






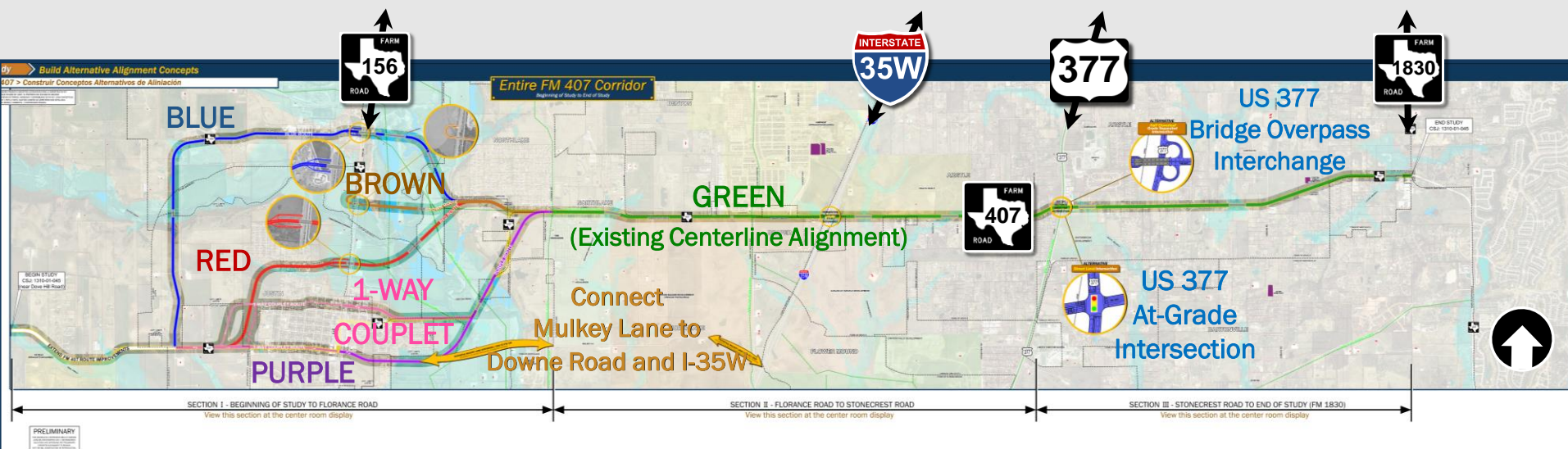
# Screening of No Build and Build Alternatives\*



SCREENING CATEGORY	EVALUATION CRITERIA
 <b>MOBILITY/TRAFFIC CONSIDERATIONS</b>	<ul style="list-style-type: none"> <li>• Provides an acceptable Year 2045 Level of Service (LOS) along FM 407</li> <li>• Enhances travel route options, road links and connectivity, and trip reliability through the study area which can alleviate FM 407 via improved corridor traffic flow and circulation</li> </ul>
 <b>ENGINEERING CONSIDERATIONS</b>	<ul style="list-style-type: none"> <li>• Conforms to design criteria (shlder/lane widths, curve geometry, weave/taper lengths, design speed).</li> <li>• Avoids Utilities (Oil / Gas Wells / Infrastructure, Major Transmission Lines, etc.).</li> <li>• Lessens riverine bridges and complex hydraulic solutions, permitting, and constructability issues.</li> <li>• Separates FM 407 (via bridges) from the BNSF RR and UP RR.</li> </ul>
 <b>ENVIRONMENTAL CONSIDERATIONS</b>	<ul style="list-style-type: none"> <li>• Historic / Archeological Resources</li> <li>• Wildlife habitat, vegetation, and Threatened and Endangered Species</li> <li>• Section 404 Jurisdictional Waters including wetlands</li> <li>• Hazardous Material sites</li> <li>• Section 4(f) / 6(f) sites within the Proposed ROW</li> <li>• Agricultural Land Use and Prime Soils</li> <li>• Disproportionate impacts to Environmental Justice or Limited English Proficiency Populations</li> <li>• Noise Impacts that require Noise Mitigation Barriers</li> <li>• Building Impacts (residential, commercial, retail, industrial and farm)</li> </ul>
 <b>COST CONSIDERATIONS</b>	<ul style="list-style-type: none"> <li>• Construction difficulty, disruption and cost</li> <li>• Land Acquisition and Displacement cost</li> </ul>
 <b>MUNICIPALITY OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Consistency with Town, City, County Thoroughfare Plans</li> <li>• Accommodation of planned and ongoing adjacent Developments</li> </ul>

\* Screening is based on a 6-lane FM 407 Build Typical Section, current data and analysis, and therefore is subject to change

# Evaluated Alternative Alignment Concepts



**-- March 2019 Public Meeting Exhibit --**  
**(Alternative Screening Matrices are based on these Concept Alternatives)**

# Matrix Screening Summary | Section I (West of FM 156 to Florance Rd)



## BUILD ALTERNATIVES

SCREENING CATEGORY	CRITERIA	NO BUILD ALT	BLUE ALT	RED ALT	CPLT ALT	PURPL ALT	BRWN ALT
MOBILITY/TRAFFIC CONSIDERATIONS	Year 2045 Level of Service	●	●*	●	●	●	●
	FM 407 Relief / Connectivity	●	●*	●	●	●	●
ENGINEERING CONSIDERATIONS	Design & Safety	●	●	●	●	●	●
	Utility Impacts	●	●	●	●	●	●
	River / Water Crossings (# of)	0	2	1	1	1	2
ENVIRONMENTAL CONSIDERATIONS	Historic / Archeo. Resources	●	●	●	●	●	●
	Wildlife / Vegetation / Species	●	●	●	●	●	●
	Water Resources / Wetlands	●	●	●	●	●	●
	Haz-Mat Sites	●	●	●	●	●	●
	Public & Park Sites / Noise	●	●	●	●	●	●
	Building Impacts (# of)	0	1-2	11**	11	3-5	0
COST CONSIDERATIONS	Construction (2020 \$)	\$0	\$215M <small>(all Sections)</small>	\$194M <small>(all Sections)</small>	Alts were dismissed after March 2019 Public Meeting		
	Land Acquisition(acres/2020\$)	0ac / \$0	101ac / \$12M	79ac / \$9.8M	Alts were dismissed after March 2019 Public Meeting		
MUNICIPALITY OBJECTIVES	Thoroughfare Plans	●	●	●	●	●	●
	Development Accommodation	●	●	●	●	●	●

\* Blue Alt is projected to be less utilized than Red Alt (see Projected Traffic Volumes Exhibit).

\*\* Recent Red Alt refinement with City of Justin & Denton County has reduced impacts to 6 total.

**Study - Recommended Build Alternative**

### SCORING MEASURES:

● Does Not Meet Criteria
● Partially Meets Criteria
● Meets Criteria



## Recommended Build Alternative

### PROS

- Straightforward Alignment directly serving Justin and forecast driver destinations
- Higher utilization, functionality and FM 407 / FM 156 traffic relief through year 2045
- Added portal to / from existing and future Timberbrook phases (450 total lots)
- Less land (acreage) impacts
- Lower construction cost ... shorter length results in less maintenance mile costs
- Potential Landscaping / Noise Mitigation within curbed median south of 12<sup>th</sup> Street

### CONS

- Six individual residential building impacts / relocation costs
- Utility impacts / relocation costs
- Visual and Noise impacts

# Matrix Screening Summary | Section II (Florance Rd to Stonecrest Dr)



## BUILD ALTERNATIVES

SCREENING CATEGORY	CRITERIA	NO BUILD ALT	RURAL DITCH DESIGN	SEMI-DITCH	URBAN CURB & GUTTER
MOBILITY/TRAFFIC CONSIDERATIONS	Year 2045 Level of Service	●	●	●	●
	FM 407 Relief / Connectivity	●	●	●	●
ENGINEERING CONSIDERATIONS	Design & Safety	●	●	●	●
	Utility Impacts	●	●	●	●
	River / Water Crossings (# of)	0	4	4	4
ENVIRONMENTAL CONSIDERATIONS	Historic / Archeo. Resources	●	●	●	●
	Wildlife / Vegetation / Species	●	●	●	●
	Water Resources / Wetlands	●	●	●	●
	Haz-Mat Sites	●	●	●	●
	Public & Park Sites / Noise	●	●	●	●
	Building Impacts (# of)	0	1-2	1-2	1-2
COST CONSIDERATIONS	Construction (2020 \$)	\$0	Alts were dismissed after 1 <sup>st</sup> Public Meeting		See Red/Blue Total Cost
	Land Acquisition(acres/2020\$)	0ac / \$0	Alts were dismissed after 1 <sup>st</sup> Public Meeting		30.8ac / \$3.5M
MUNICIPALITY OBJECTIVES	Thoroughfare Plans	●	●	●	●
	Development Accommodation	●	●	●	●

Study - Recommended Build Alternative

### SCORING MEASURES:

Does Not Meet Criteria



Partially Meets Criteria



Meets Criteria



### Recommended Build Alternative

#### PROS

- Provides travel lane capacity / traffic relief through year 2045 ... notably for multiple ongoing and planned residential developments north and south of FM 407
- Curbs and gutters adequately collect and convey roadway runoff
- Curbs and gutters require less right of way as compared to open, sloped ditches
- Raised (curbed) medians safely guide, separate and direct drivers
- Curbed streets appear to promote less litter and debris compared to open ditch roads

#### CONS

- Land (acreage) impacts
- Potential building encroachment or impacts
- Higher cost for curb and gutter installations
- Median openings are limited to main access points as opposed to individual driveways

# Matrix Screening Summary | Section III (Stonecrest Dr to FM 1830)



SCREENING CATEGORY	CRITERIA	NO BUILD ALT	BUILD ALTERNATIVES	
			AT-GRADE US 377ALT	CLOVERLEAF US 377 ALT
MOBILITY/TRAFFIC CONSIDERATIONS	Year 2045 Level of Service	●	●	●
	FM 407 Relief / Connectivity	●	●	●
ENGINEERING CONSIDERATIONS	Design & Safety	●	●	●
	Utility Impacts	●	●	●
	River / Water Crossings (# of)	0	2	2
ENVIRONMENTAL CONSIDERATIONS	Historic / Archeo. Resources	●	●	●
	Wildlife / Vegetation / Species	●	●	●
	Water Resources / Wetlands	●	●	●
	Haz-Mat Sites	●	●	●
	Public & Park Sites / Noise	●	●	●
	Building Impacts (# of)	0	1-2	2-3
COST CONSIDERATIONS	Construction (2020 \$)	\$0	\$205M (all Sections)	\$189M (all Sections)
	Land Acquisition(acres/2020\$)	0ac / \$0	19ac / \$2.2M	22ac / \$2.6M
MUNICIPALITY OBJECTIVES	Thoroughfare Plans	●	●	●
	Development Accommodation	●	●	●

Study - Recommended Build Alternative

**SCORING MEASURES:**

● Does Not Meet Criteria  
● Partially Meets Criteria  
● Meets Criteria



### Recommended Build Alternative

#### PROS

- Provides FM 407 traffic relief through year 2045 as compared to a 4-lane facility Provides ... notably for ongoing and planned developments along FM 407
- At-grade intersection at US 377 and UP Railroad limits traffic noise
- Alignment avoids front yard septic systems and Leroux Airport property site
- Less land (acreage) impacts
- Fewer building impacts

#### CONS

- At-grade intersection at US 377 and UP Railroad does not eliminate potential car-train crashes
- At-grade intersection does not optimally avoid travel delays / congestion relief