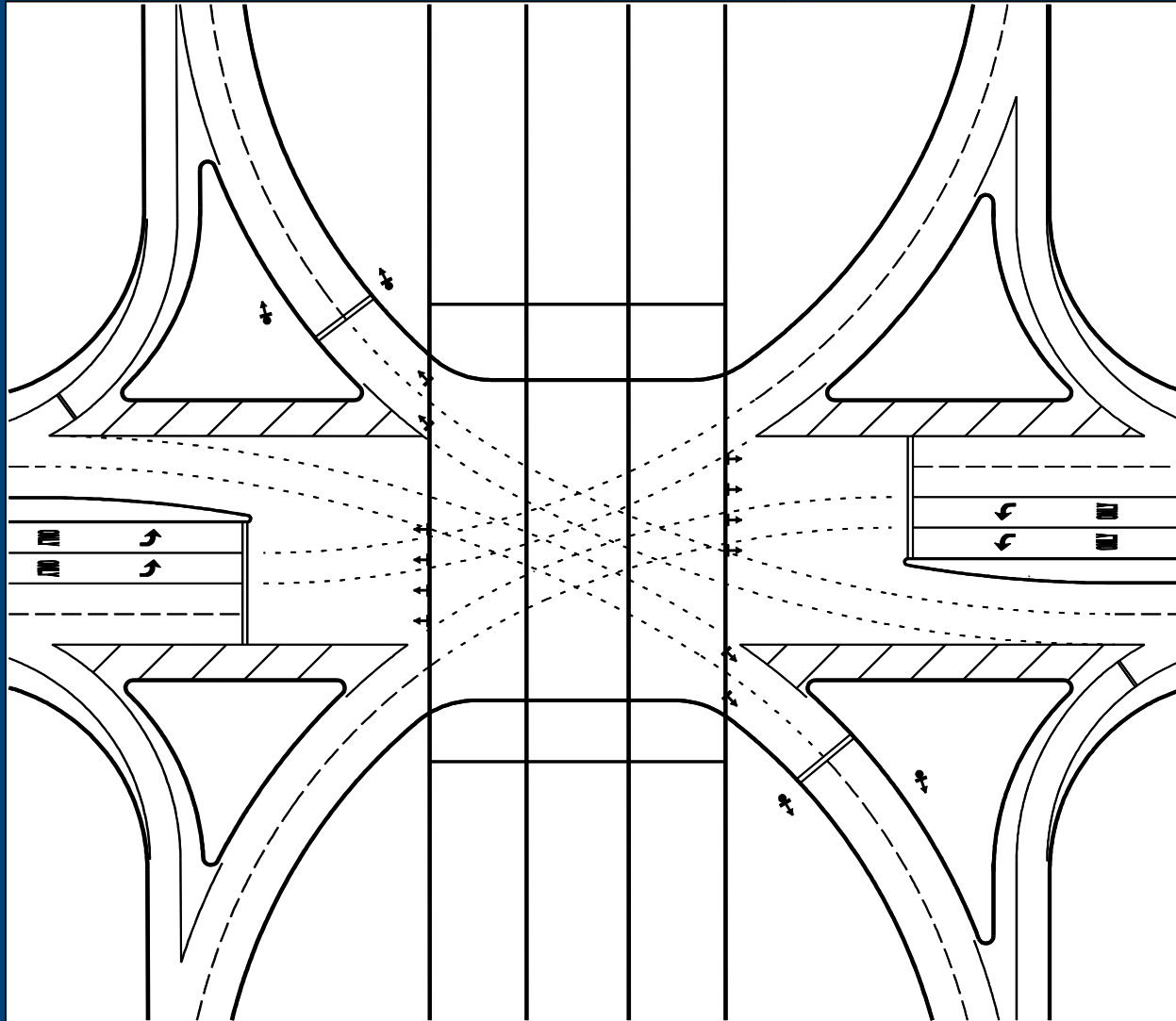
Bridge Span Configuration



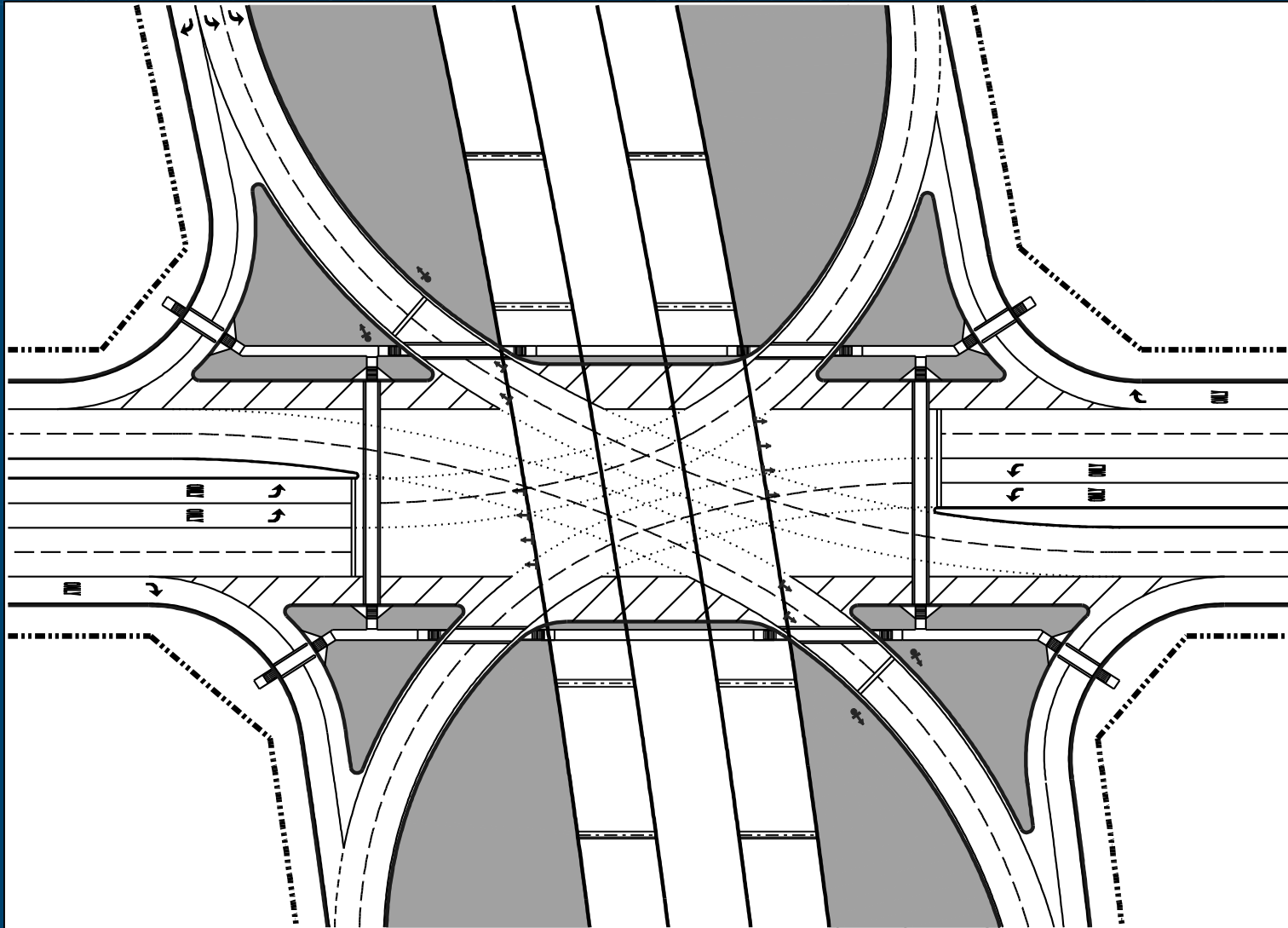
Image Courtesy of Google Street View

3 - Span

Signalization



Pedestrian Movements



Questions ?

