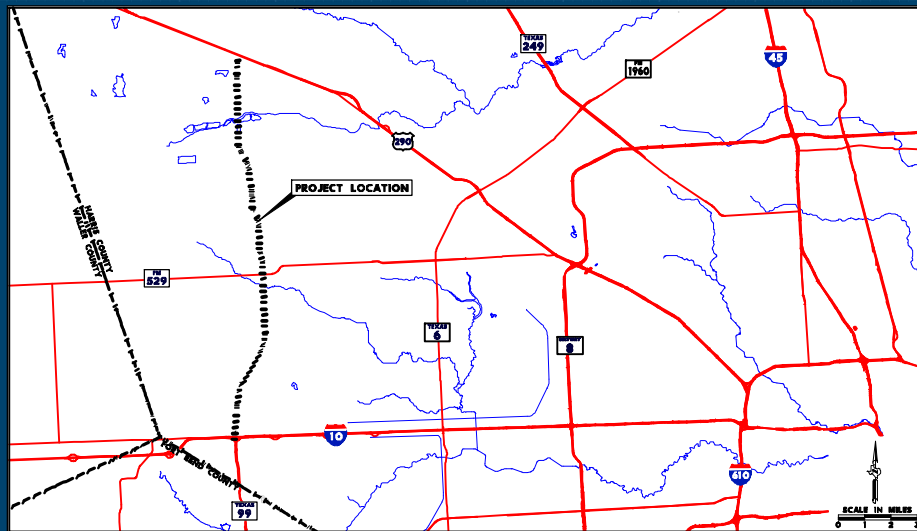


SPUI Design Considerations for the Grand Parkway in Harris County

TexITE 2010 Winter Meeting
Frisco

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

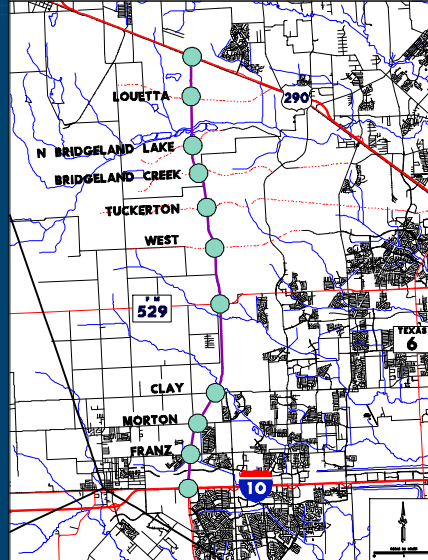
Project Location



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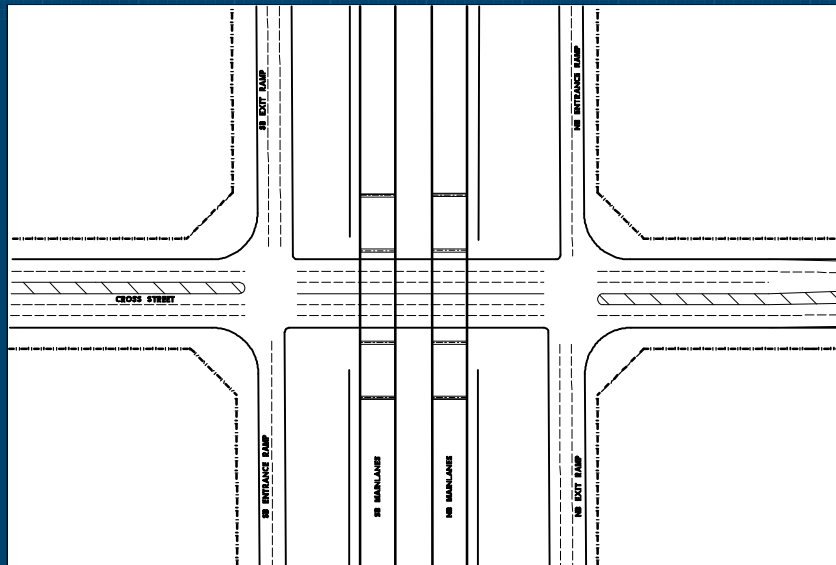
Interchange Locations



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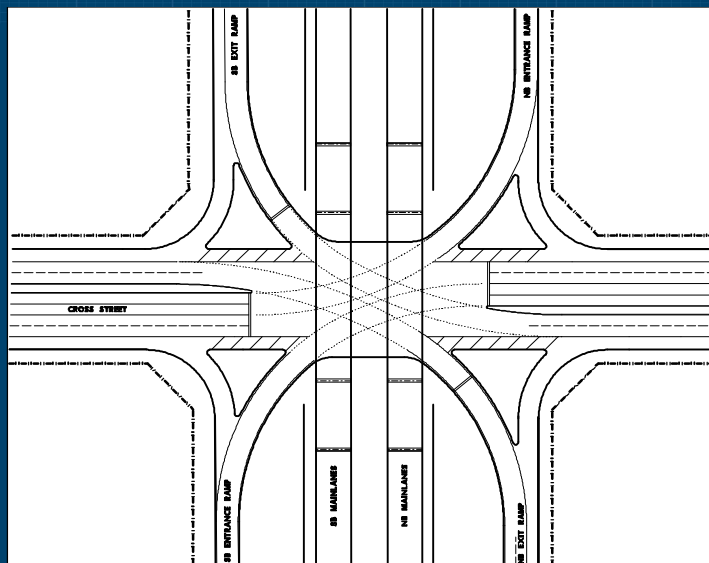
Diamond Interchange



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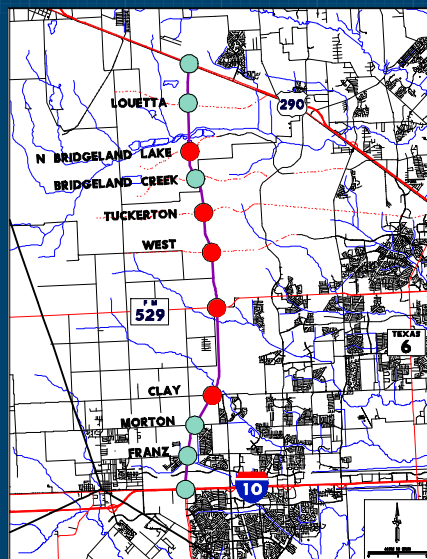
Single Point Urban Interchange



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SPUI Locations



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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

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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

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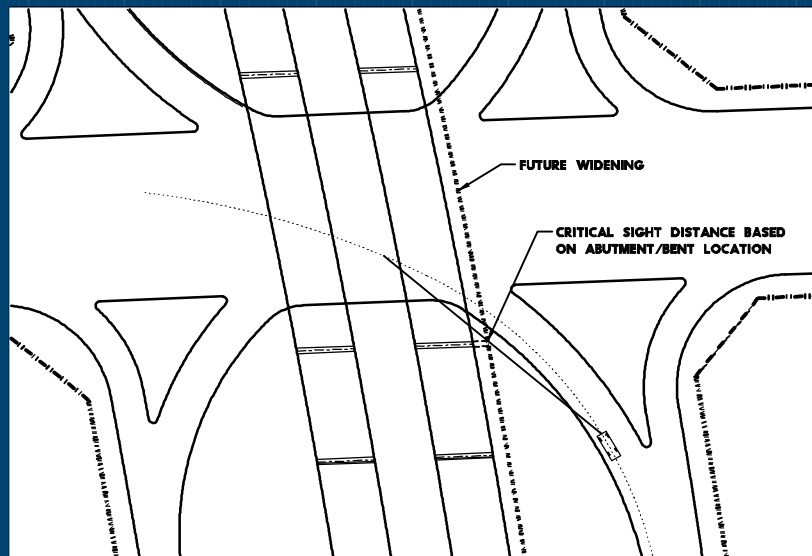
Design Speed

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

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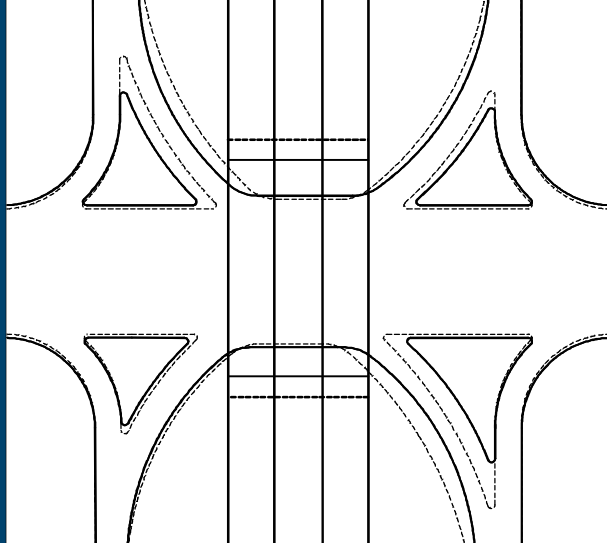
Sight Distance



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Left Turn Geometry

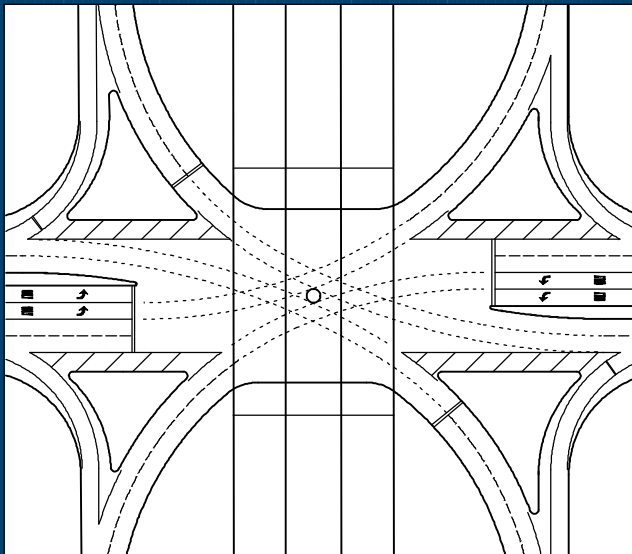


- Compound Curve
- Simple Curve

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Left Turn Geometry



- Center Offset
- Median Width

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Bridge Span Configuration



Image Courtesy of Google Street View

Single Span

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Bridge Span Configuration



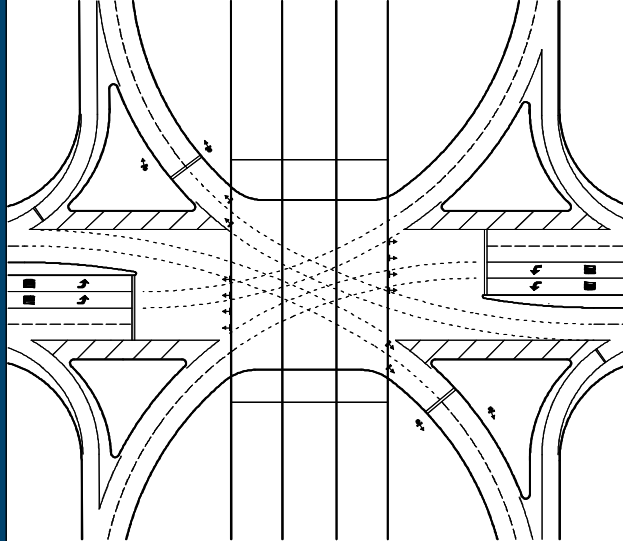
Image Courtesy of Google Street View

3 - Span

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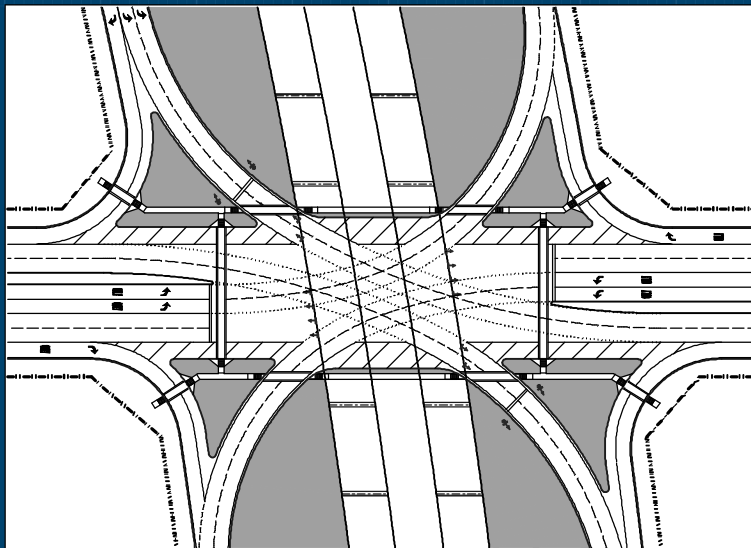
Signalization



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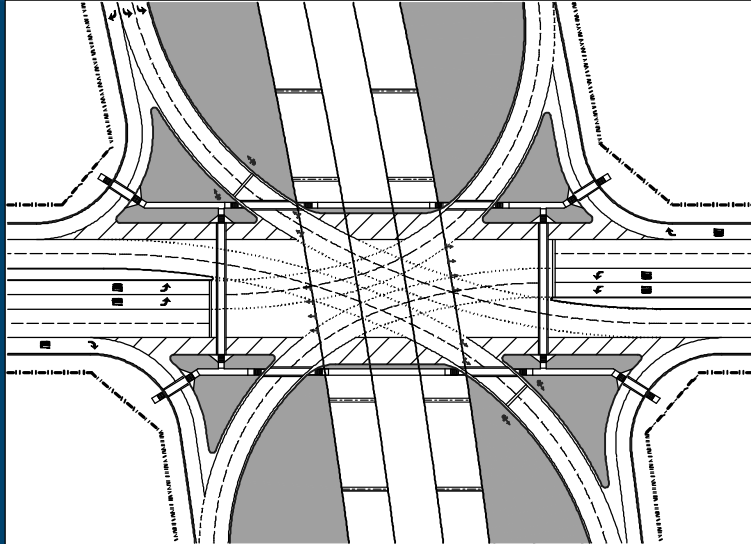
Pedestrian Movements



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Questions ?



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