HIGH-SPEED TRANSPORTATION

Dallas-Fort Worth

02.04.2021 NCTCOG Public Meeting

Topics

- Project Overview
- Screening Process and Level 1 & 2 Results
- Next Evaluation & Design Steps
- Public and Agency Engagement

Project Overview

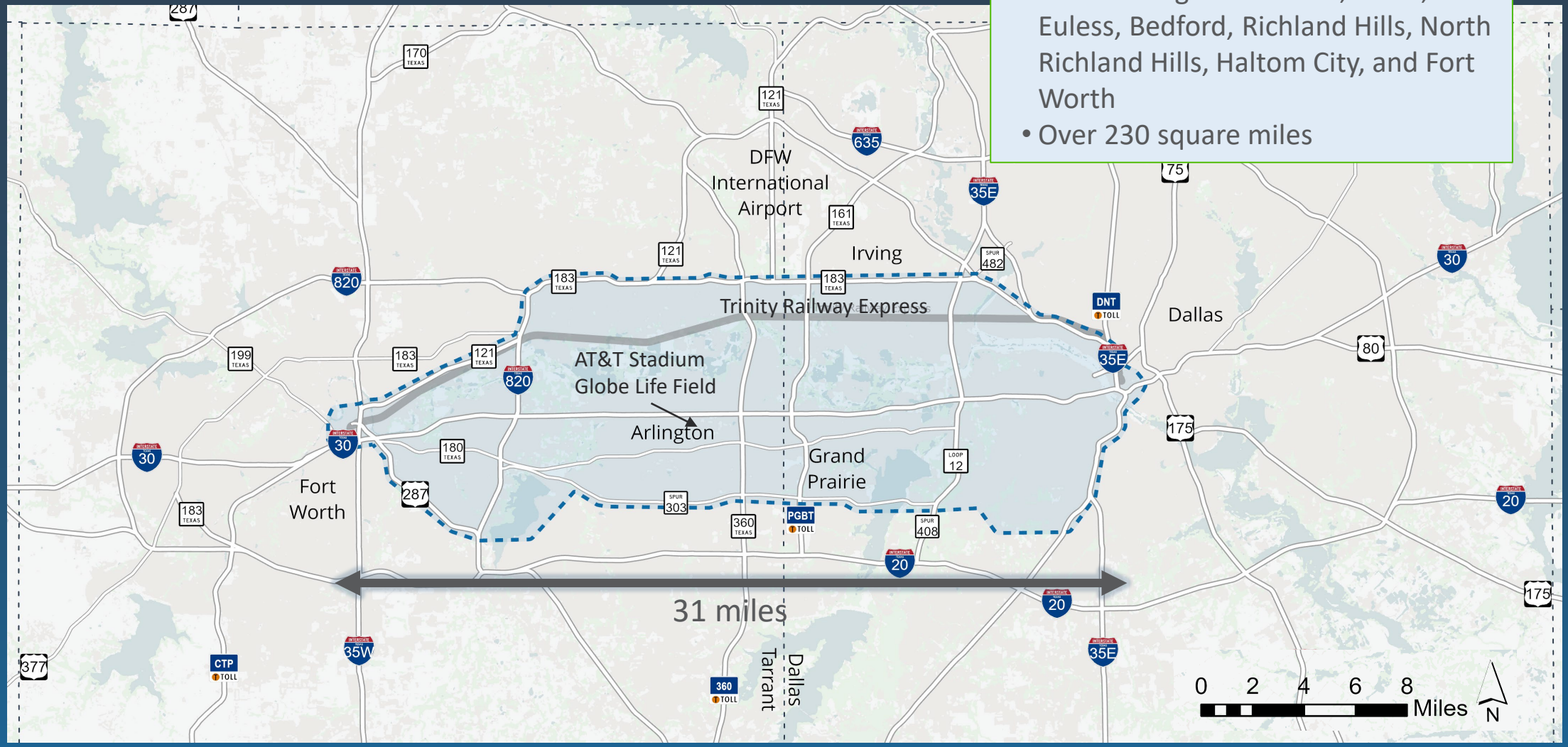
Study Objectives

- Evaluate high-speed transportation alternatives (both alignments and technology) to:
  - Connect Dallas-Fort Worth to other proposed high-performance passenger systems in the state
  - Enhance and connect the Dallas-Fort Worth regional transportation system
- Obtain federal environmental approval of the viable alternative

Study Area

The study area traverses:

- Dallas and Tarrant Counties
- Dallas, Irving, Cockrell Hill, Grand Prairie, Arlington, Pantego, Dalworthington Gardens, Hurst, Euless, Bedford, Richland Hills, North Richland Hills, Haltom City, and Fort Worth
- Over 230 square miles



Preliminary Project Purpose

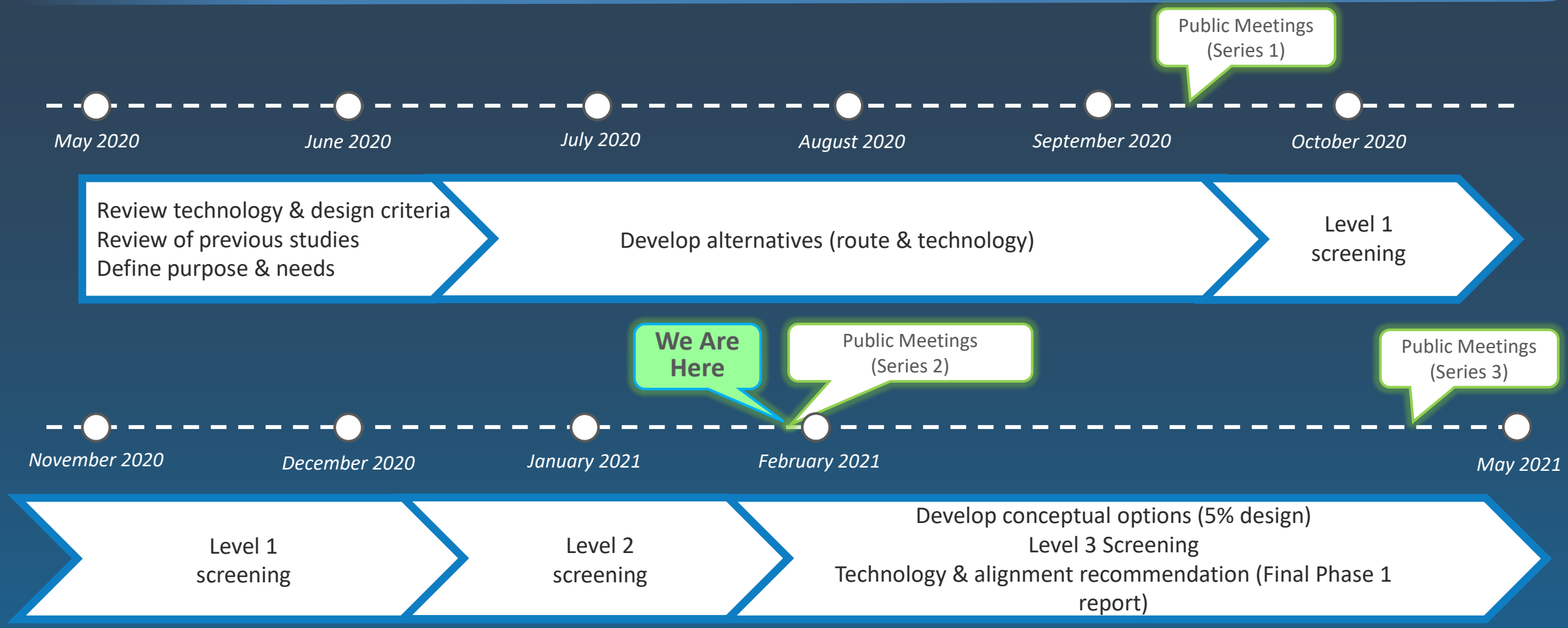
Connect downtown Dallas and downtown Fort Worth with high-speed intercity passenger rail service or an advanced high-speed ground transportation technology

- Provide a safe, convenient, efficient, fast, and reliable alternative to existing ground transportation travel options
- Advance the state high-performance rail transportation network
- Enhance connectivity within the Dallas-Fort Worth region
- Support economic development opportunities

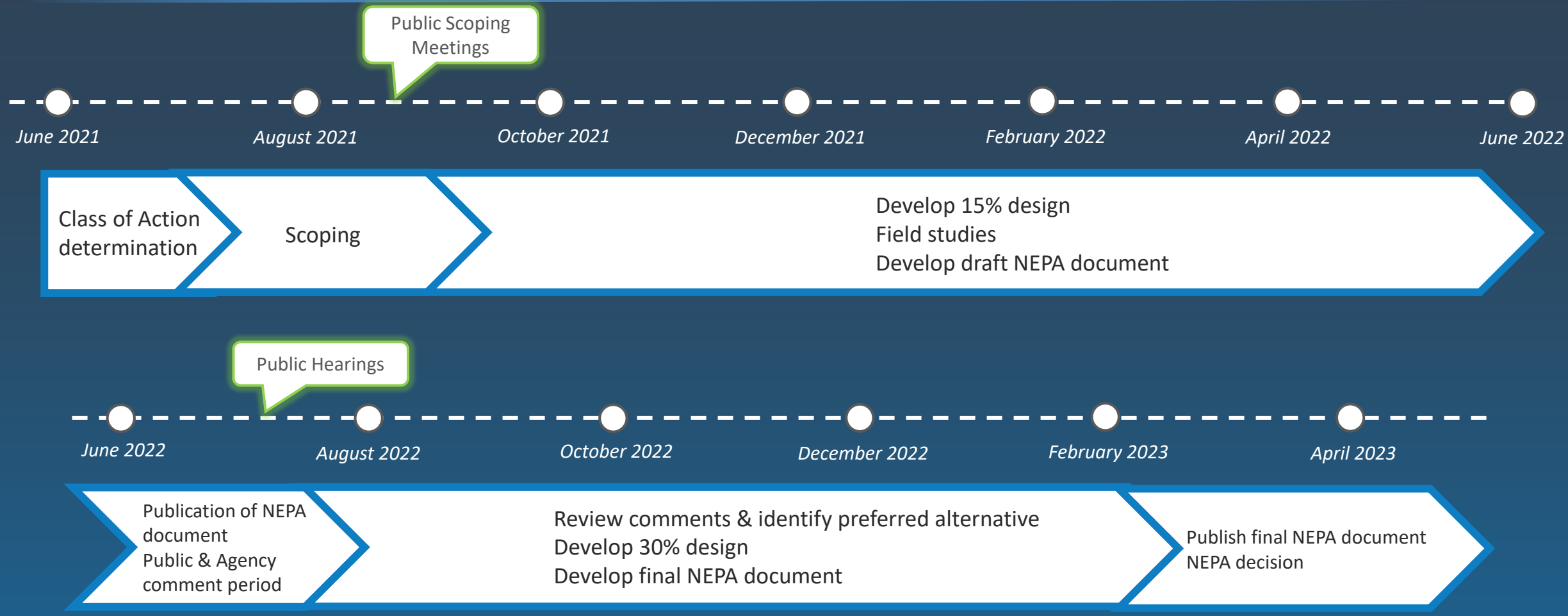
For more detailed information go to: www.nctcog.org/dfw-hstcs

>> Project Information >> Purpose and Need

Phase 1 Schedule – 12 Months



Phase 2 Schedule – 24 Months



Screening Process and Level 1 & 2 Results

Evaluation Methodology

DFW HIGH-SPEED TRANSPORTATION CONNECTIONS STUDY

We are Here

INITIAL ALTERNATIVES	EVALUATION OF ALTERNATIVES			ALTERNATIVES CARRIED FORWARD
Identify & Develop Initial Alternatives	**Level 1 (Purpose & Need)** Evaluate adherence to Purpose & Need for each alternative **43 alignments and 5 technologies**	**Level 2 (Fatal Flaw & Ranking)** Evaluate alternatives for fatal flaws and rank remaining alternatives **23 alignments and 4 technologies**	**Level 3 (Detailed Evaluation)** Detailed evaluation of top alternatives	**Draft Environmental Document** Limited number of technologies and alignments carried forward into Environmental Document

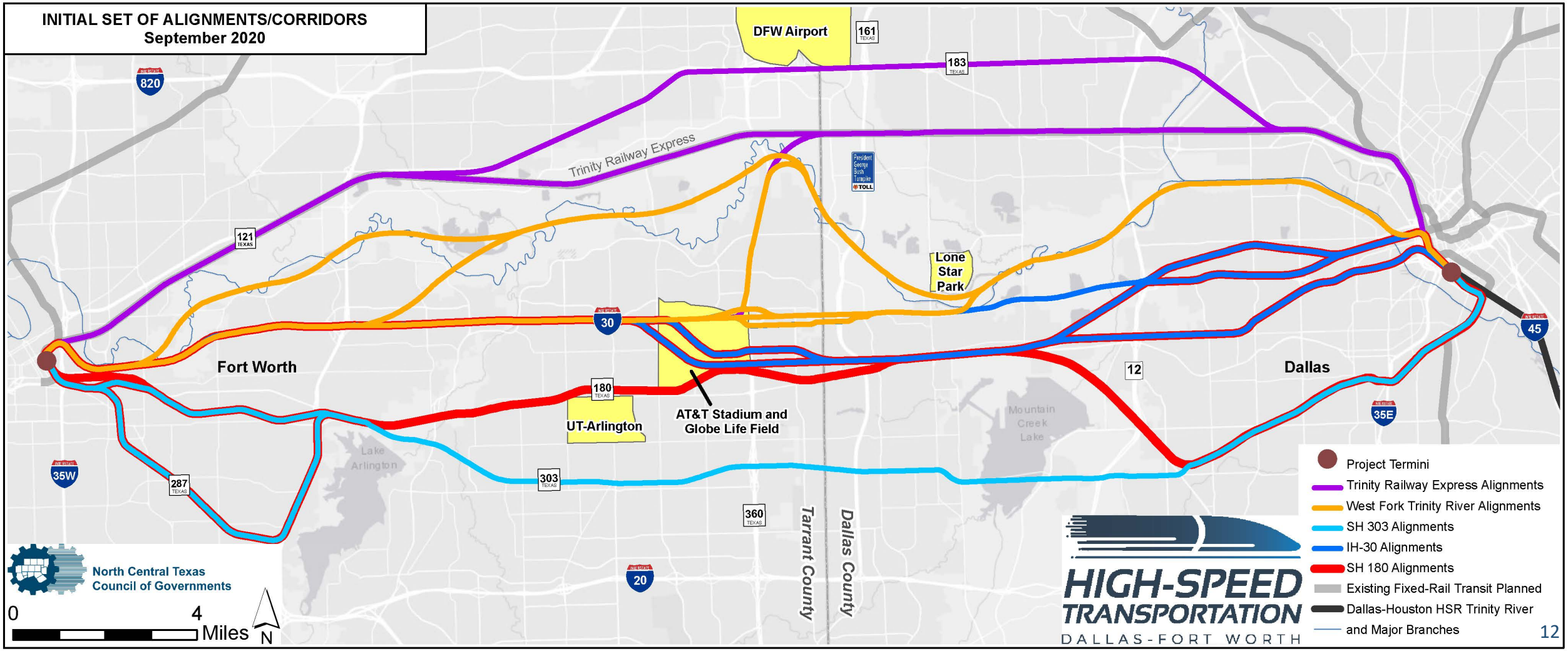
Ongoing Public, Stakeholder, and Agency Engagement

Initial Alignments/Corridors

- Initial alignments developed based on previous studies
- Trying to use existing transportation corridors
- Right-of-way may be public or private, dependent upon the method used for project delivery
- All alignments connect to the proposed Dallas high-speed rail station and the Fort Worth Central Station

43 end-to-end (Dallas to Fort Worth) alignments/corridors were identified

Initial Set of Alignments/Corridors



Initial Modes of Transportation

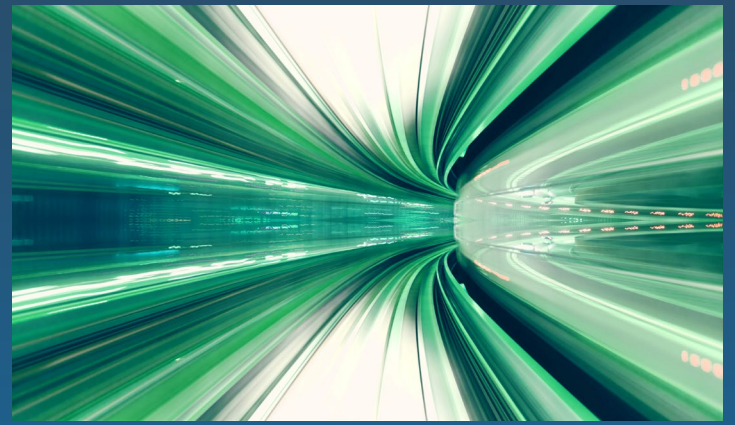
Conventional

Higher-Speed

High-Speed

Maglev

Hyperloop

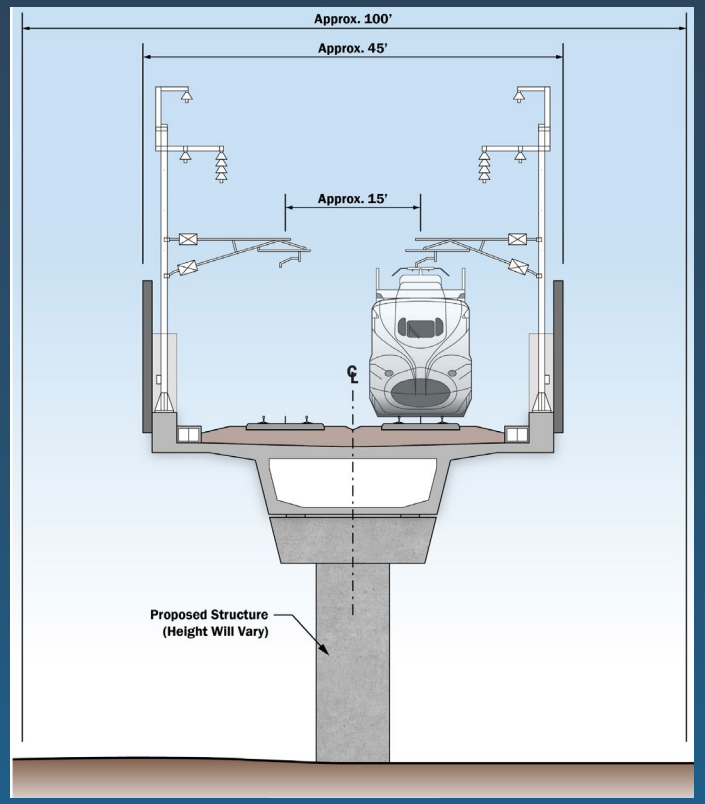


Emerging Technologies

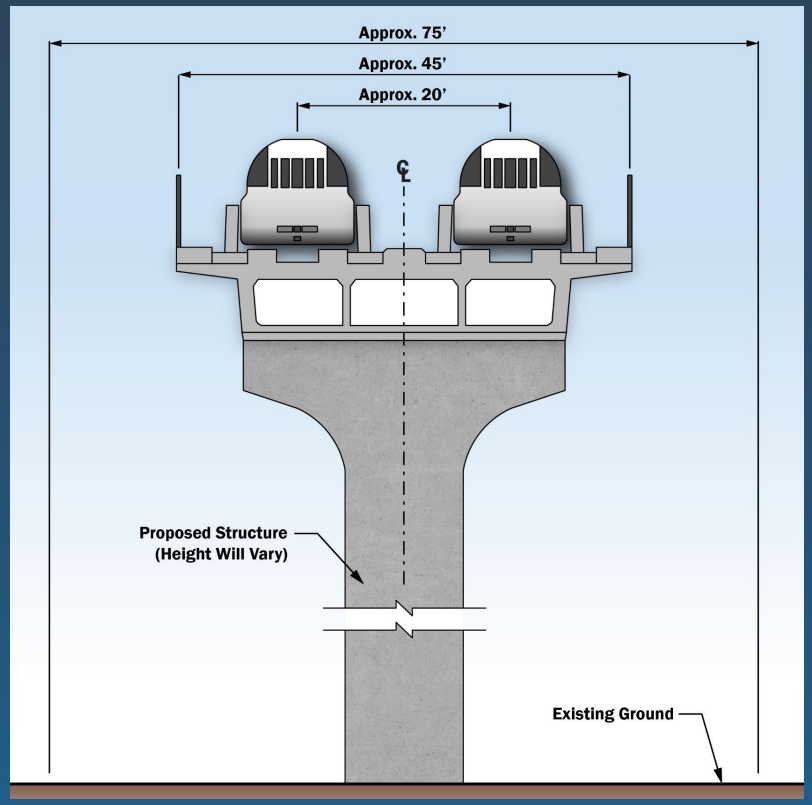
Imagery provided by NCTCOG Staff, Schon Noris Photography, Texas Central Partners, Ren Long/China Features Photos, AECOM, Virgin Hyperloop

Potential Typical Sections

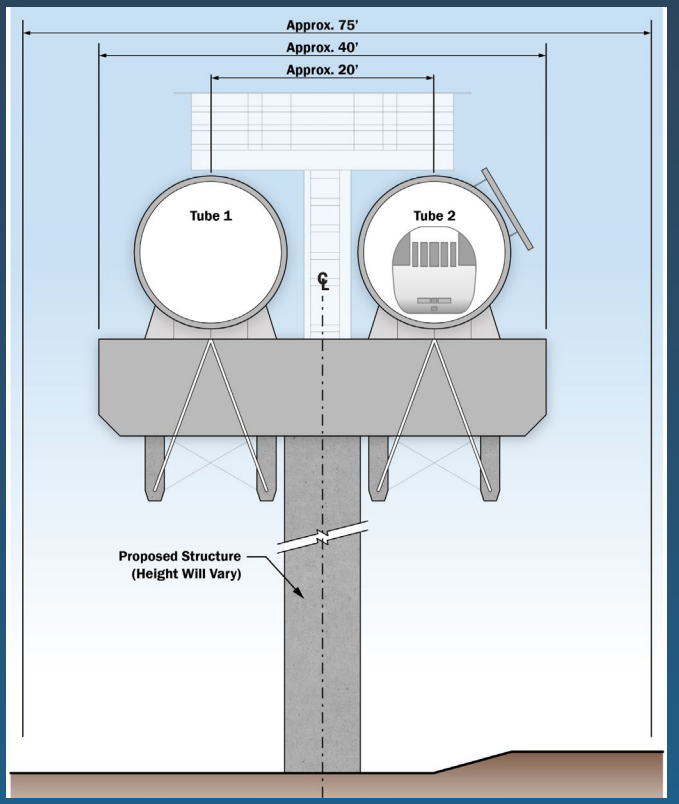
- High-Speed



- Maglev



- Hyperloop



Graphic by HNTB

Screening Criteria by Levels

Level 1 (Ability to Meet Purpose and Need)

Primary

- Serves Downtown Dallas and Fort Worth Central Station (fatal flaw)
- Travel Time (fatal flaw)

Secondary

- Safe
- Reliable
- Convenient
- Linkages to Other High-Performance Systems in Texas
- Connect to Existing Regional/Light Rail in Dallas-Fort Worth
- Improved Access to Major Activity Centers

Level 2 (Fatal Flaws and Ranking)

- Proximity to Sensitive Social, Biological, or Cultural Areas
- Potential Community Impacts
- Technology Maturity, Design Criteria, Regulatory Approval
- Capacity, Travel Time, Compatibility with Existing Infrastructure
- Operational Considerations

Level 3 (Detailed Evaluation)

- Costs
- Potential Impacts to Sensitive Social, Biological, or Cultural Areas
- Potential Community Impacts
- Constructability/Operability

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- Constructability/Operability

Level 1 Screening Results

Level 1 (Primary)

Serve Downtowns of Dallas and Fort Worth?

All 43 alignments pass

Faster Travel Time (20 mins or faster)?

- Conventional Rail: No alignments pass; eliminated from further consideration
- Higher-Speed Rail: 8 out of 43 alignments pass
- High-Speed Rail: 39 out of 43 alignments pass
- Maglev: All 43 alignments pass
- Hyperloop: All 43 alignments pass

Level 1 (Secondary)

Recommended eliminating from further considerations:

- All Trinity Railway alignments
- All West Fork Trinity River alignments
- All SH 303 alignments
- Five IH 30 alignments
- Two SH 180 alignments

Recommending only IH 30 (12 alignments) and SH 180 (11 alignments) corridors be carried forward into Level 2 screening

Level 1 Screening Results (Alignments)

			TRE Alignments					West Fork Trinity River Alignments					
	Criteria	**Description**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Purpose & Need Criteria	Safe	Number of infrastructural challenges to building a closed corridor.	Low	Low	Low	Low	Low	Med	Low	Low	Low	Low	Low
	Convenient	Ease of access to other existing and planned transportation options (roadways, trails, existing Park & Rides, etc.)	High	High	High	High	High	High	High	High	High	High	High
	Connect to existing regional/light rail in DFW	Could the alternative provide connections to existing light, regional, and commuter rail	High	High	High	High	High	High	High	High	High	High	High
	Improved access to major activity centers	Does the alignment and/or technology offer the potential for mid-alignment station alternatives access to major activity centers (e.g., 2,000+ employment in an area, activity areas significant to the community, etc.) within 1/4 mile of each alignment in the middle portion of the study area (between Loop 12 and 820)?	High	Med	Low	Low	Med	Low	Low	Med	Med	Med	Med
		Advance alignment into Level 2 Screening (yes/no)?	No	No	No	No	No	No	No	No	No	No	No

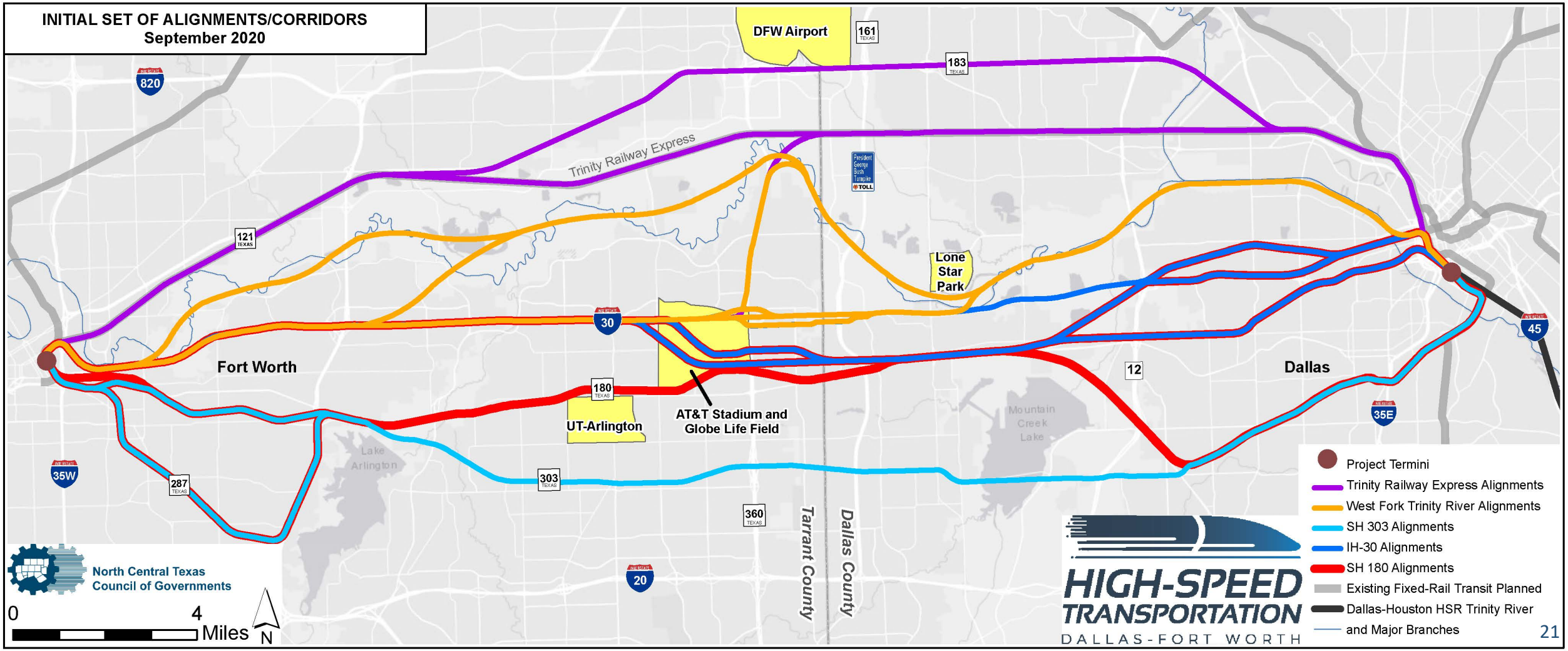
Level 1 Screening Results (Alignments)

			IH-30 Alignments															
	Criteria	**Description**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
Purpose & Need Criteria	Safe	Number of infrastructural challenges to building a closed corridor.	Med	Med	Med	Med	Low	Med	Med	Low	Low	Med	Med	Low	Med	Med	Med	Low	Med
	Convenient	Ease of access to other existing and planned transportation options (roadways, trails, existing Park & Rides, etc.)	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
	Connect to existing regional/light rail in DFW	Could the alternative provide connections to existing light, regional, and commuter rail	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
	Improved access to major activity centers	Does the alignment and/or technology offer the potential for mid-alignment station alternatives access to major activity centers (e.g., 2,000+ employment in an area, activity areas significant to the community, etc.) within 1/4 mile of each alignment in the middle portion of the study area (between Loop 12 and 820)?	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med
		Advance alignment into Level 2 Screening (yes/no)?	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes

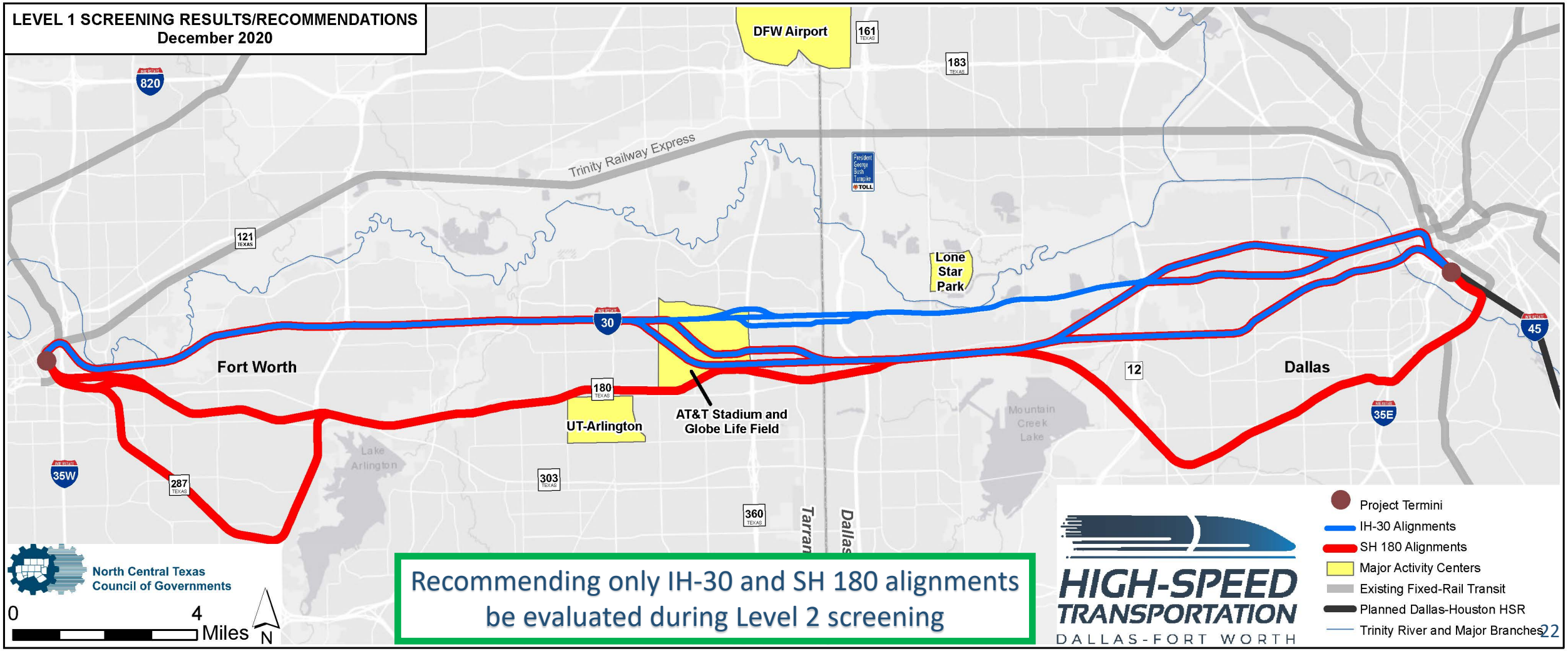
Level 1 Screening Results (Alignments)

			SH 180 Alignments												SH 303 Alignments	
	Criteria	**Description**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**
Purpose & Need Criteria	Safe	Number of infrastructural challenges to building a closed corridor.	High	High	Med	Med	Low	Med	High	High	Med	Med	Low	Med	High	High	High
	Convenient	Ease of access to other existing and planned transportation options (roadways, trails, existing Park & Rides, etc.)	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
	Connect to existing regional/light rail in DFW	Could the alternative provide connections to existing light, regional, and commuter rail	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
	Improved access to major activity centers	Does the alignment and/or technology offer the potential for mid-alignment station alternatives access to major activity centers (e.g., 2,000+ employment in an area, activity areas significant to the community, etc.) within 1/4 mile of each alignment in the middle portion of the study area (between Loop 12 and 820)?	Med	Med	Med	Med	High	Med	Med	Med	Med	Med	Med	Med	Med	Low	Low
		Advance alignment into Level 2 Screening (yes/no)?	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No

Initial Set of Alignments/Corridors



Alignment/Corridor Recommendations Based on Level 1 Screening



Level 1 Screening Results (Mode)

	Criteria	Description	Higher-Speed Rail	High-Speed Rail	Maglev	Hyperloop
Purpose & Need Criteria	Safe	Have design and safety guidelines been established (Foreign or Domestic)?	High	Med	Med	Low
	Reliable	Can the alternative mode perform reliably under all most routinely occurring North Texas weather conditions (yes/no)?	High	High	High	High
		Can the alternative mode perform reliably under all traffic conditions (rail or roadway) on this alignment (yes/no)?	High	High	High	High
	Convenient	Passenger Experience (comfort with technology paradigm)	High	High	High	Low
		Technology Convenience	Low	High	High	High
	Linkages to other high-performance systems in Texas	Ease of transfer to Dallas-Houston HSR	Med	High	Med	Med
		Ease of transfer to FW-Laredo System	Med	Med	Med	Med
		Long Distance Capability/Expandability	High	High	High	High
		Advance alignment into Level 2 Screening (yes/no)?	Yes	Yes	Yes	Yes

Screening Criteria by Levels

Level 1 (Ability to Meet Purpose and Need)

Primary

- Serves Downtown Dallas and Fort Worth Central Station (fatal flaw)
- Travel Time (fatal flaw)

Secondary

- Safe
- Reliable
- Convenient
- Linkages to Other High-Performance Systems in Texas
- Connect to Existing Regional/Light Rail in Dallas-Fort Worth
- Improved Access to Major Activity Centers

Level 2 (Fatal Flaws and Ranking)

- Proximity to Sensitive Social, Biological, or Cultural Areas
- Potential Community Impacts
- Technology Maturity, Design Criteria, Regulatory Approval
- Capacity, Travel Time, Compatibility with Existing Infrastructure
- Operational Considerations

Level 3 (Detailed Evaluation)

- Costs
- Potential Impacts to Sensitive Social, Biological, or Cultural Areas
- Potential Community Impacts
- Constructability/Operability

Level 2 Screening Results

Alignments

- IH 30 Alignments
  - 7 of 12 alignments carried forward into Level 3 screening
  - 6 of the 7 alignments combined into 2 alignments
- SH 180 Alignments

  3 of 11 alignments carried forward into Level 3 screening

For more detailed information on Level 1 and Level 2 screenings go to:
www.nctcog.org/dfw-hstcs

>> Project Information

>> Level 1 & 2 Screening Results

Modes

- Higher-speed rail eliminated from further consideration
- High-speed rail, maglev, and hyperloop carried forward into Level 3 evaluation

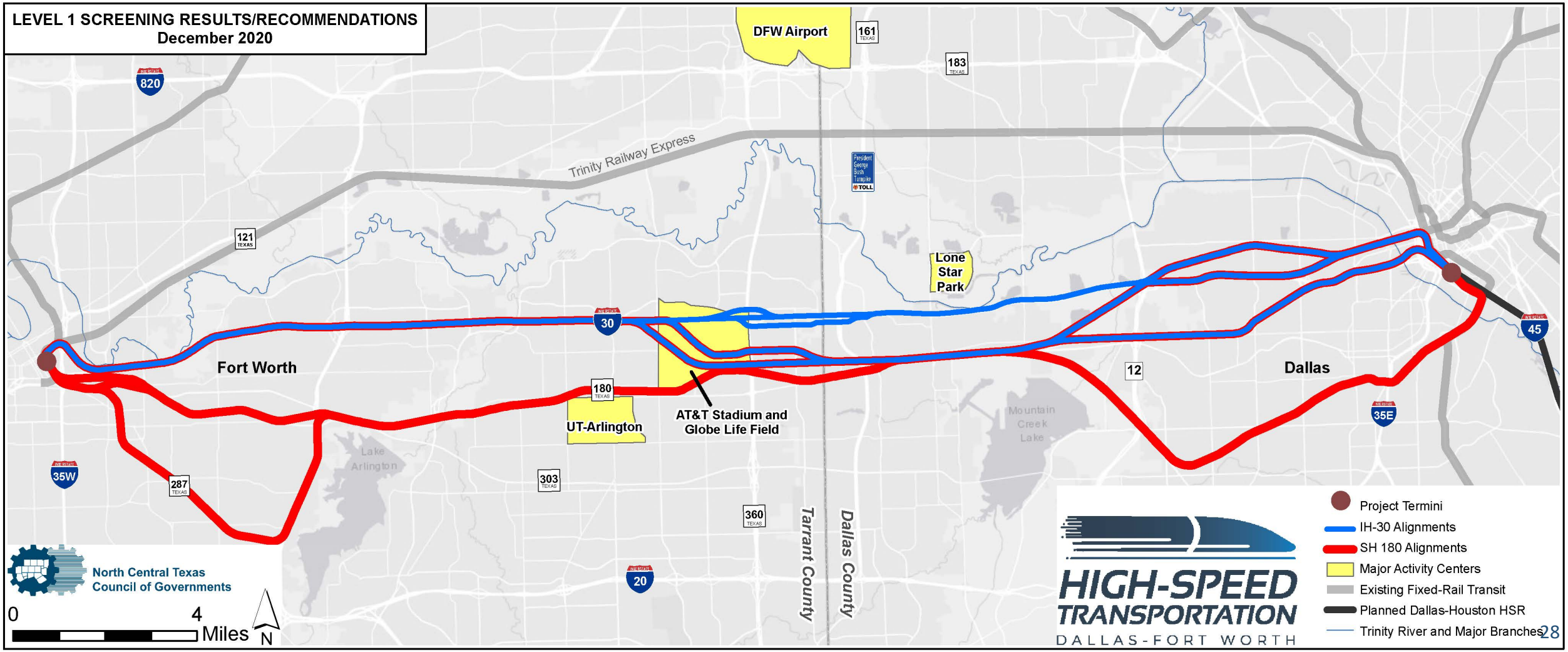
Level 2 Screening Results (Alignments)

			IH 30 Alignments											
	Criteria	**Description**	**12**	**13**	**14**	**15**	**17**	**18**	**21**	**22**	**24**	**25**	**26**	**28**
Proximity to Sensitive Social, Biological, or Cultural Areas	Potential residential Impacts	% length adjacent to residential areas; 500 feet (250 feet on each side of centerline)	Med	High	High	High	High	High	Med	Med	Low	Med	High	Med
	Potential Major Commercial/Industrial/Warehouse impacts	Number of potential impacts to major commercial, industrial, and warehouse facilities	Med	High	High	High	High	Med	Low	Med	Low	Med	Med	Low
	Potential wetland, water body, and floodplain impacts	% length adjacent to wetlands, water bodies, and floodplains; 500 feet (250 feet on each side of centerline)	Low	Low	Low	Low	Low	Low	Med	Med	Med	Med	High	Med
	Potential parks impacts	% length adjacent to parks and designated open spaces; 500 feet (250 feet on each side of centerline)	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med	Med
Potential community impacts	Potential community facility impacts	Number of Community facilities within 500 feet (250 feet on each side of centerline)	High	High	High	High	High	High	Med	Med	Med	Med	Med	Med
	Potential Community Cohesion Impacts	Number of neighborhoods with potential community cohesion impacts	High	High	Med	High	Med	High	Med	Med	Med	Med	Med	Med
	Potential environmental justice impacts	Total Environmental Justice Index Above-Average Block Groups; 500 feet (250 feet on each side of centerline)	High	High	High	High	High	High	High	High	High	High	High	Med
		Alignment Ranking (Tier 1, Tier 2, Tier 3)	1	1	1	1	1	1	2	2	3	2	1	3
			Essentially one alignment			Essentially one alignment								

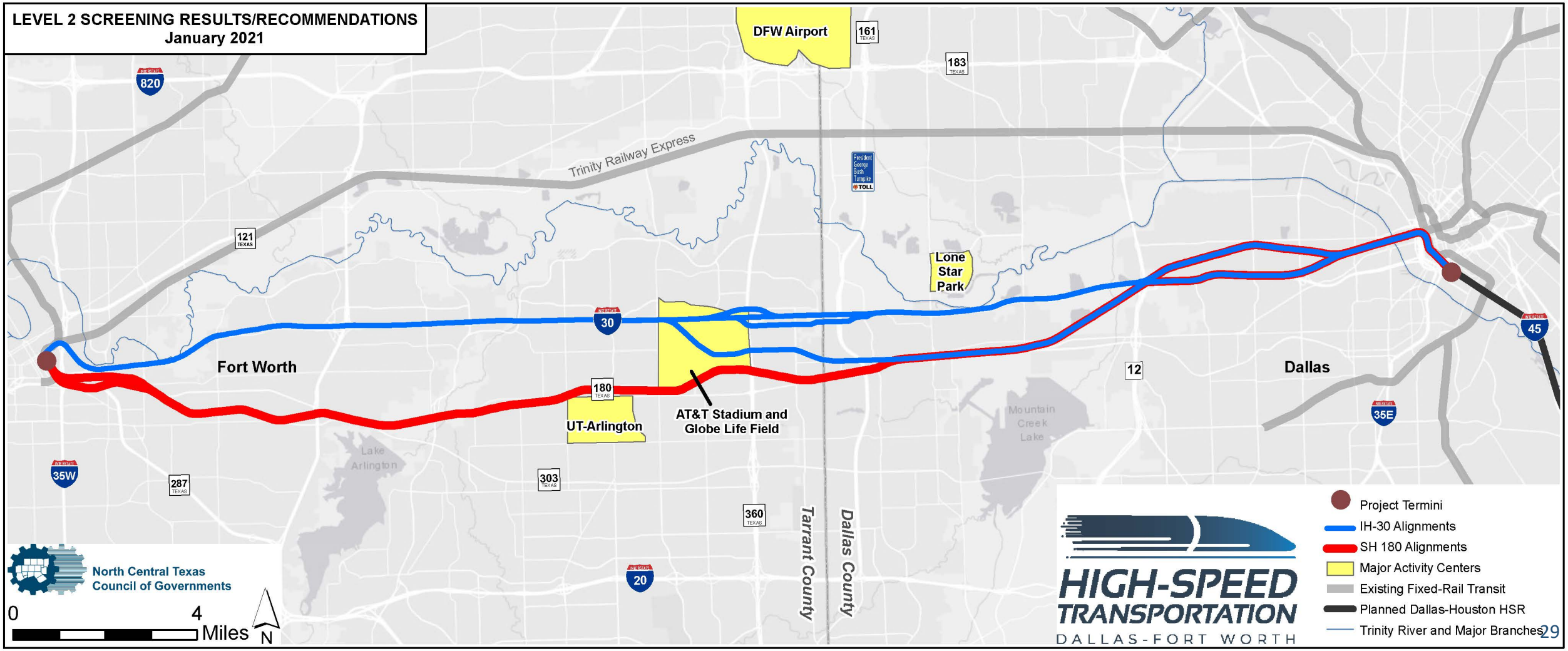
Level 2 Screening Results (Alignments)

			SH 180 Alignments										
	Criteria	Description	29	30	31	32	34	35	36	37	38	40	41
Proximity to Sensitive Social, Biological, or Cultural Areas	Potential residential Impacts	% length adjacent to residential areas; 500 feet (250 feet on each side of centerline)	Low	Med	Med	High	Low	Med	Med	Med	Med	Low	Low
	Potential Major Commercial/Industrial/ Warehouse impacts	Number of potential impacts to major commercial, industrial, and warehouse facilities	Low	Med	High	High	Med	High	High	High	High	Med	High
	Potential wetland, water body, and floodplain impacts	% length adjacent to wetlands, water bodies, and floodplains; 500 feet (250 feet on each side of centerline)	Low	Low	Low	Med	Med	Low	Low	Med	Med	Med	Low
	Potential parks impacts	% length adjacent to parks and designated open spaces; 500 feet (250 feet on each side of centerline)	Low	Low	High	High	High	Med	Med	High	High	High	Med
Potential community impacts	Potential community facility impacts	Number of Community facilities within 500 feet (250 feet on each side of centerline)	Med	Med	Low	Low	Low	Low	Low	Low	Low	Low	Low
	Potential community cohesion Impacts	Number of neighborhoods with potential community cohesion impacts	Low	Low	Med	Med	Med	Med	Med	High	High	High	Med
	Potential environmental justice impacts	Total Environmental Justice Index Above-Average Block Groups; 500 feet (250 feet on each side of centerline)	Med	Med	Med	Med	Med	Low	Low	Med	Med	Med	Low
		Alignment Ranking (Tier 1, Tier 2, Tier 3)	3	3	2	1	3	3	3	1	1	2	3
								Essentially one alignment					

Alignment/Corridor Recommendations Based on Level 1 Screening



Alignment/Corridor Recommendations Based on Level 2 Screening



Level 2 Screening Results (Modes)

			Modes			
	Criteria	**Description**	**Higher-Speed Rail**	**High-Speed Rail**	**Maglev**	**Hyperloop**
Technology Maturity, Regulatory Approval	Technology Maturity (Guideway Infrastructure)	Technology Readiness Levels (TRLs) for guideway infrastructure including rail, tunnel, tube, switching, etc.	High	High	High	Med
	Technology Maturity (Wayside Infrastructure)	Technology Readiness Levels (TRLs) for wayside infrastructure including substations, vacuum systems, emergency response systems, etc.	High	High	High	Med
	Available design criteria	Design criteria available for technology	High	High	High	Low
	Regulatory Approval Complexity	U.S. Regulatory framework by technology (process in place)	High	Med	Low	Low
Operational Considerations	Business plan to move goods in addition to passengers	Vehicle and infrastructure configuration support the transportation of high-volume goods and are addressed in business or operations plans	Low	Low	High	High
	Ability to interline	Ability to interline with existing projects (No Build)	Low	High	Low	Low
	Ability to Interline with future planned projects	Ability to interline with future planned projects	Low	High	High	High
	System capacity	Operational system capacity	Med	High	High	High
	Travel Demand	Projected range of ridership based on travel demand modeling results	Low	Med	Med	High
	Ease of adding infill stations	Ease of integrating future infill stations for each technology	Med	Low	Med	High
	Travel Time	Number of alignments viable by technology based on a 22 minute or less travel time, assuming a mid-point station	Low	Med	High	High
		Advance mode into Level 3 Screening (yes/no)?	No	Yes	Yes	Yes

Modes of Transportation

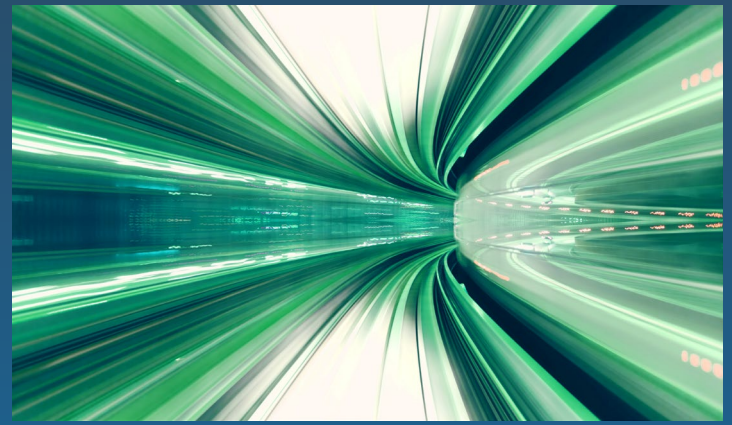
Conventional

Higher-Speed

High-Speed

Maglev

Hyperloop



Emerging Technologies

Imagery provided by NCTCOG Staff, Schon Noris Photography, Texas Central Partners, Ren Long/China Features Photos, AECOM, Virgin Hyperloop

Modes of Transportation

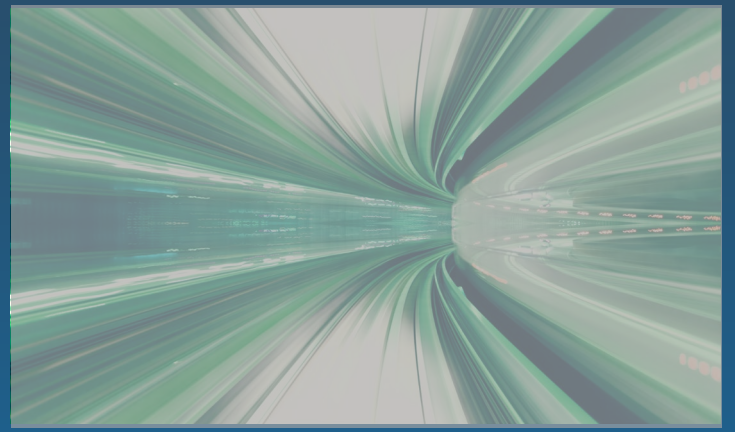
Conventional

Higher-Speed

High-Speed

Maglev

Hyperloop



Emerging Technologies

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Next Evaluation & Design Steps

Evaluation Methodology

DFW HIGH-SPEED TRANSPORTATION CONNECTIONS STUDY

Next Step

INITIAL ALTERNATIVES	EVALUATION OF ALTERNATIVES			ALTERNATIVES CARRIED FORWARD
Identify & Develop Initial Alternatives	**Level 1 (Purpose & Need)** Evaluate adherence to Purpose & Need for each alternative **43 alignments and 5 technologies**	**Level 2 (Fatal Flaw & Ranking)** Evaluate alternatives for fatal flaws and rank remaining alternatives **23 alignments and 4 technologies**	**Level 3 (Detailed Evaluation)** Detailed evaluation of top alternatives **10 alignments and 3 technologies**	**Draft Environmental Document** Limited number of technologies and alignments carried forward into Environmental Document

Ongoing Public, Stakeholder, and Agency Engagement

Screening Criteria by Levels

Level 1 (Ability to Meet Purpose and Need)

Primary

- Serves Downtown Dallas and Fort Worth Central Station (fatal flaw)
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Level 2 (Fatal Flaws and Ranking)

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- Capacity, Travel Time, Compatibility with Existing Infrastructure
- Operational Considerations

Level 3 (Detailed Evaluation)

- Costs
- Potential Impacts to Sensitive Social, Biological, or Cultural Areas
- Potential Community Impacts
- Constructability/Operability

Level 3 Screening – Draft Criteria

Criteria		Description
Costs	Construction (capital) cost per mile	Construction cost for the guideway, ancillary facilities, maintenance facilities and vehicles
	Annual operations and maintenance cost per mile	Annual operations and maintenance cost per mile, based on industry information
	Modifications to existing infrastructure	Capital costs associated with modifications to existing infrastructure to accommodate the alternative
Potential Impacts to Sensitive Social, Biological, or Cultural Areas	Total length of water body and floodplain crossings	Total length (linear feet) of alignment that crosses a water body or floodplain
	Acres of wetland within proposed right-of-way	Total acres of wetland within the proposed right-of-way
	Number of potential structures displaced	Number of potential structures displaced (house, outbuildings, business, billboards, etc.)
	Acres of parks impacted	Total acres of parks within proposed right-of-way
	National and state historic sites potentially impacted	Number of national and state historic sites potentially impacted

Level 3 Screening – Draft Criteria

Criteria		Description
Potential Community Impacts	Noise & Vibration	Number of sensitive receivers within 500 feet (250 feet on each side of centerline)
	Visual/Aesthetics	Number of potential visual/aesthetic impacts within 500 feet (250 feet on each side of centerline)
	Community Facilities	Number of potential community facilities impacted (positive or negative)
	Environmental Justice	Potential impacts on minority or low-income populations (positive or negative)
Constructability/ Operability	Constructability	Potential impact to existing parallel transportation systems during construction
	Travel Time	Travel time between Downtown Dallas (high-speed rail station) and Downtown Fort Worth (Central Station) for each alignment/mode combination
	Required non-public right-of-way	Total acres of new or non-public right-of-way needed
	Technology maturity (safety systems)	Technology Readiness Levels for safety systems requirements including emergency response, ventilation, fire life safety, etc.
	Technology maturity (operations systems)	Technology Readiness Levels for operational systems requirements including signaling, autonomous vehicle operations, control systems, etc.

Initial Design Process

- Develop initial design for corridors advancing to Level 3 Screening
- Develop alignments within each corridor for Transportation Technology Modes advancing through Level 2 Screening
- Anticipated completion by the end of March 2021
- Used to support Level 3 Screening

Public and Agency Engagement

Public and Agency Engagement (Past and Recurring)

- Elected Officials Meetings
- Federal Transit Administration/Federal Railroad Administration Progress Meetings
- Technical Work Group Meetings
- Technology Forum
- Two Official Project Public Meetings
- NCTCOG Public Meeting
- Resource Agency Meeting

Additional Project Outreach

- Project team is available to speak at events or to groups within the project study area
- Please contact us with meeting requests or outreach suggestions!

Rebekah Hernandez
Communications Supervisor
682.433.0477
rhernandez@nctcog.org

Project Information Options

- Provide comments or questions:
  - Electronic comment form on: www.nctcog.org/dfw-hstcs
  - In writing to DFW-HSTC Study, P.O. Box 5888, Arlington, Texas 76005
- For more information and to sign up for project notices: www.nctcog.org/dfw-hstcs
- Upcoming official project public meetings
  - Spring 2021
- Two comment periods overlap
  - Official project comment period ends February 22
  - NCTCOG public meeting comment period ends March 9
  - All comments received will be considered

Contacts

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Thank you for your interest and time!

Online Comment Form and Project Information:

www.nctcog.org/dfw-hstcs

General Questions:

email HST_DFW@nctcog.org

HIGH-SPEED TRANSPORTATION
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