

# **DFW HSR Station Plans People Movers Hyperloop**

**Transit-Oriented Development Task Force Meeting**

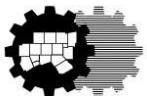
**May 1, 2018**



# Automated Transportation Systems

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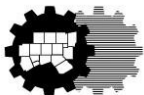
(People Movers)



# Traditional “People Movers”

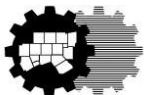
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- Fixed, Closed Guideways
- Limited to One Vehicle Type per System
- Few Deployments Outside of Airports or Entertainment Districts
- Can Have Slow Traveling Vehicles
- Difficult to Scale
- People Only
- Can Be Expensive



# Next Generation Features

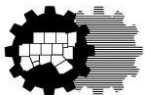
- Carries Both Freight and People
- Accommodates Multiple Vehicle Types
- Good Early Deployment Environment for Automated Vehicles
- Existing Streets Become Collectors
- As Automated Vehicle Technology Matures, Collector System Grows
- Dedicated ROW
- Lower Cost
- Driverless



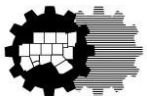
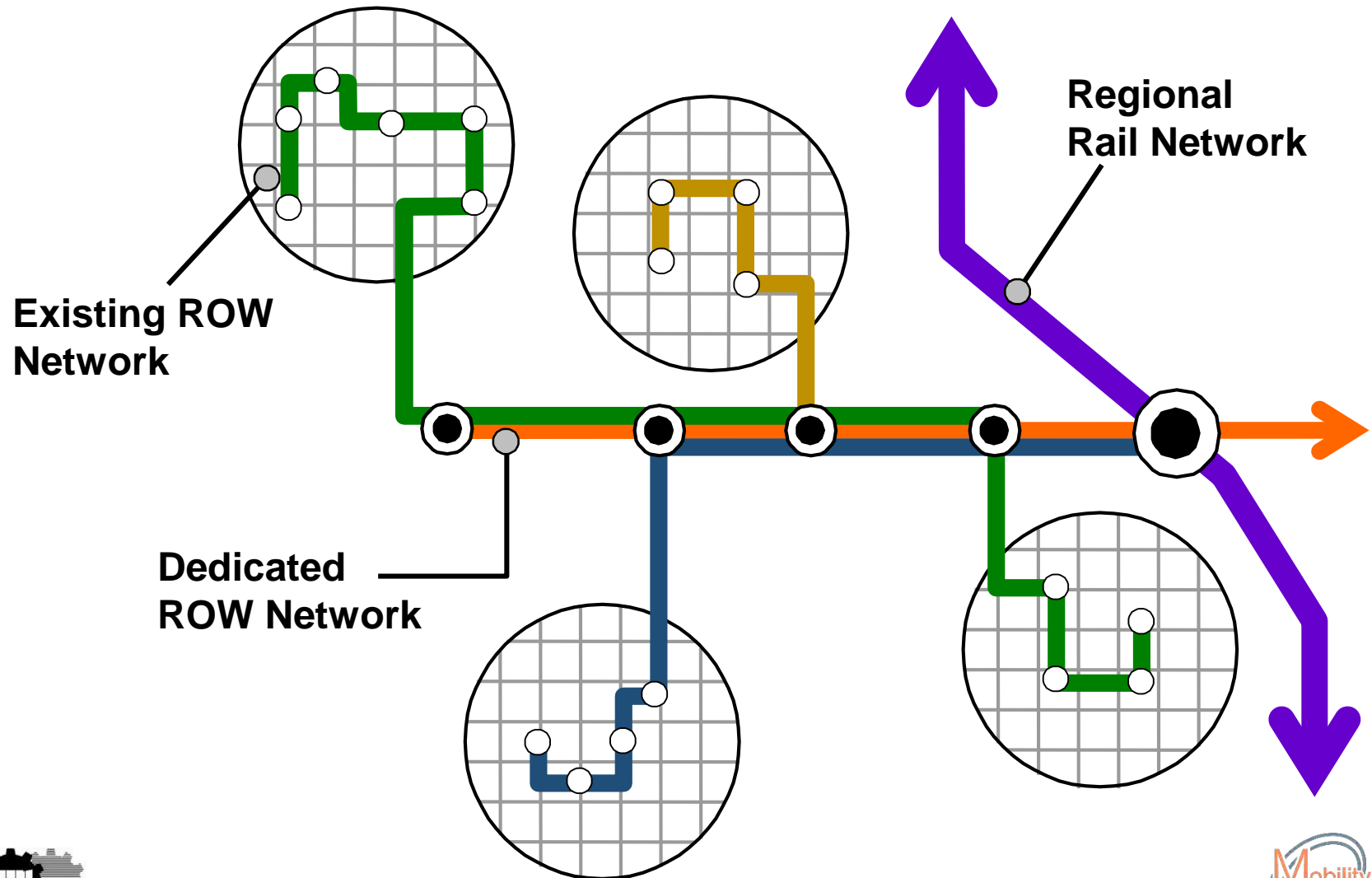
# What Is New?

- **Everything**
- **Driverless**
- **Battery Power**
- **Includes Goods Movement**
- **Engineering Construction Optimization**
- **Multiple Funders**
- **Not “People Movers”**
- **New Operation Paradigm**

**Collection-Line Haul-Distribution**



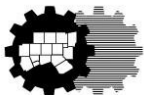
# Sample ATS Alignment



# Next Generation Benefits

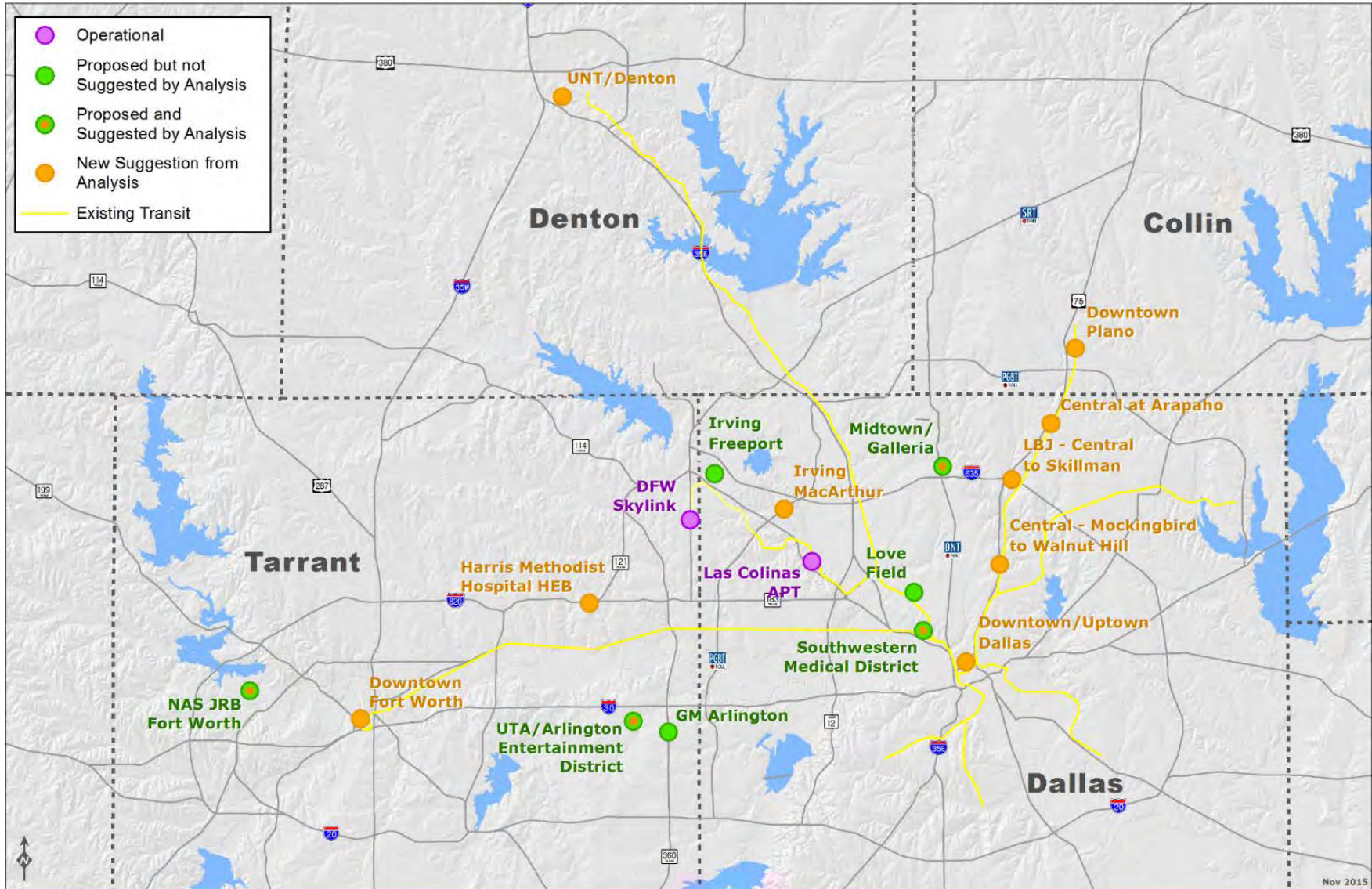
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- Advance “Joint Use” Corridors
- Advance “Last Mile”
- Economies of Scale
- Outside Revenue



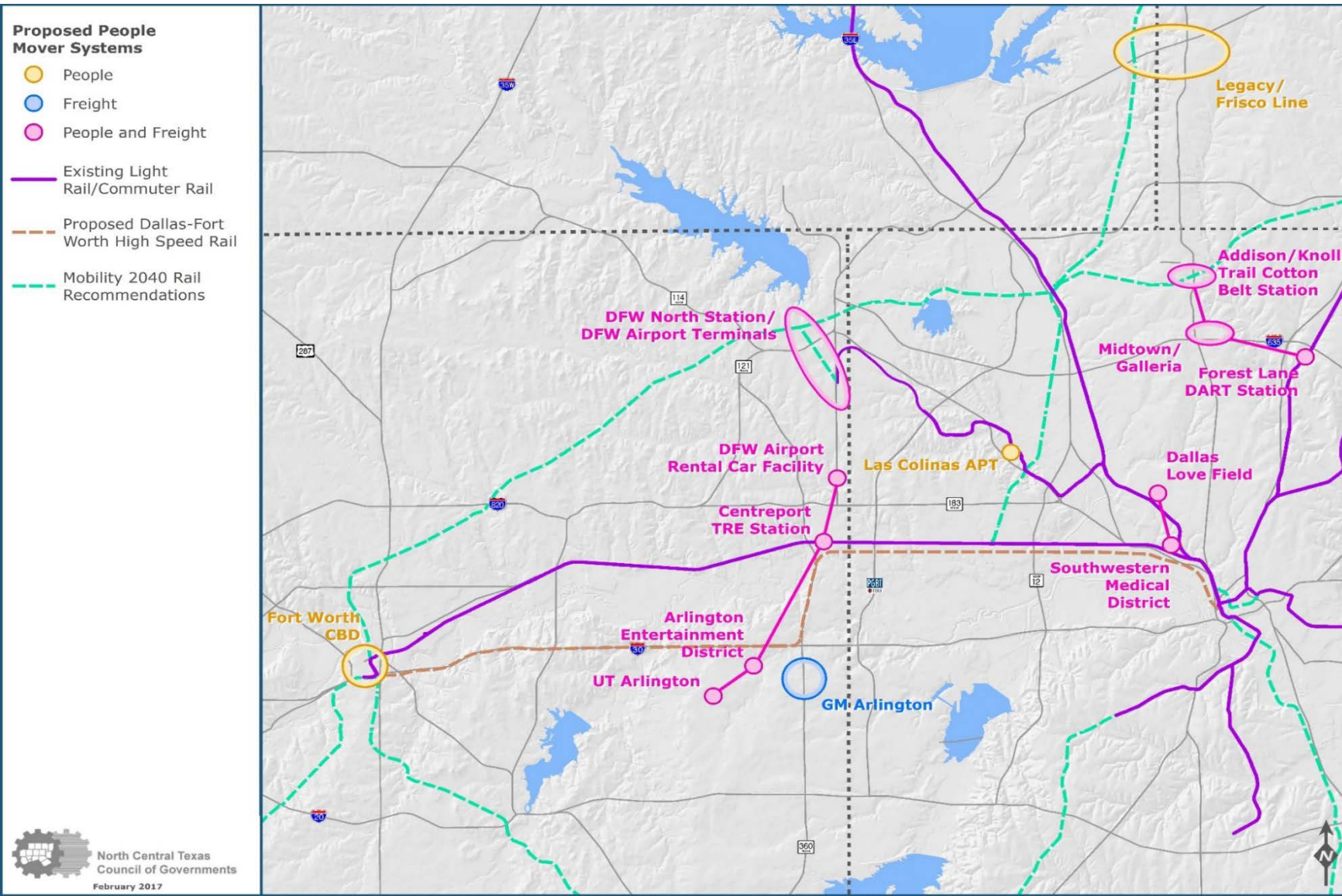


# Candidate ATS Locations





# Proposed ATS Locations



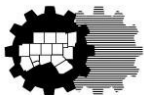
# Dallas Midtown ATS Study

## Former Valley View Mall Site

- 450 Acres
- Includes Galleria Mall

## Mixed-Use Development

- Employment
- Residential
- 18-Acre Park
- Pedestrian Friendly



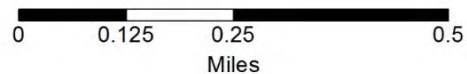


# Existing Land Use

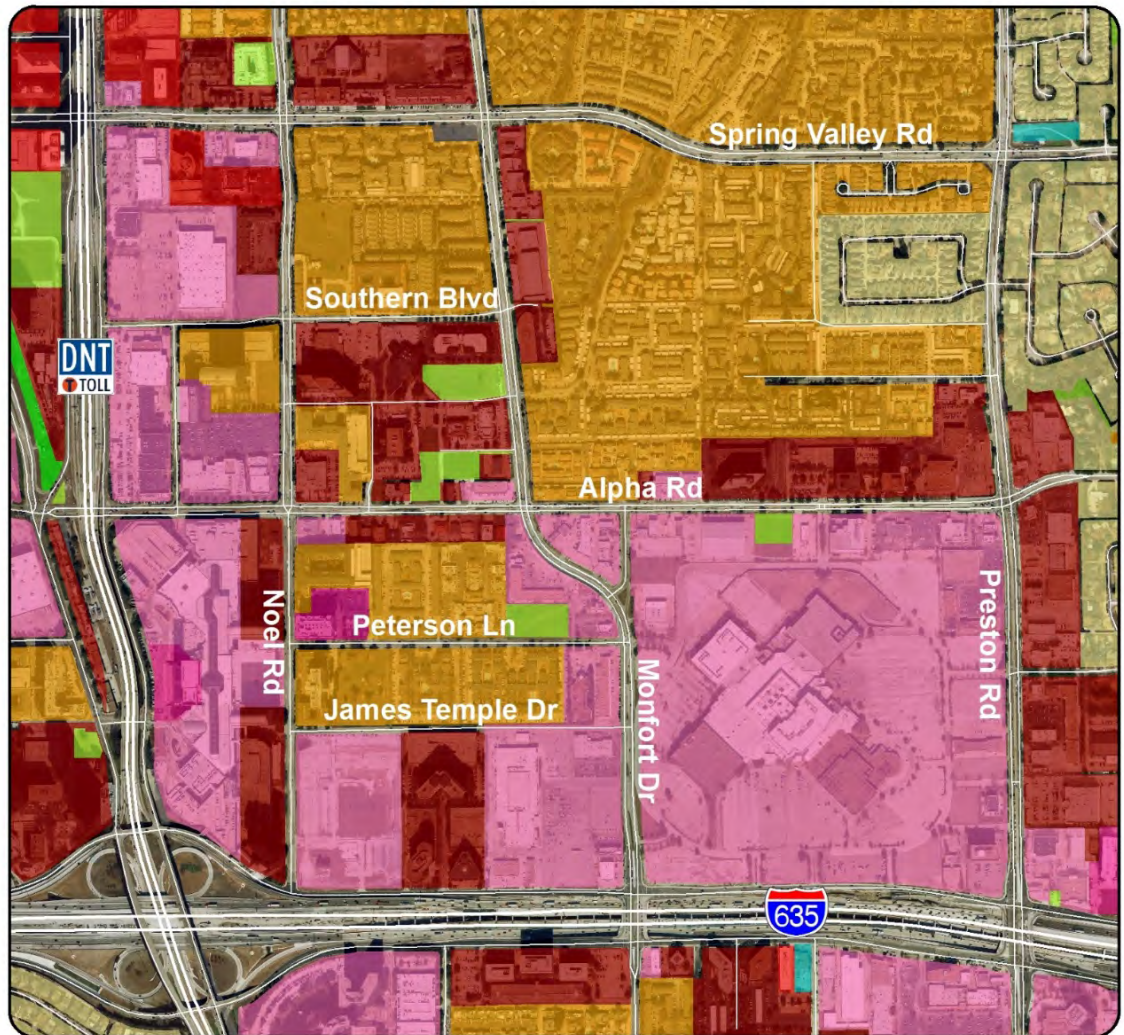
## Dallas Midtown

Study Area

### Land Use (2010)

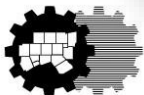
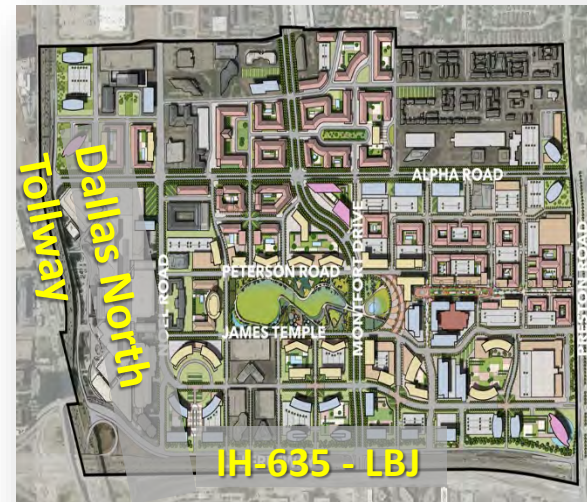


North Central Texas  
Council of Governments



# 2013 Transportation Needs Assessment

- Identified Redevelopment Impacts on Transportation
- Internal Circulator Recommended
- Suggested Regional Rail Connection

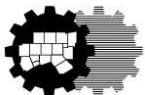




# Study Purpose

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- Identify Needs
- Coordinate with Parking Study
- Recommend Alignment and Technology
  - Internal Circulation
  - External Connections
    - Cotton Belt
    - Red Line
    - Green Line
    - Blue Line

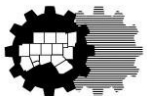




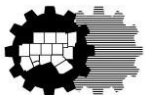
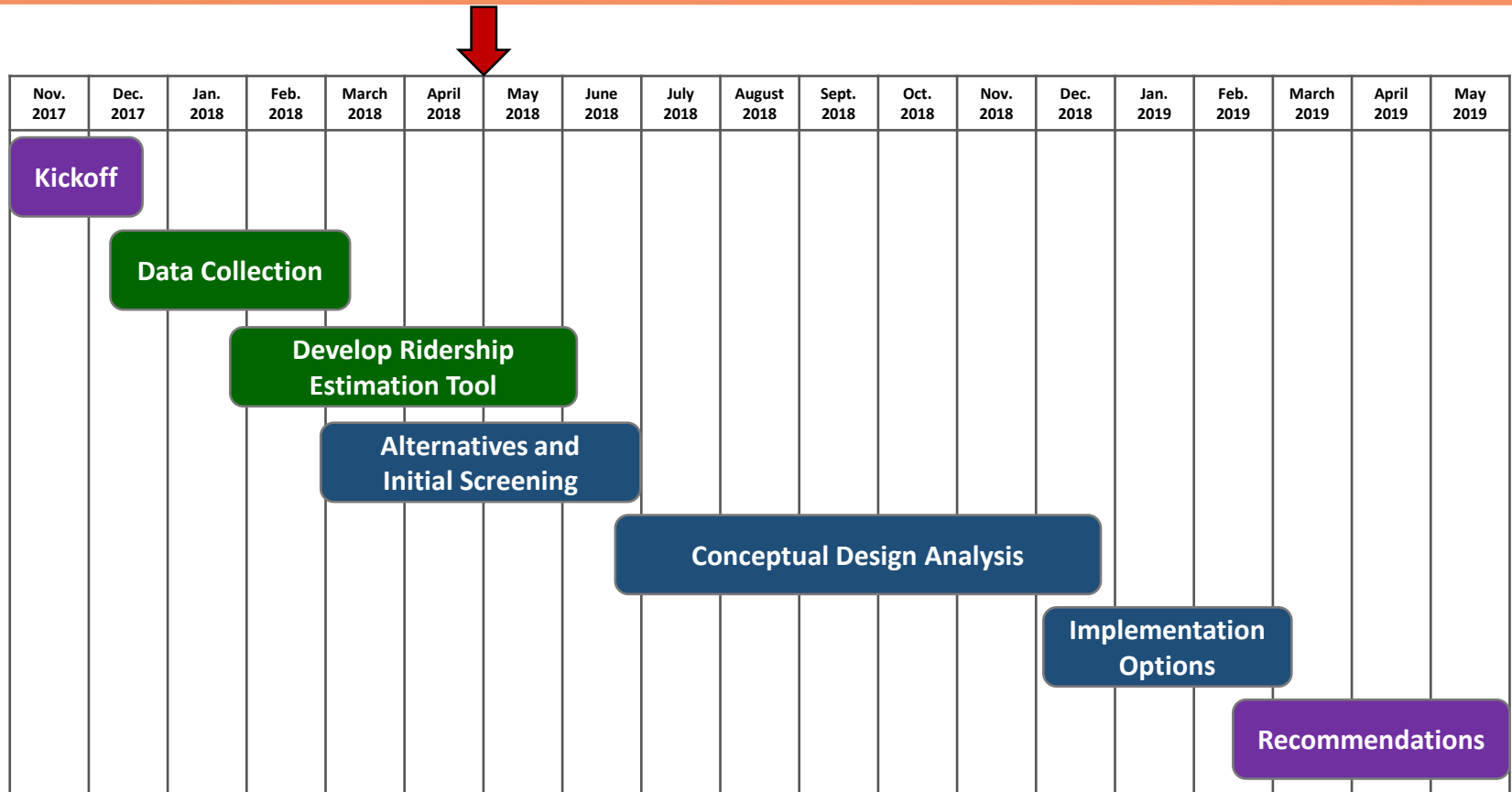
# Study Purpose

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- **Develop Ridership Estimation Tool**
- **Develop Financial Plan**
- **Develop Implementation Plan**
- **Schedule**

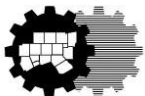


# Project Schedule



# DFW High-Speed Rail Station Plans

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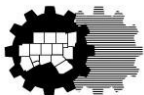


# DFW High-Speed Rail

- **Connected System**
- **“One Seat Ride”**
- **Three Stations**
  - Fort Worth
  - Arlington
  - Dallas

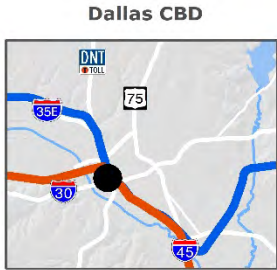
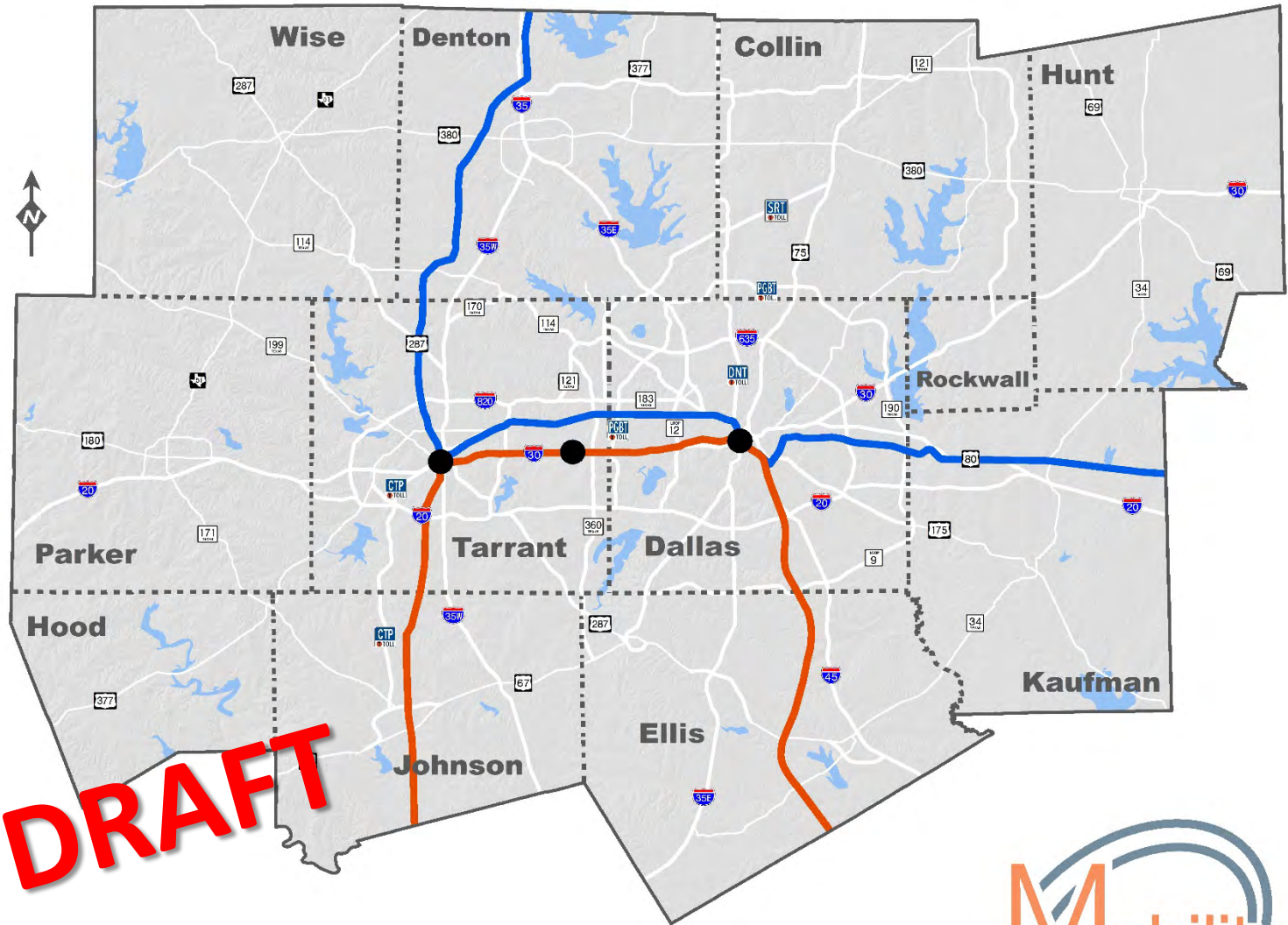


Source: Getty Images



# High-Speed Rail Recommendations

- At-Grade
- Grade Separated
- Stations



**DRAFT**



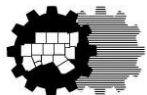
Corridor-specific alignment, design, and operational characteristics for the intercity passenger, regional passenger, and freight rail systems will be determined through capacity evaluation and ongoing project development. Refined rail forecasts are necessary to determine technology and alignment in future rail corridors.



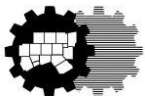
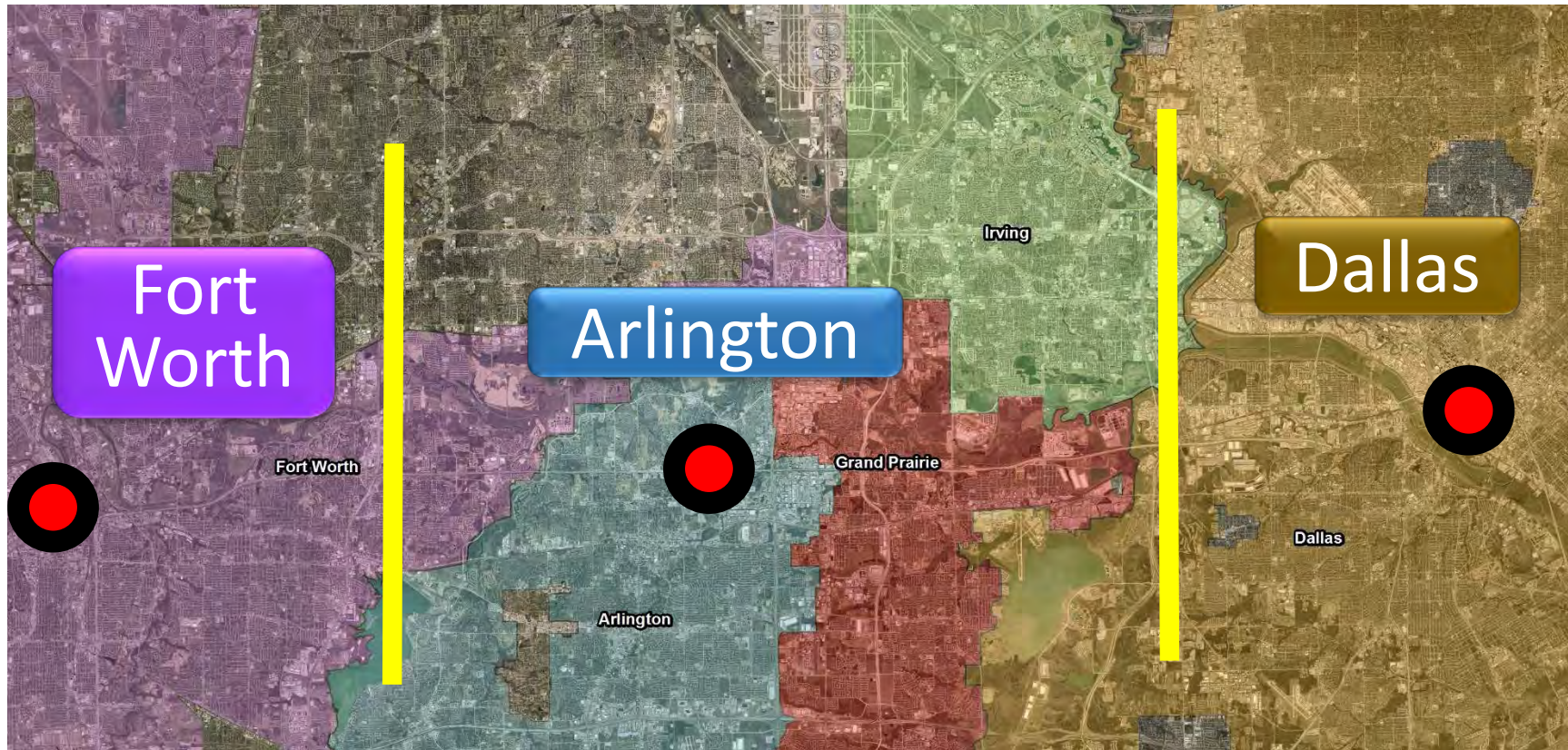
# Current NCTCOG Efforts

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- **Completed Station Area Studies**
- **Coordinating with Other MPOs**  
Fort Worth to Laredo Corridor
- **Preparing for EIS Procurement**  
Fort Worth to Dallas
- **Assisting Local Governance Entity Creation**

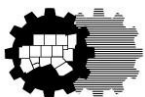


# DFW Station Areas

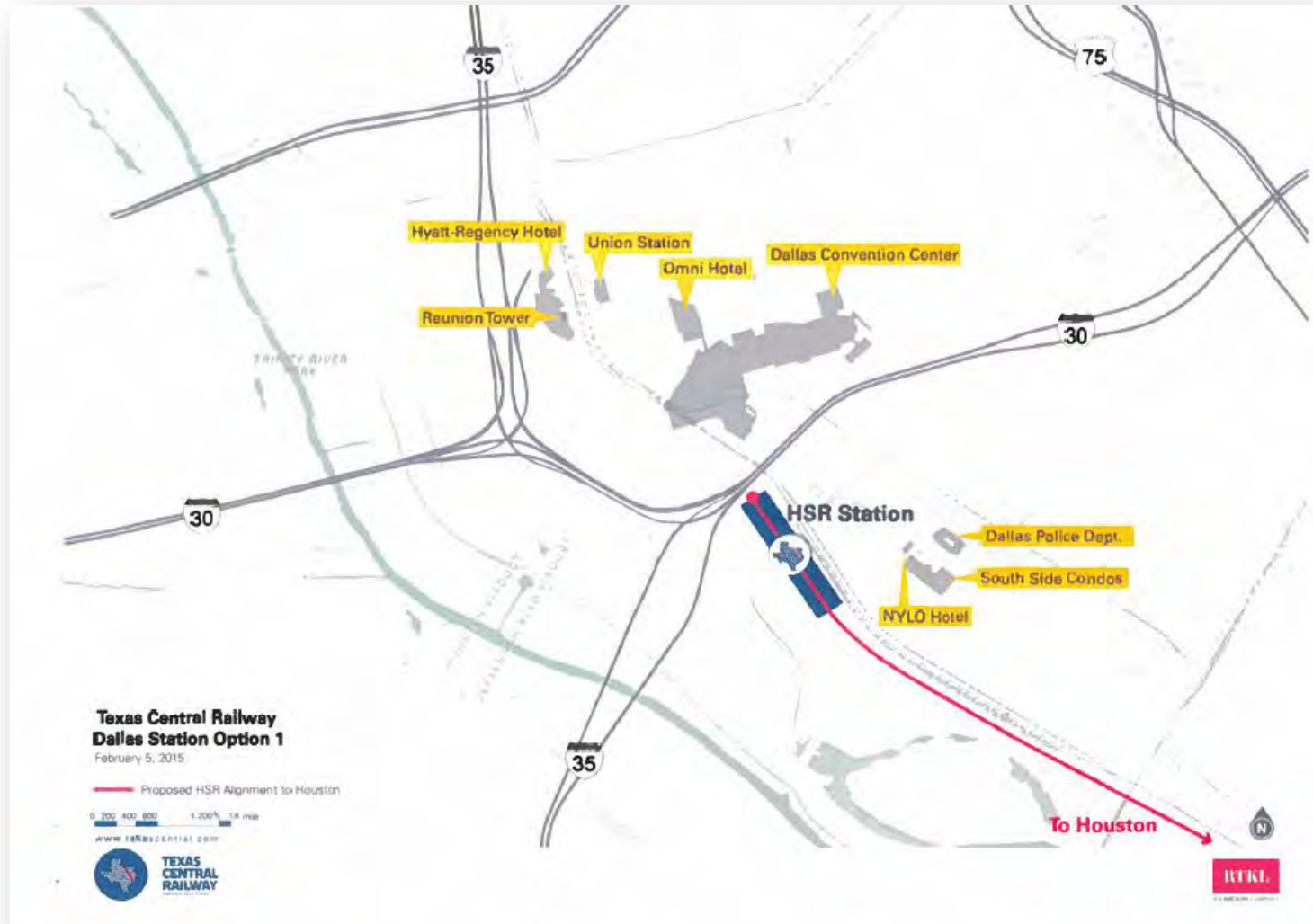


# Dallas Area Station Study

- **Station Location Identified by Texas Central Partners**
- **Monitoring Westward Alignment Opportunities**
- **Coordination Efforts**
  - Texas Central Partners Project
  - City of Dallas Station Zone Assessment
  - DART
  - TxDOT
  - NCTCOG Alignment Analysis



# Downtown Dallas Station



Source: Texas Central Partners



# Dallas Station Zone Assessment

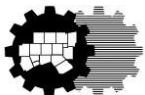
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## Conducted by City of Dallas

- Funded by Texas Central Partners
- Perkins + Will

## Primary Focus Areas

- Urban Fabric
- Mobility and Connectivity
- Open Space Strategy
- Program Analysis
- District Character



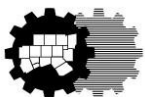


# Dallas Station Zone Assessment

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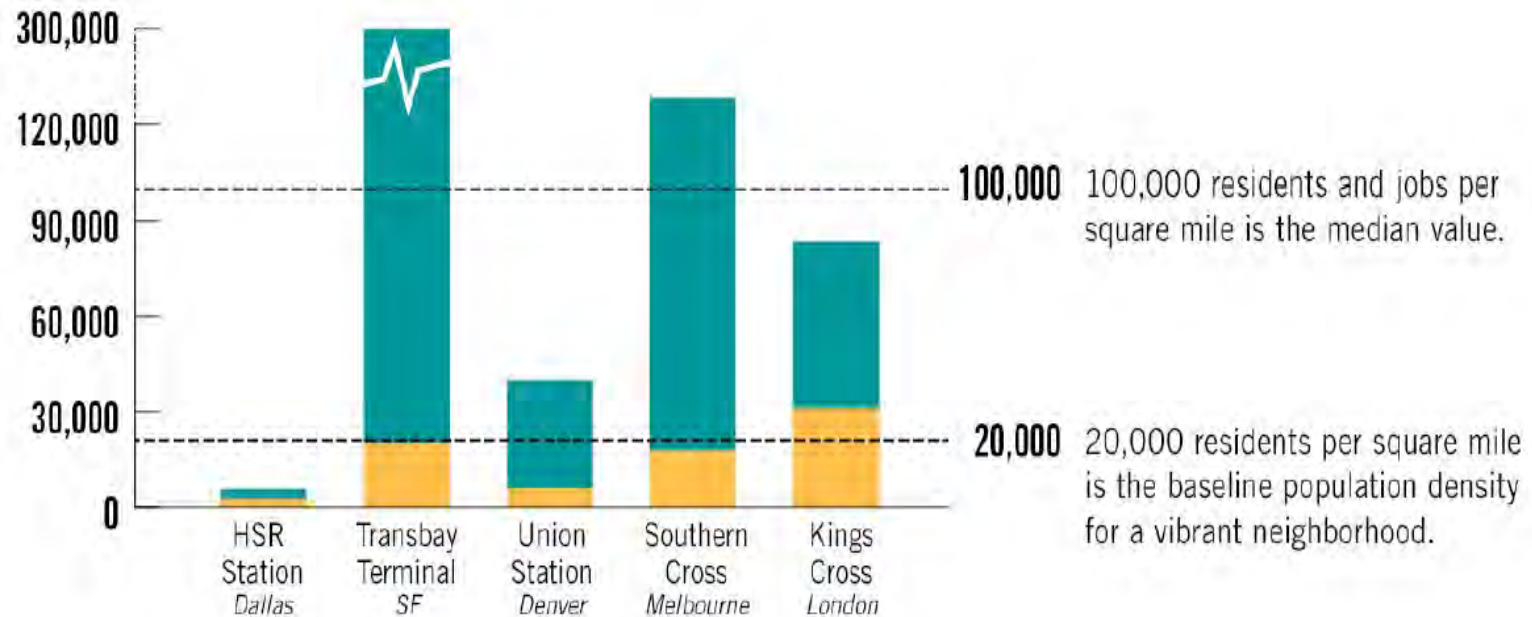
## Four Main “Threads”

- Place Making  
Respond to Existing Context
- Mobility  
Station Building as a Connector
- User Experience  
Programming and Wayfinding
- Sustainability  
Whole Systems Thinking



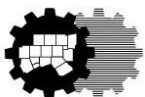
# High-Speed Rail Districts

## Residents and Employment per Mile<sup>2</sup>



Source: Perkins + Will

PERKINS+WILL



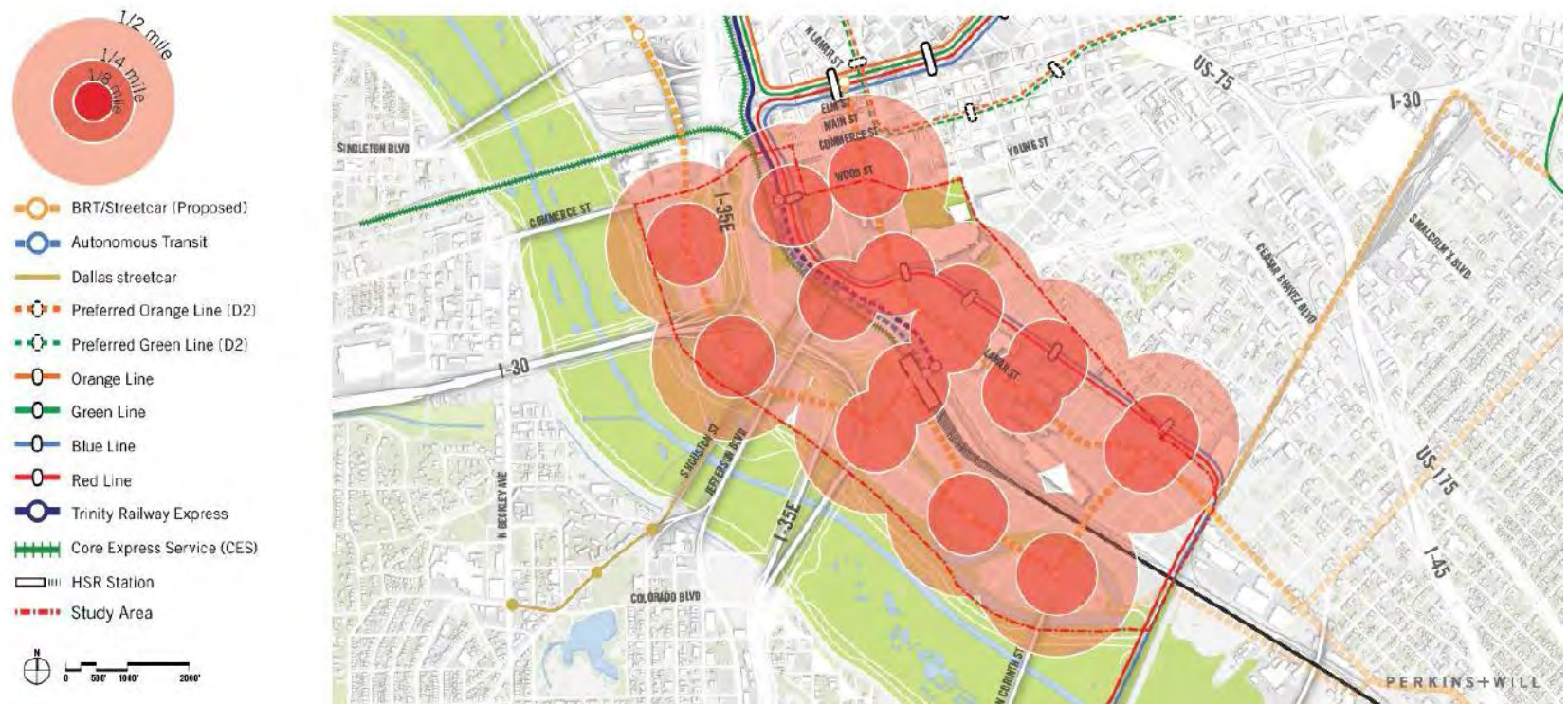
# Densities



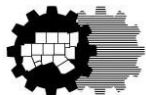


# Local TOD Districts

## Densities



Source: Perkins + Will

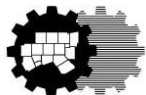


# HSR and Local TOD Districts

## Densities



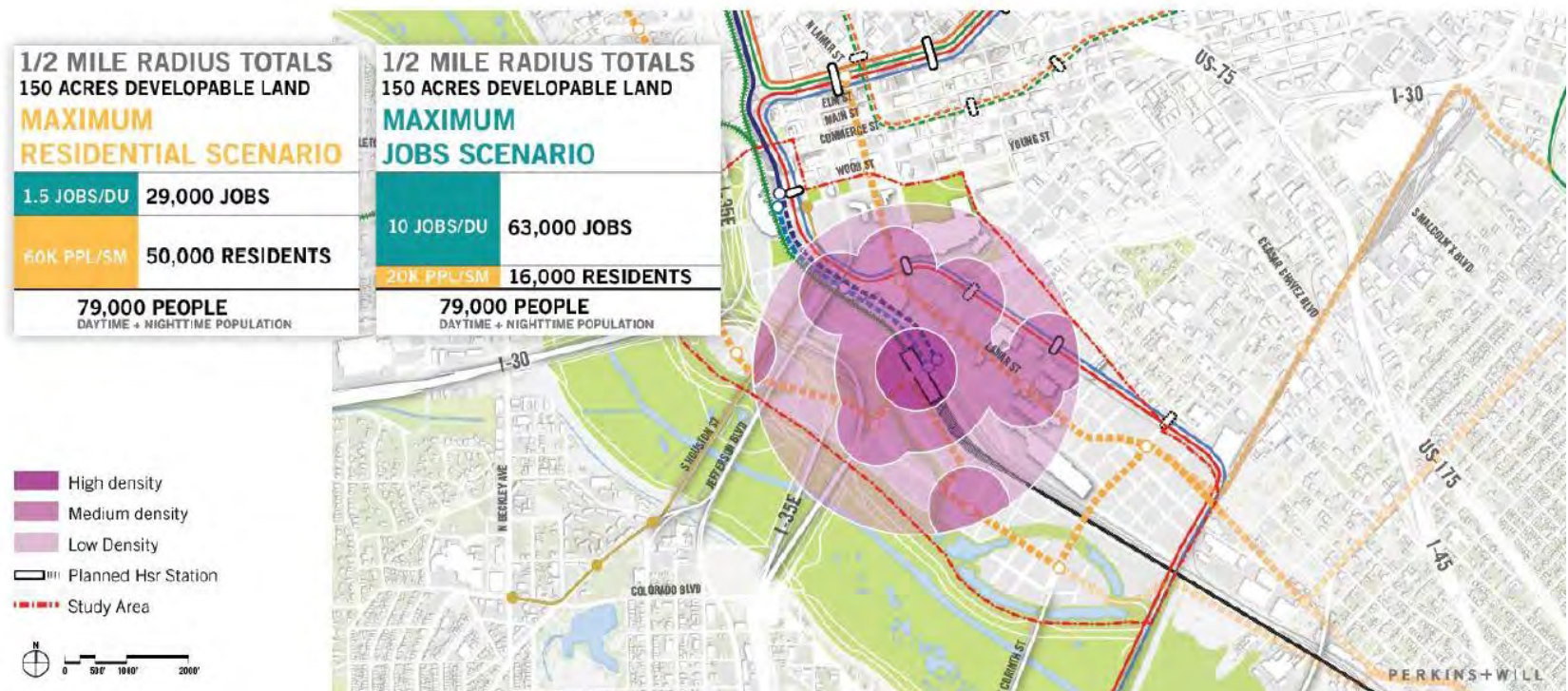
Source: Perkins + Will



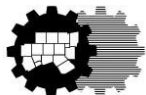


# High-Speed Rail Districts

## Jobs and Residential Program Targets

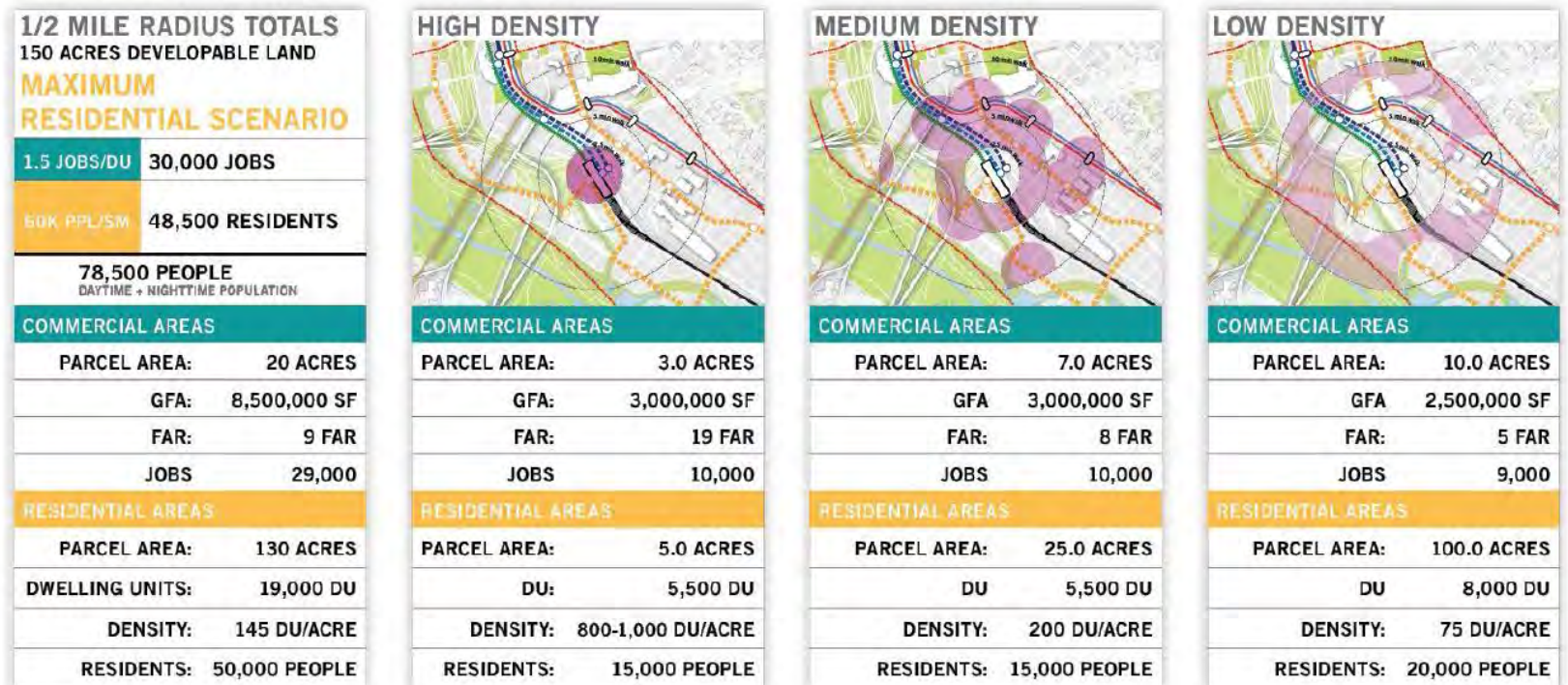


Source: Perkins + Will



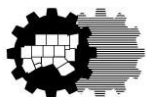
# High-Speed Rail Districts

## Maximum Residential Scenario



PERKINS+WILL

Source: Perkins + Will






# High-Speed Rail Districts

## Maximum Jobs Scenario

### 1/2 MILE RADIUS TOTALS 150 ACRES DEVELOPABLE LAND MAXIMUM JOBS SCENARIO

10 JOBS/DU	62,800 JOBS
20K PPL/SM	15,700 RESIDENTS
78,500 PEOPLE DAYTIME + NIGHTTIME POPULATION	
COMMERCIAL AREAS	
PARCEL AREA:	40 ACRES
GFA:	19,000,000 SF
FAR:	11 FAR
JOBS	63,000
RESIDENTIAL AREAS	
PARCEL AREA:	110 ACRES
DWELLING UNITS:	6,000 DU
DENSITY:	55 DU/ACRE
RESIDENTS:	16,000 PEOPLE

### HIGH DENSITY



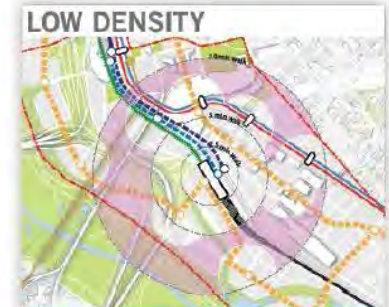
COMMERCIAL AREAS	
PARCEL AREA:	7.0 ACRES
GFA:	6,000,000 SF
FAR:	20 FAR
JOBS	20,000
RESIDENTIAL AREAS	
PARCEL AREA:	1.0 ACRES
DU	900 DU
DENSITY:	800-1,000 DU/ACRE
RESIDENTS:	9,500 PEOPLE

### MEDIUM DENSITY



COMMERCIAL AREAS	
PARCEL AREA:	16.0 ACRES
GFA:	9,000,000 SF
FAR:	13 FAR
JOBS	31,000
RESIDENTIAL AREAS	
PARCEL AREA:	14.0 ACRES
DU	1,500 DU
DENSITY:	90 DU/ACRE
RESIDENTS:	4,000 PEOPLE

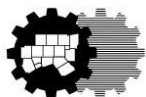
### LOW DENSITY



COMMERCIAL AREAS	
PARCEL AREA:	17.0 ACRES
GFA:	4,000,000 SF
FAR:	5 FAR
JOBS	12,000
RESIDENTIAL AREAS	
PARCEL AREA:	95.0 ACRES
DU:	3,500 DU
DENSITY:	40 DU/ACRE
RESIDENTS:	2,500 PEOPLE

PERKINS+WILL

Source: Perkins + Will




## Within the Study Area





The diagram illustrates the relationship between transit, station, and core areas, showing height zones and land use patterns. It features a central vertical axis labeled **RAIL** with **HSR** (High-Speed Rail) and **BRT/SC** (Bus Rapid Transit/Streetcar) lines. A **TRANSIT** area is defined by a red double-headed arrow, and a **STATION** area is defined by a red double-headed arrow. A **CORE** area is defined by a grey double-headed arrow. A **TOD** (Transit-Oriented Development) area is also indicated. The diagram shows a **HEIGHT ZONE** and a **1/4 MILE** radius. The land use pattern is divided into **OPEN SPACE**, **RESIDENTIAL**, **MIXED USE**, **COMMERCIAL**, **MIXED USE**, and **RESIDENTIAL** zones. The **PERKINS+WILL** logo is visible in the bottom right corner.



# Potential Arlington Station and Alignment Options





# Fort Worth Station Location Results

**E. ITC – 127**

**G. Central Rail – 121**

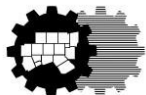
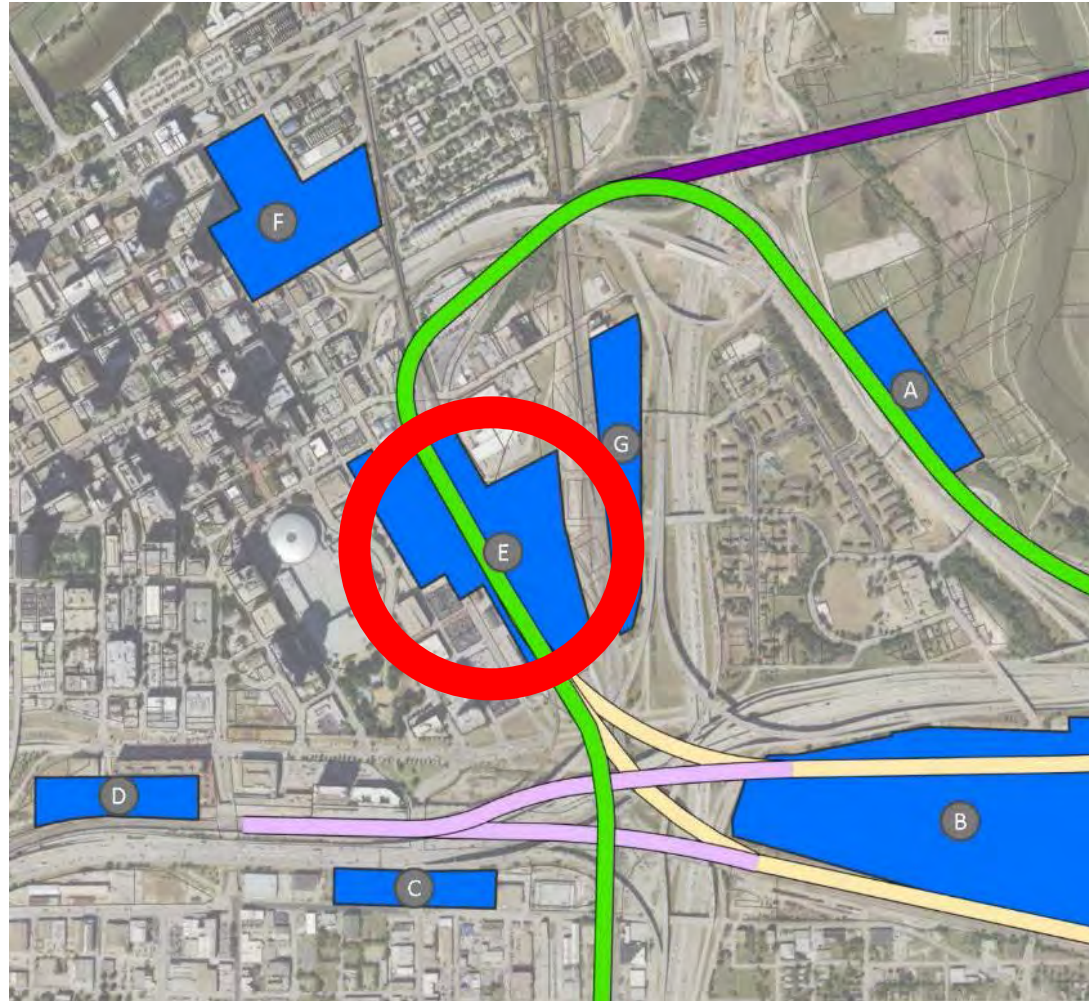
**F. East Sundance – 115**

**C. Southside – 96**

**A. Butler – 89**

**D. T&P – 86**

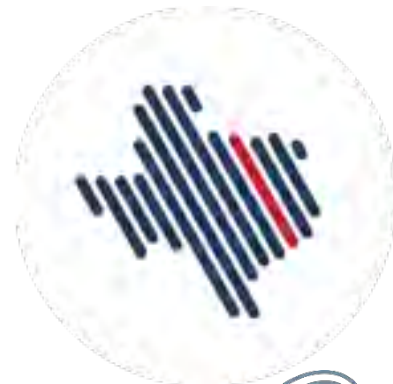
**B. East Lancaster – 81**



# Dallas to Houston Current Activity

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- **Building the Bullet Train Every Day**
- **Working with Design/Build Partner**
- **Land Option Program**
- **Preparation for Construction Activity**
- **Released DEIS**
  - **Comments Received**
  - **Record of Decision Expected 4Q 2018**

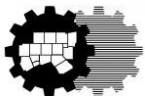




# Operating In Japan



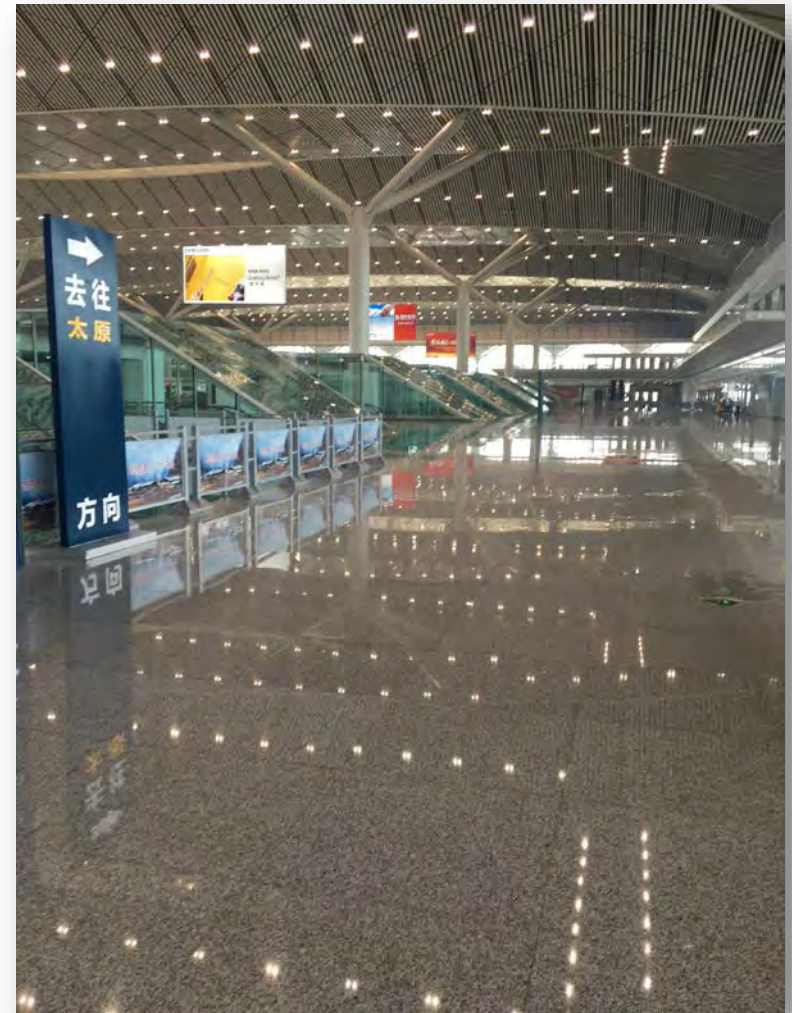
Source: Texas Central Partners



# Inside Stations



Source: Hua Yang



Source: Hua Yang





# Xi'an to Beijing HSR

- Maximum speed: 193mph
- 713 miles
- 4 hr 40 minutes



Source: Hua Yang

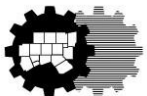


Source: Hua Yang



# Hyperloop

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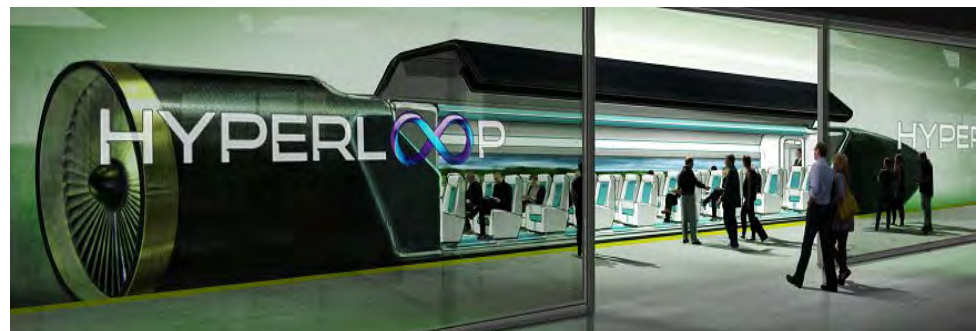


# What is Hyperloop?

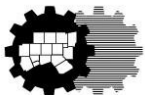
- New Mode of Transportation Consisting of Moving Passenger and Cargo Vehicles Through a Near-Vacuum Tube Using Electric Propulsion
- Autonomous Pod Levitates Above the Track and Glides at 700+ MPH Over Long Distances



Cargo pod



Passenger pod



# Hyperloop Unknowns

- **Environmental Impacts**

- Noise
- Vibration
- Air Quality

- **Cost**

- Capital
- Operating
- Fare Structure

- **Benefits**

- **Operation**

- **Reliability**

- **Safety**

Source: AECOM



Source: AECOM



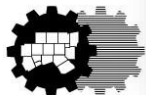
# Hyperloop Test Track



Source: AECOM

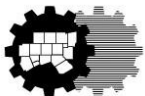


Source: AECOM





# Hyperloop Test Track





# Contact Information

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## **Dan Lamers**

Senior Program Manager  
dlamers@nctcog.org  
(817) 695-9263

## **Kevin Feldt**

Program Manager  
kfeldt@nctcog.org  
(817) 704-2529

**[www.nctcog.org/mobility2045](http://www.nctcog.org/mobility2045)**

