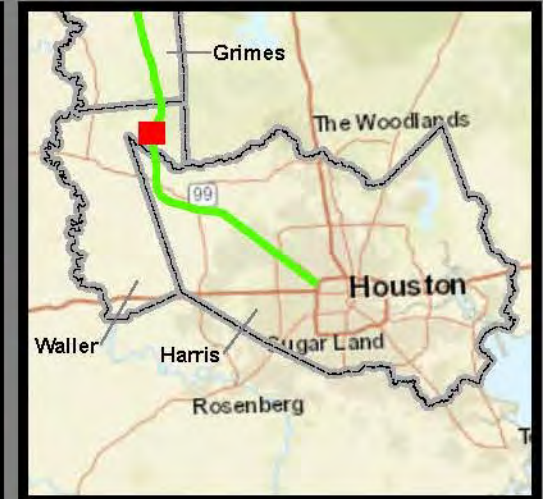


Dallas to Houston High-Speed Rail
Final Environmental Impact Statement

Appendix K:
Agency Specific Reports
Set 2 of 2



Federal Railroad
Administration

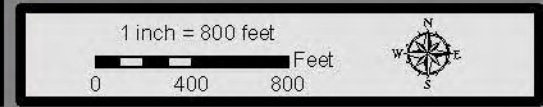


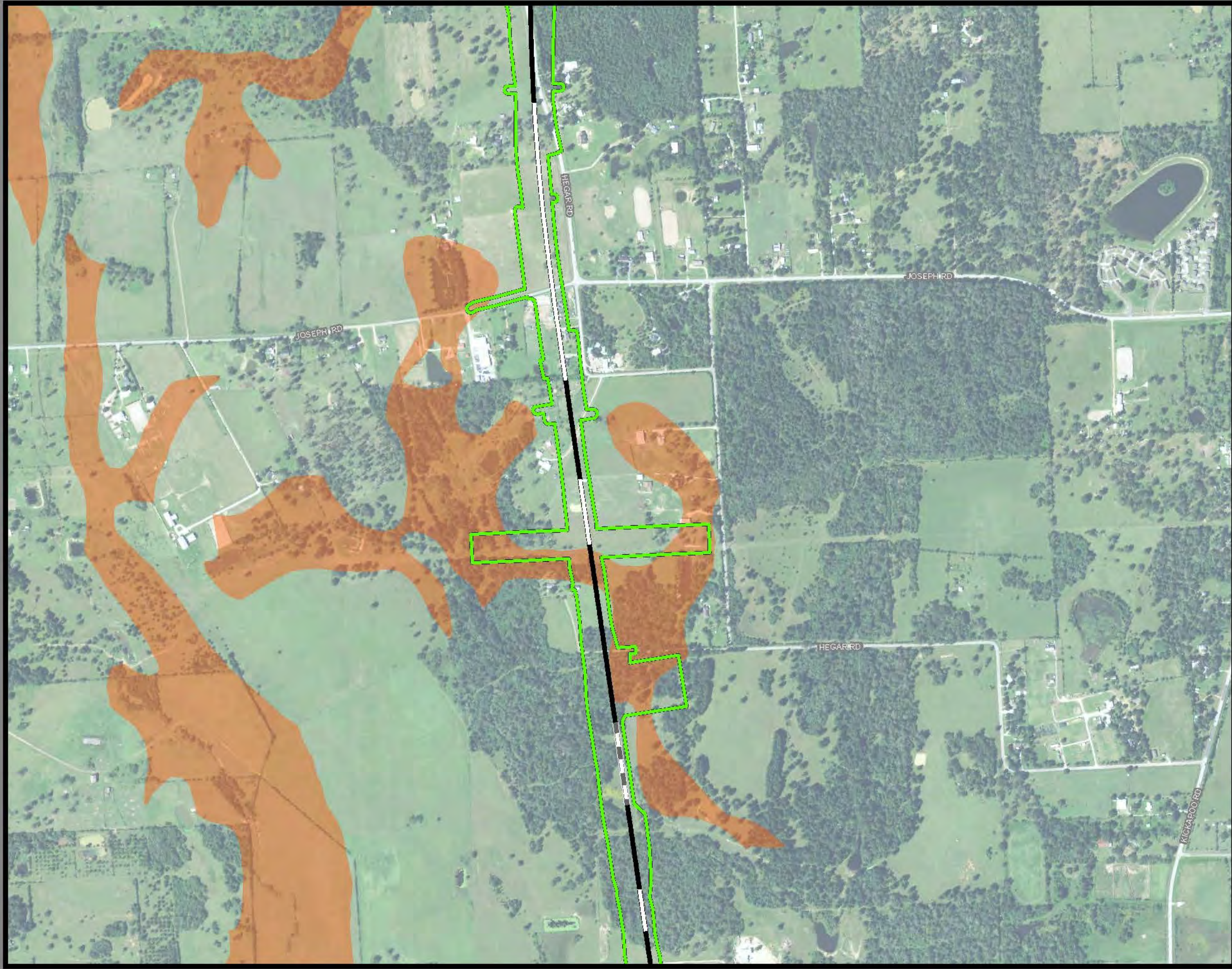
**Dallas to Houston
High-Speed Rail Project**
Texas Prairie Dawn 2016 Imagery
Segment 5
Sheet 1 of 27

- Legend**
- Limits of Disturbance**
 - Segment 5
 - Track Configuration**
 - Viaduct
 - Embankment
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 231 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
Aerial Imagery: USDA NAIP 2016



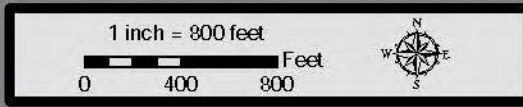


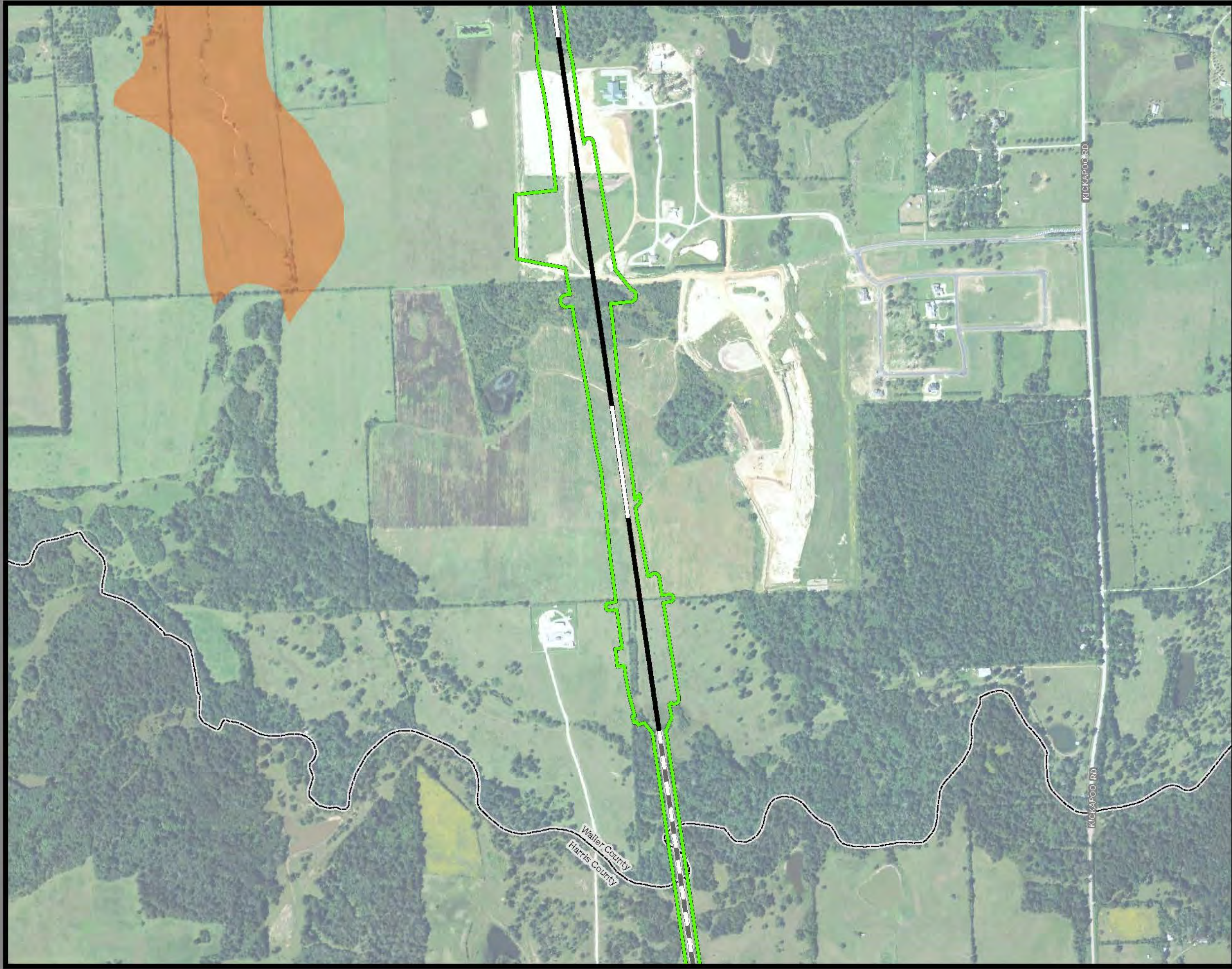
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 2 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 232 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



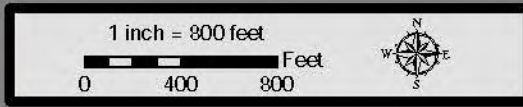


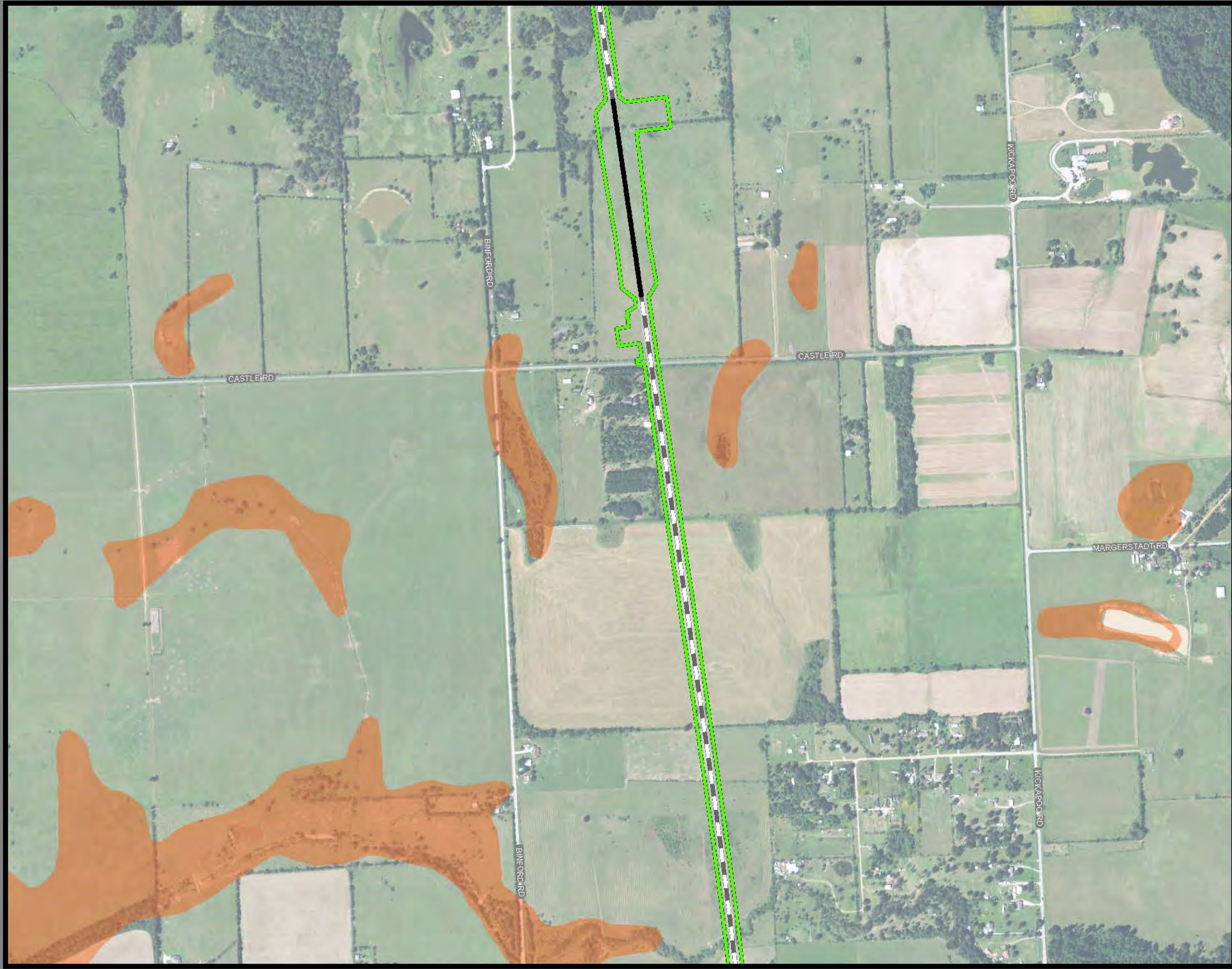
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 3 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 233 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



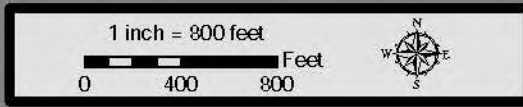


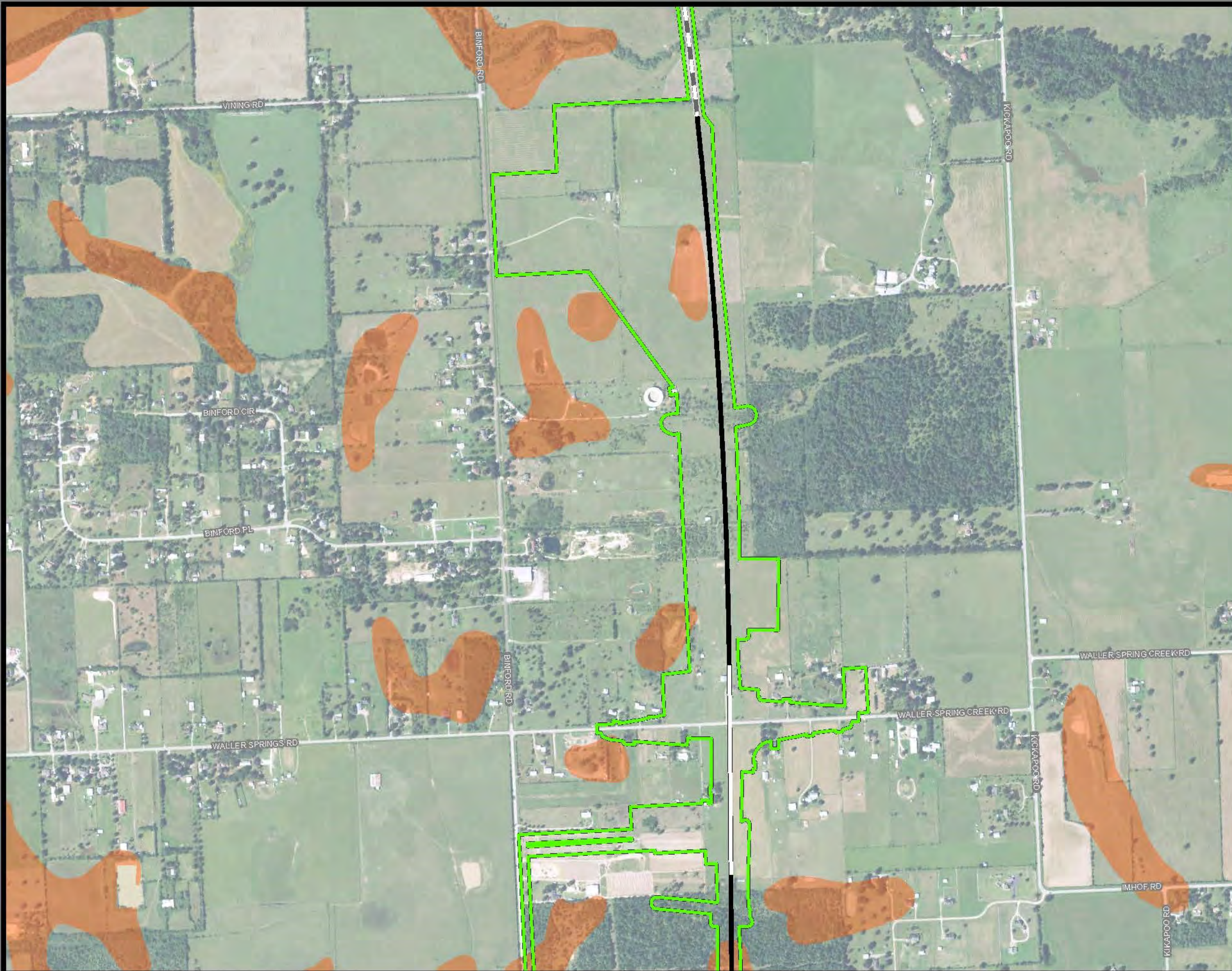
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 4 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 234 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



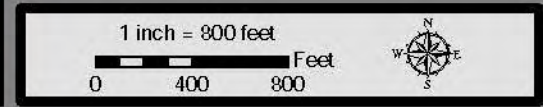


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 5 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 235 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



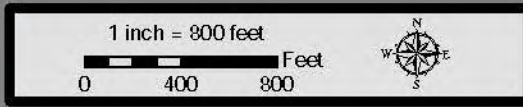


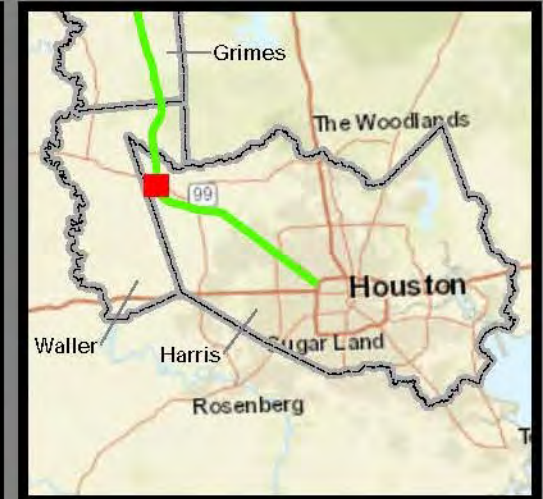
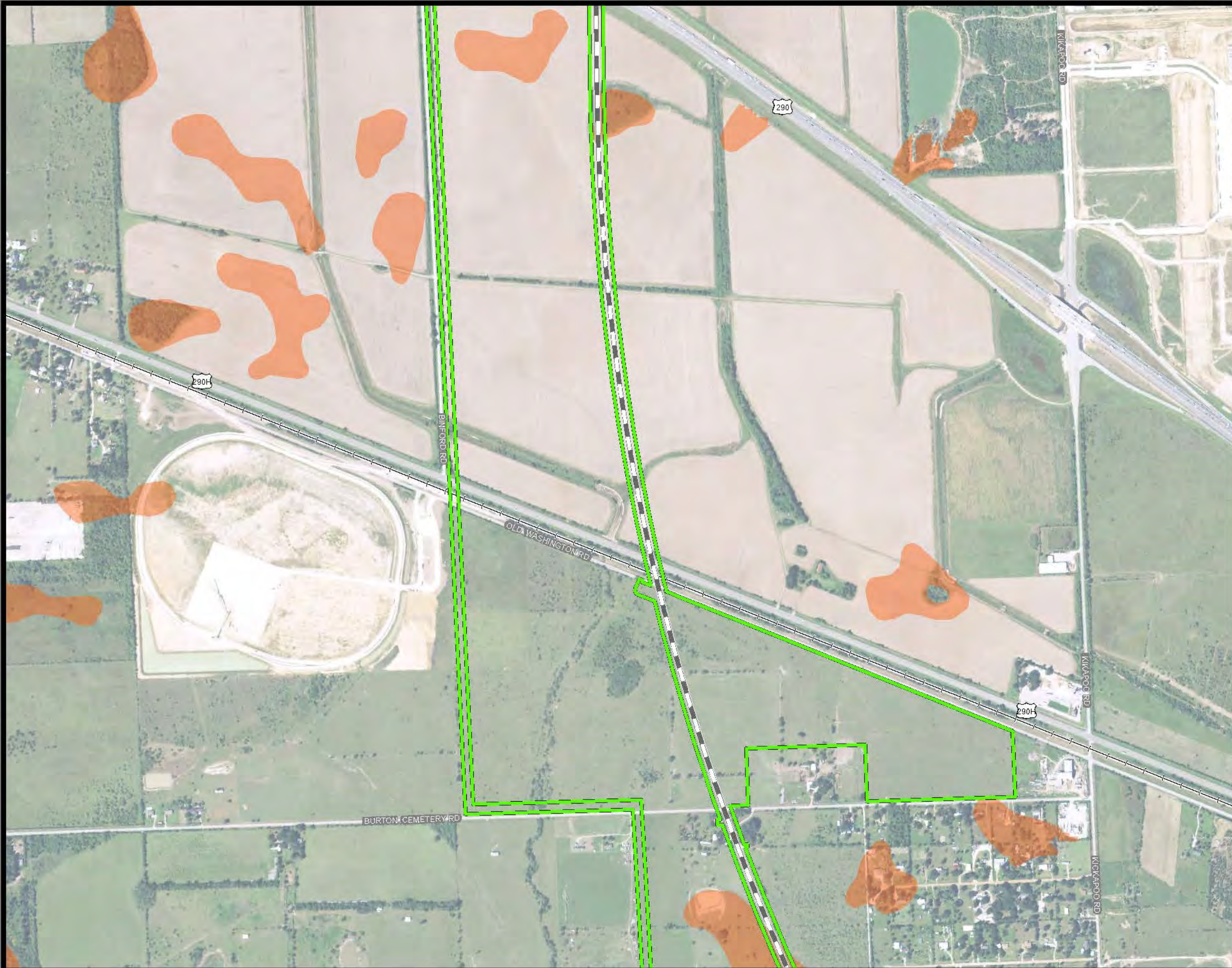
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 6 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 236 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



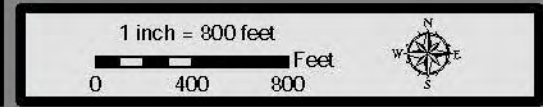


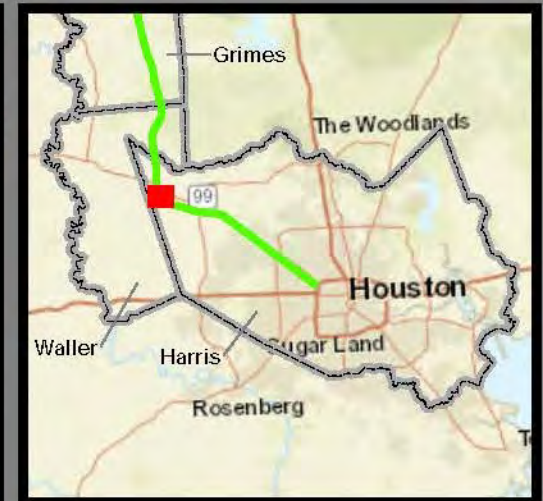
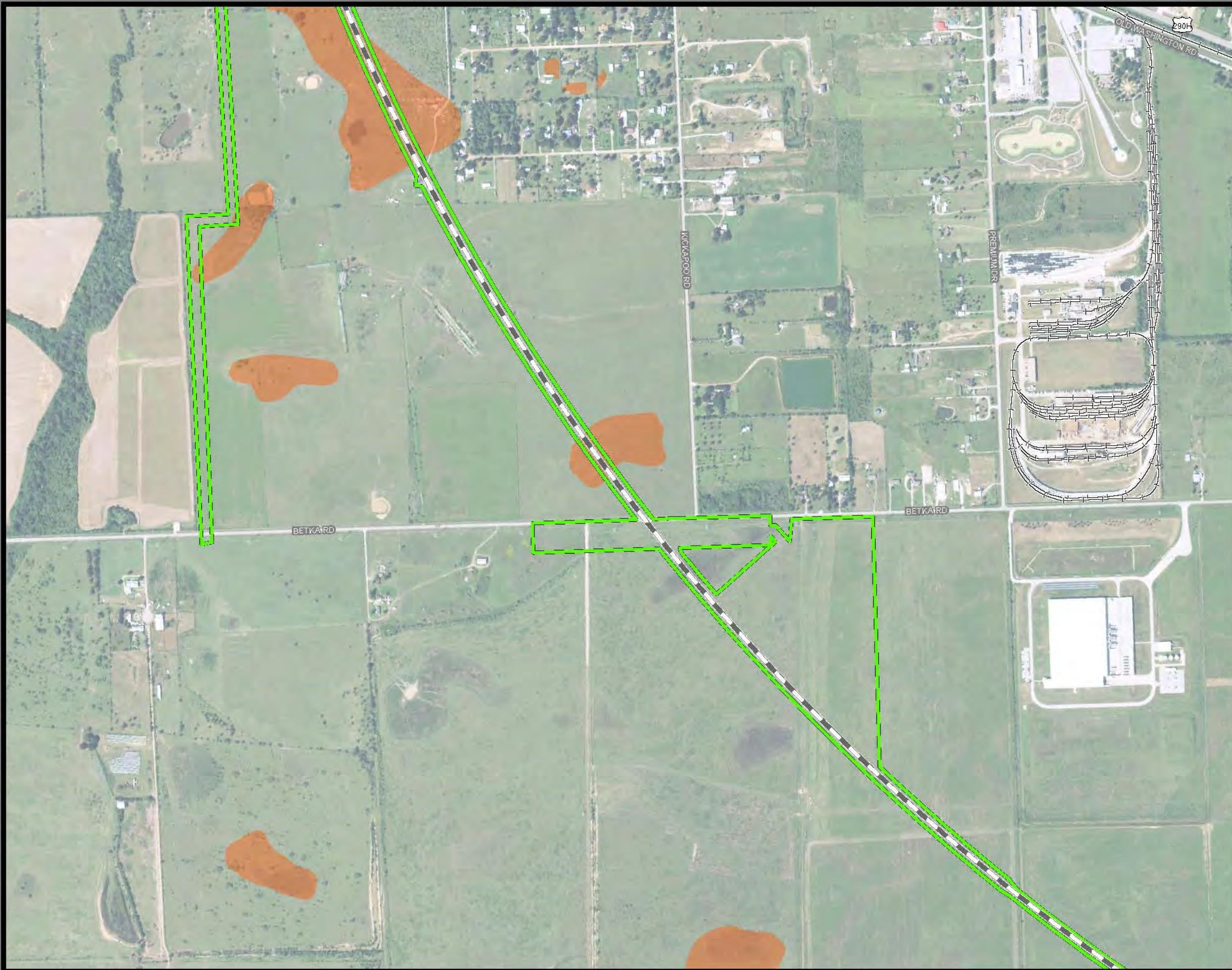
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 7 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 237 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



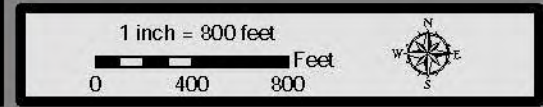


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 8 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 238 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



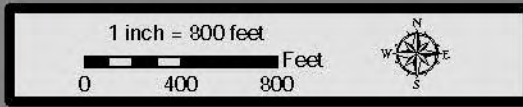


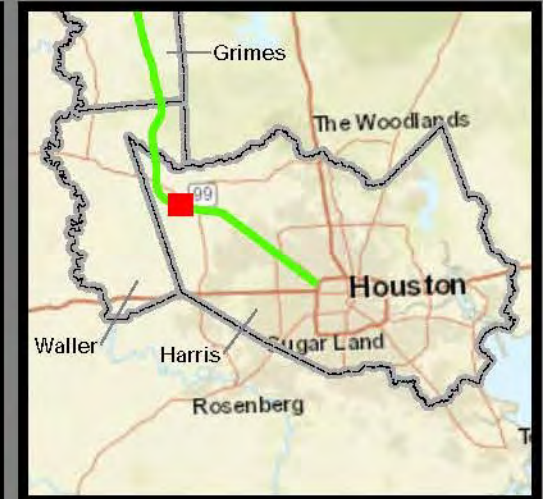
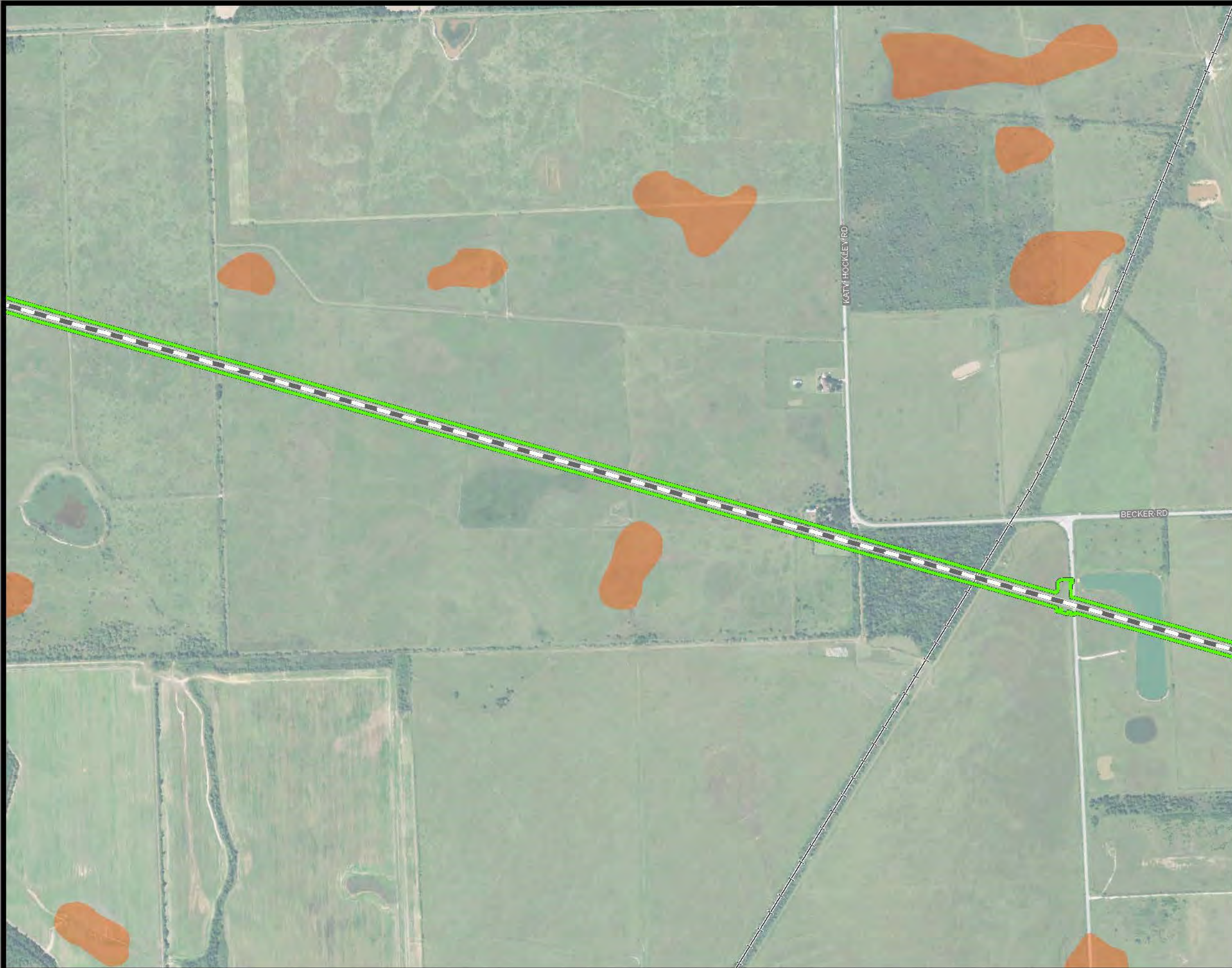
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 9 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 239 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



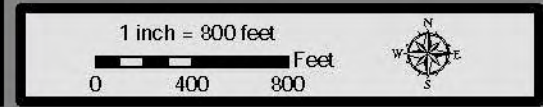


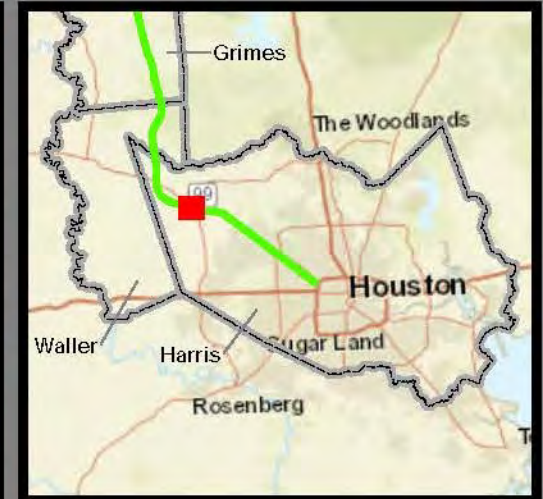
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 10 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 240 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



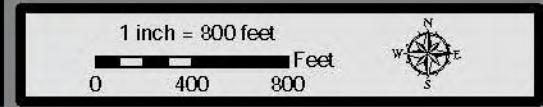


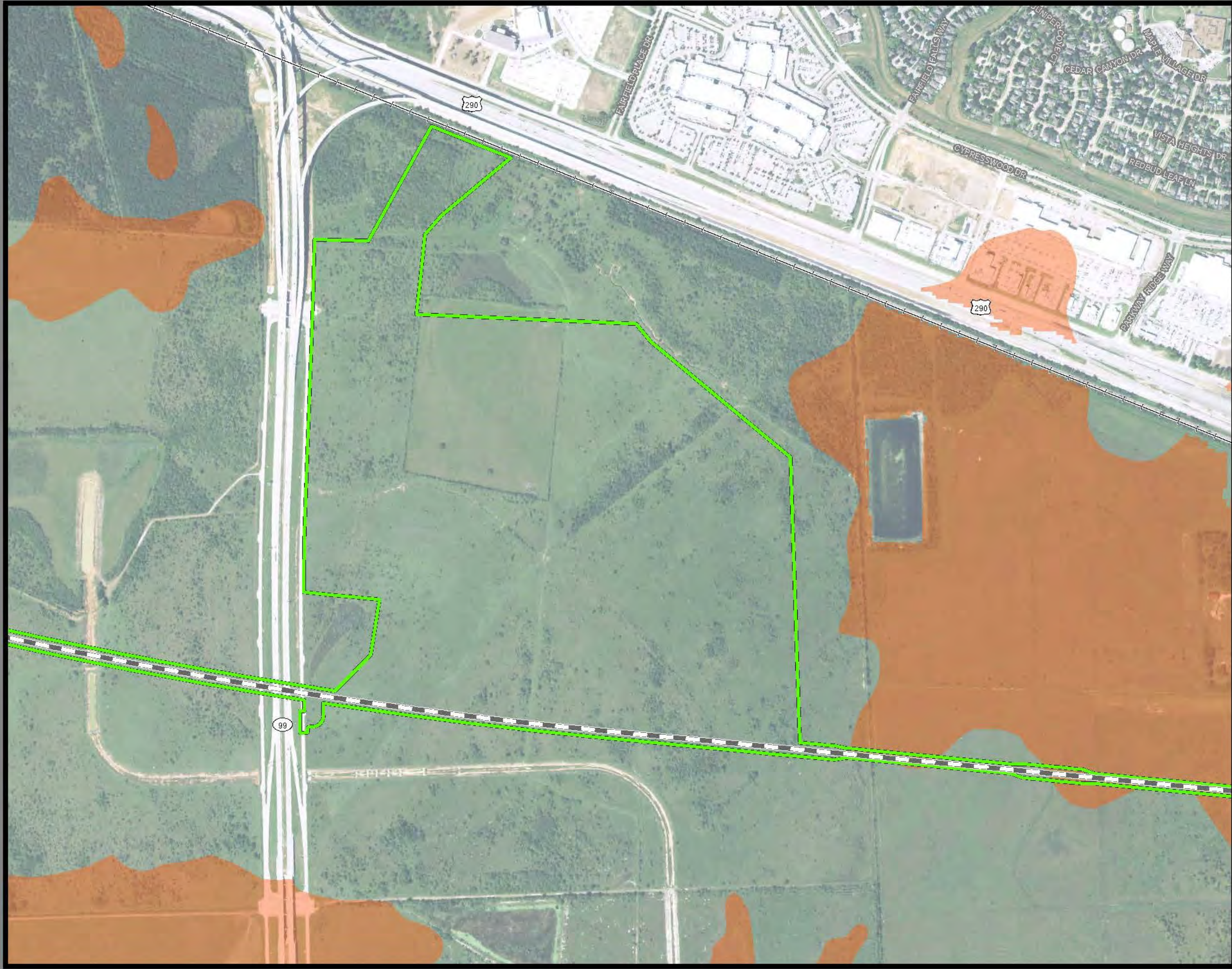
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 11 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 241 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



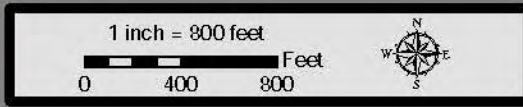


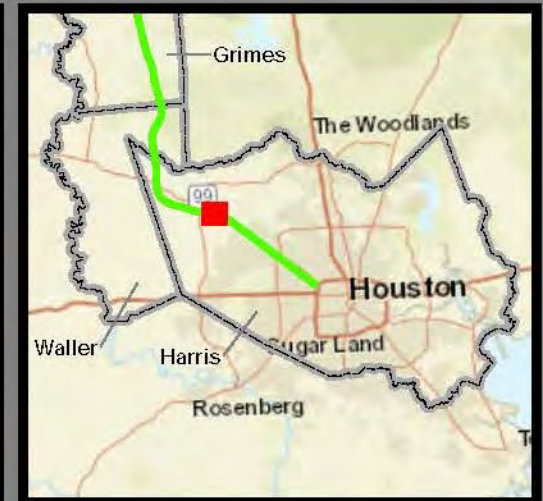
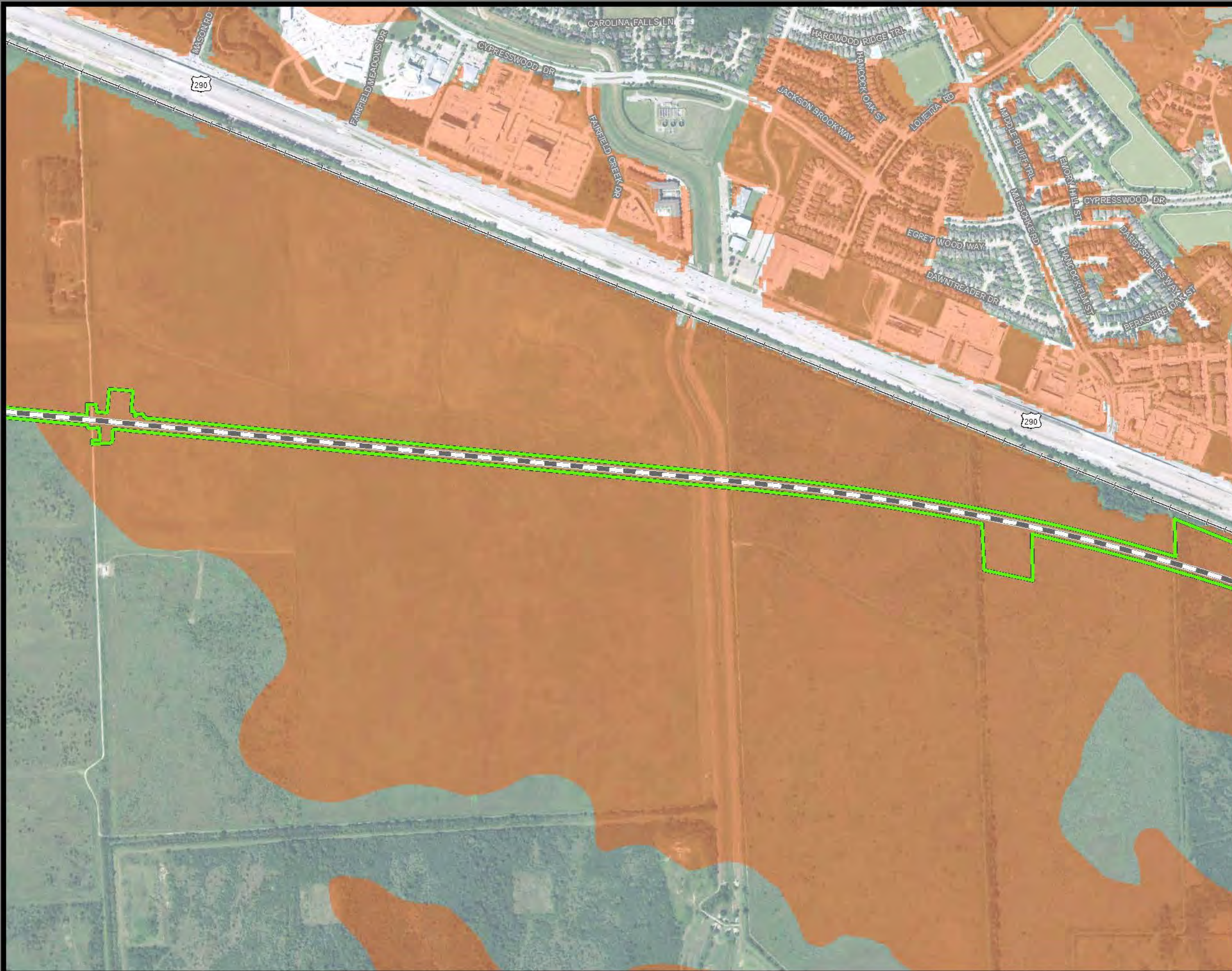
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 12 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 242 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



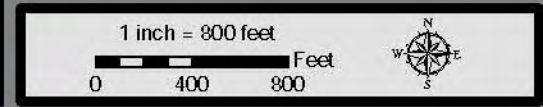


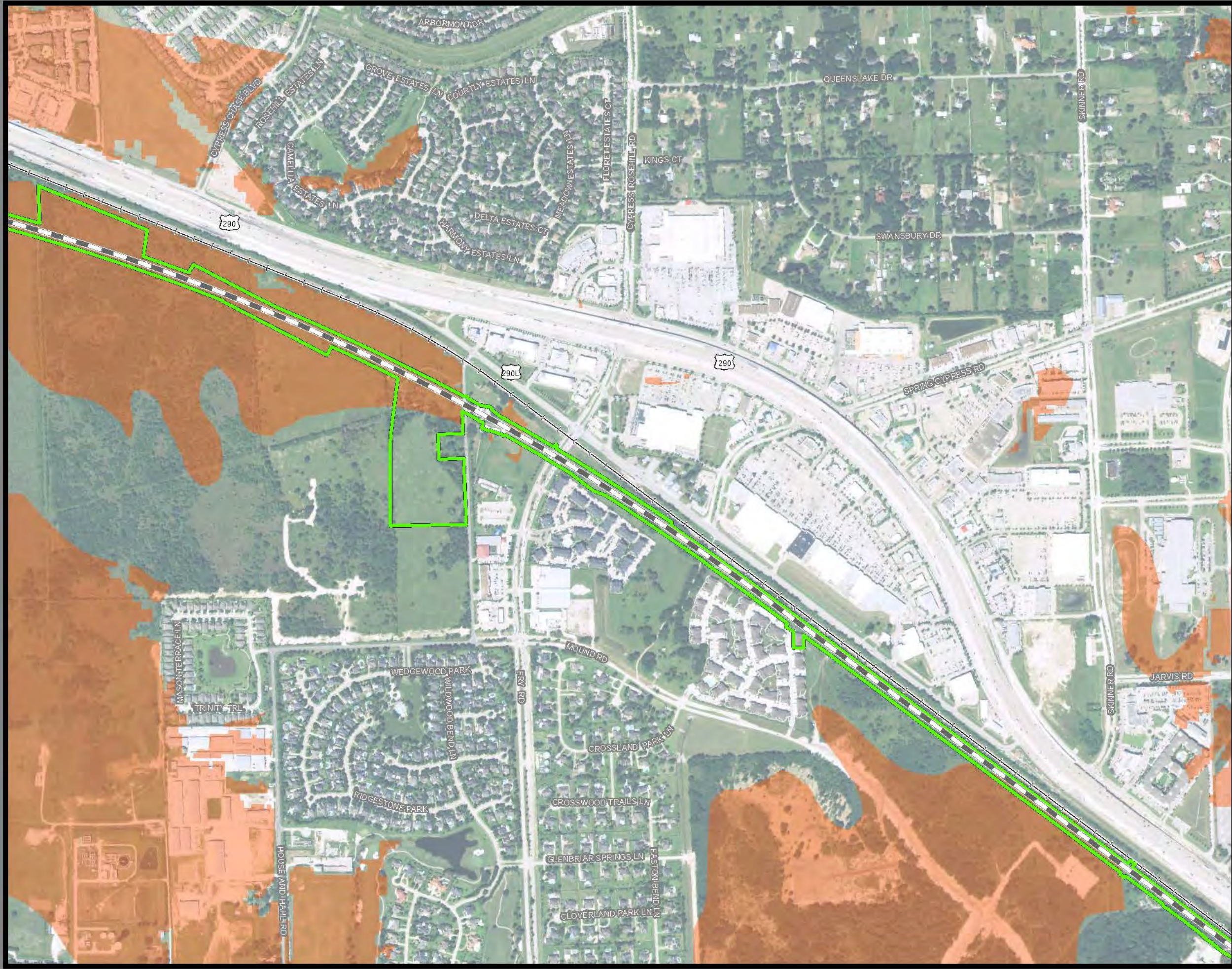
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 13 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 243 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



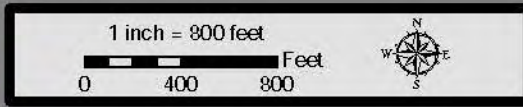


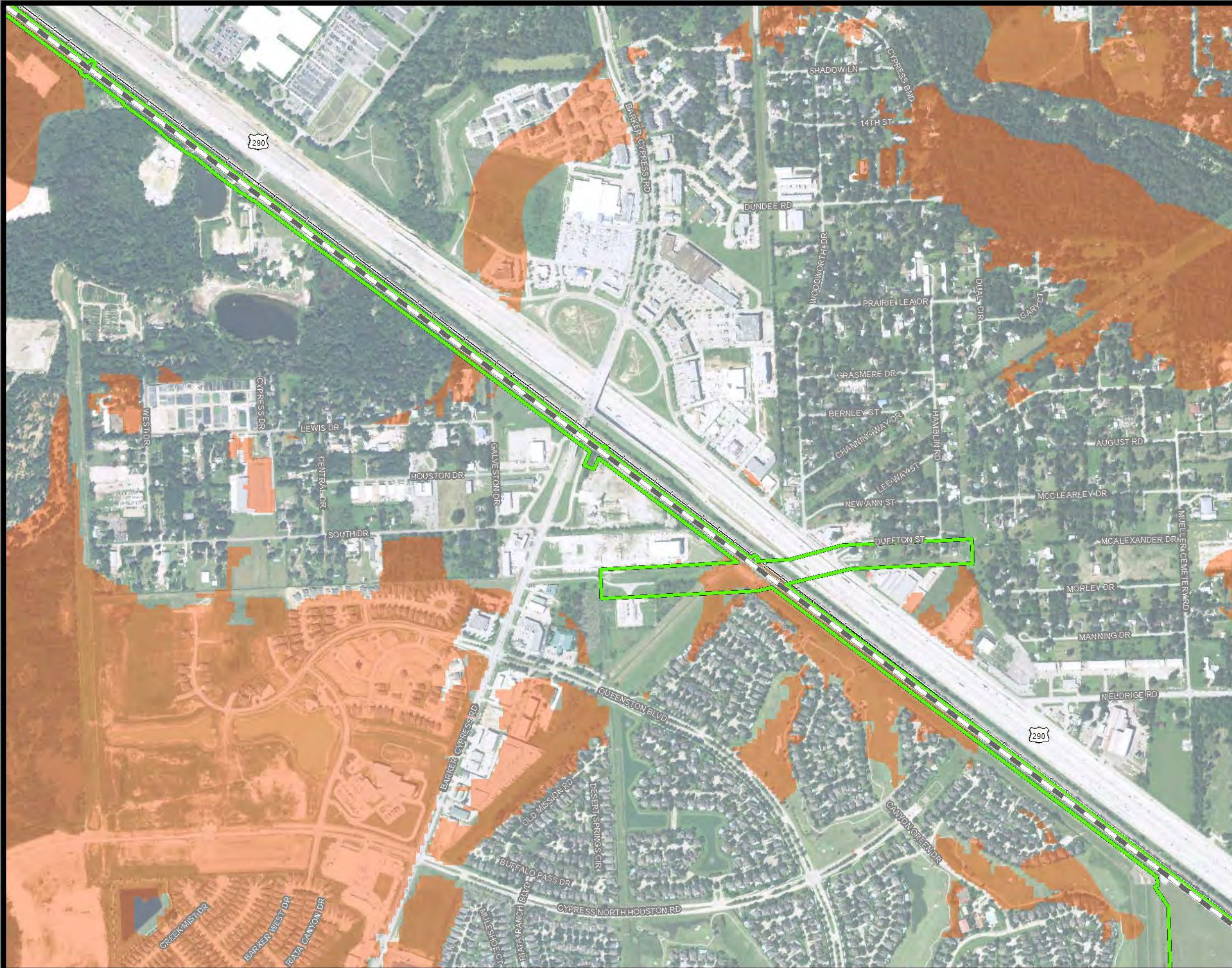
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 14 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 244 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



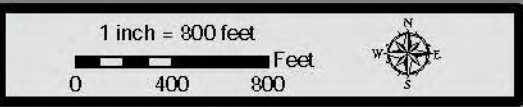


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 15 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 245 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



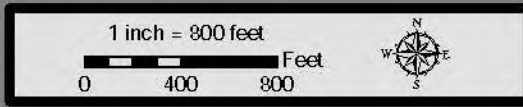


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 16 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 246 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



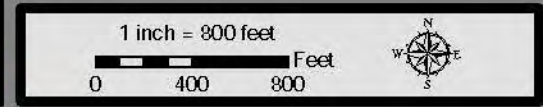


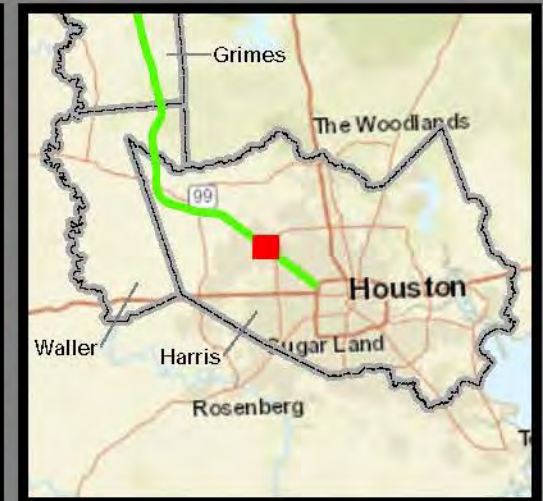
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 17 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 247 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



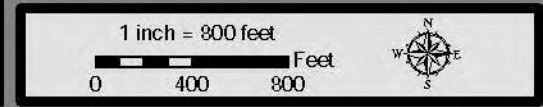


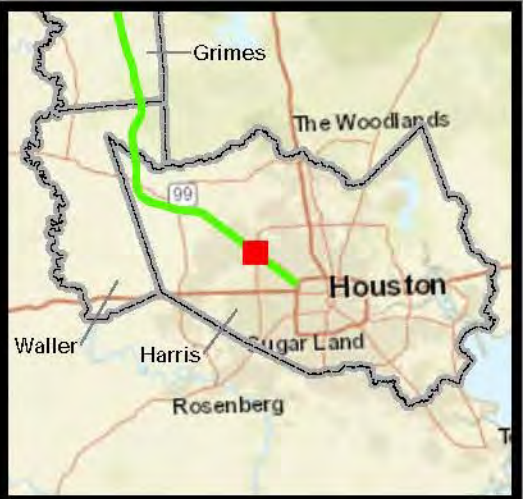
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 18 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 248 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



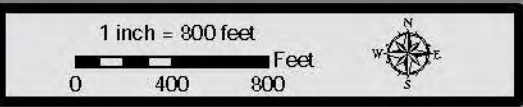


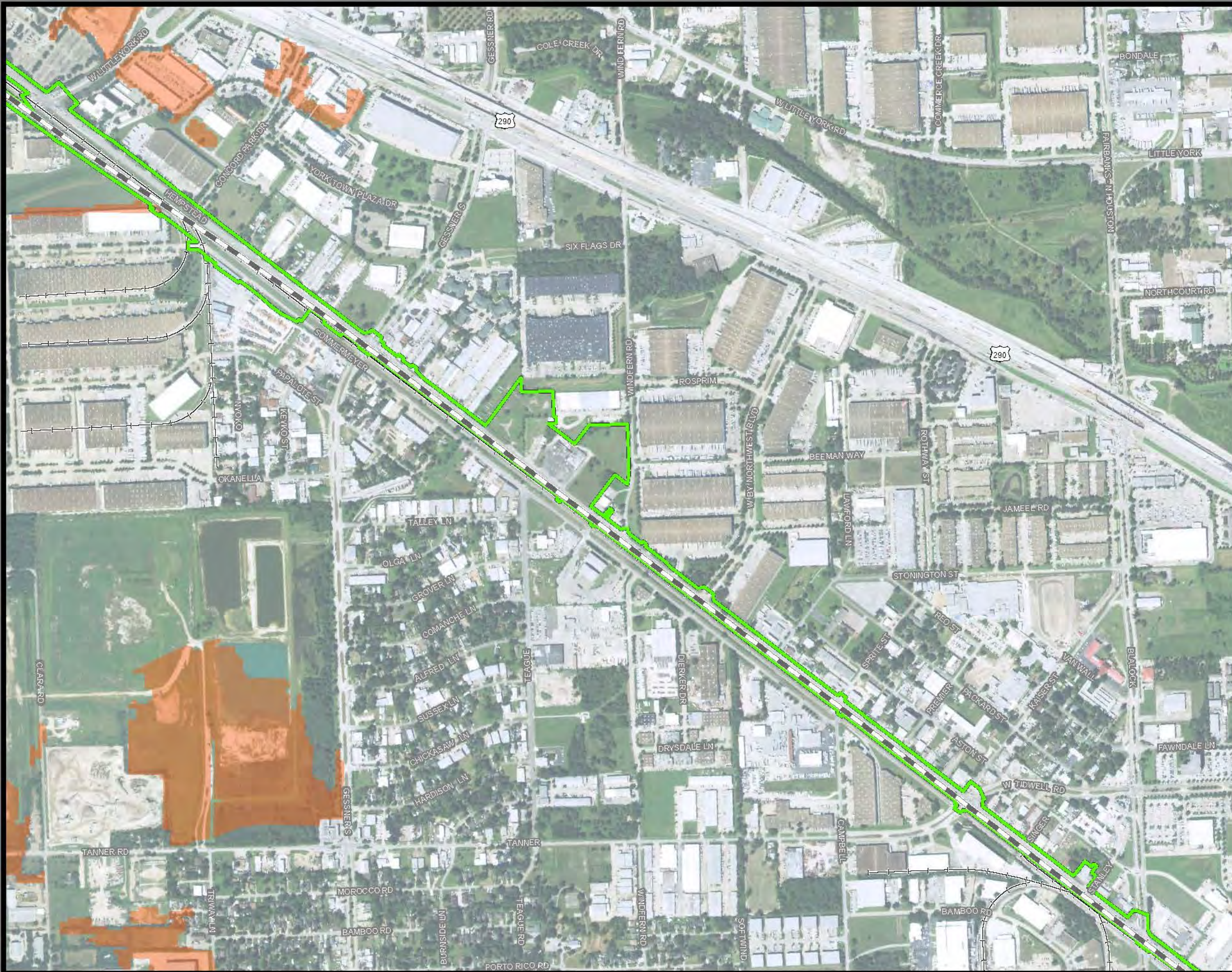
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 19 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 249 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



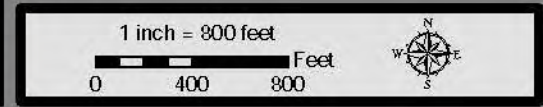


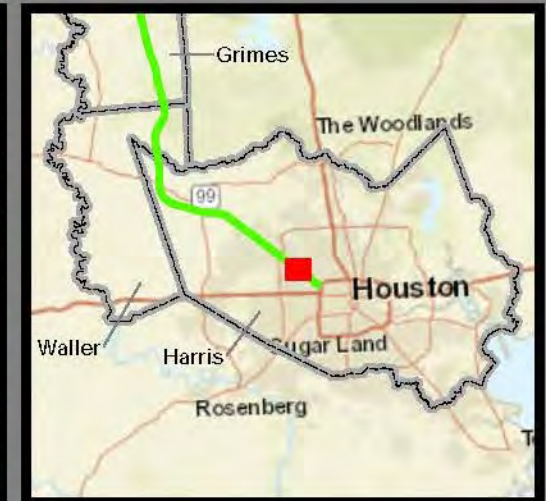
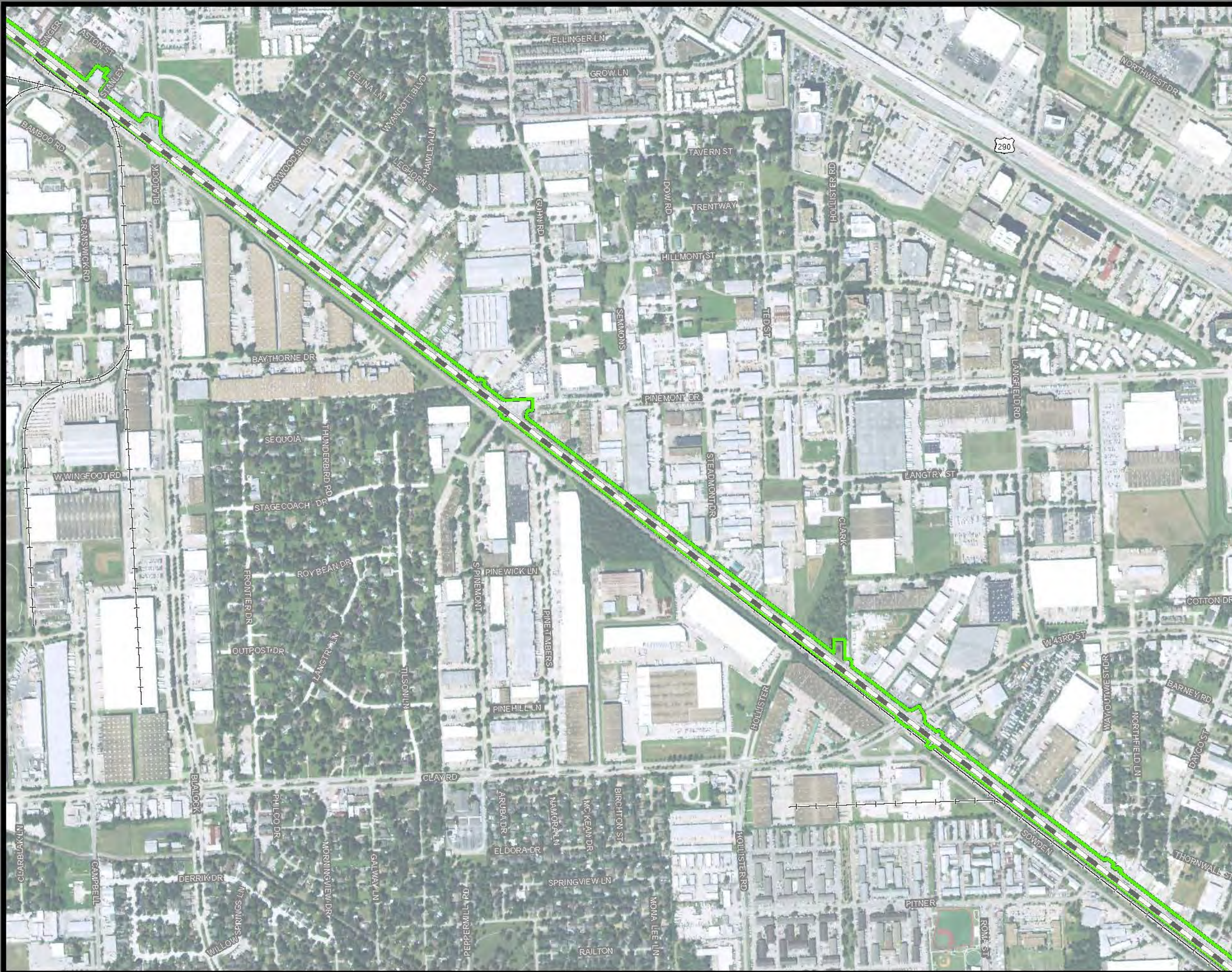
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 20 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 250 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



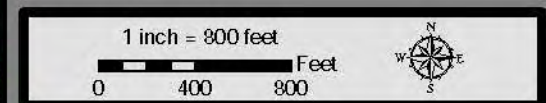


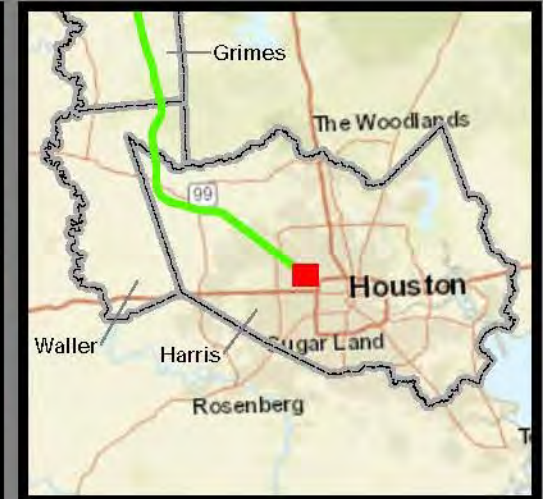
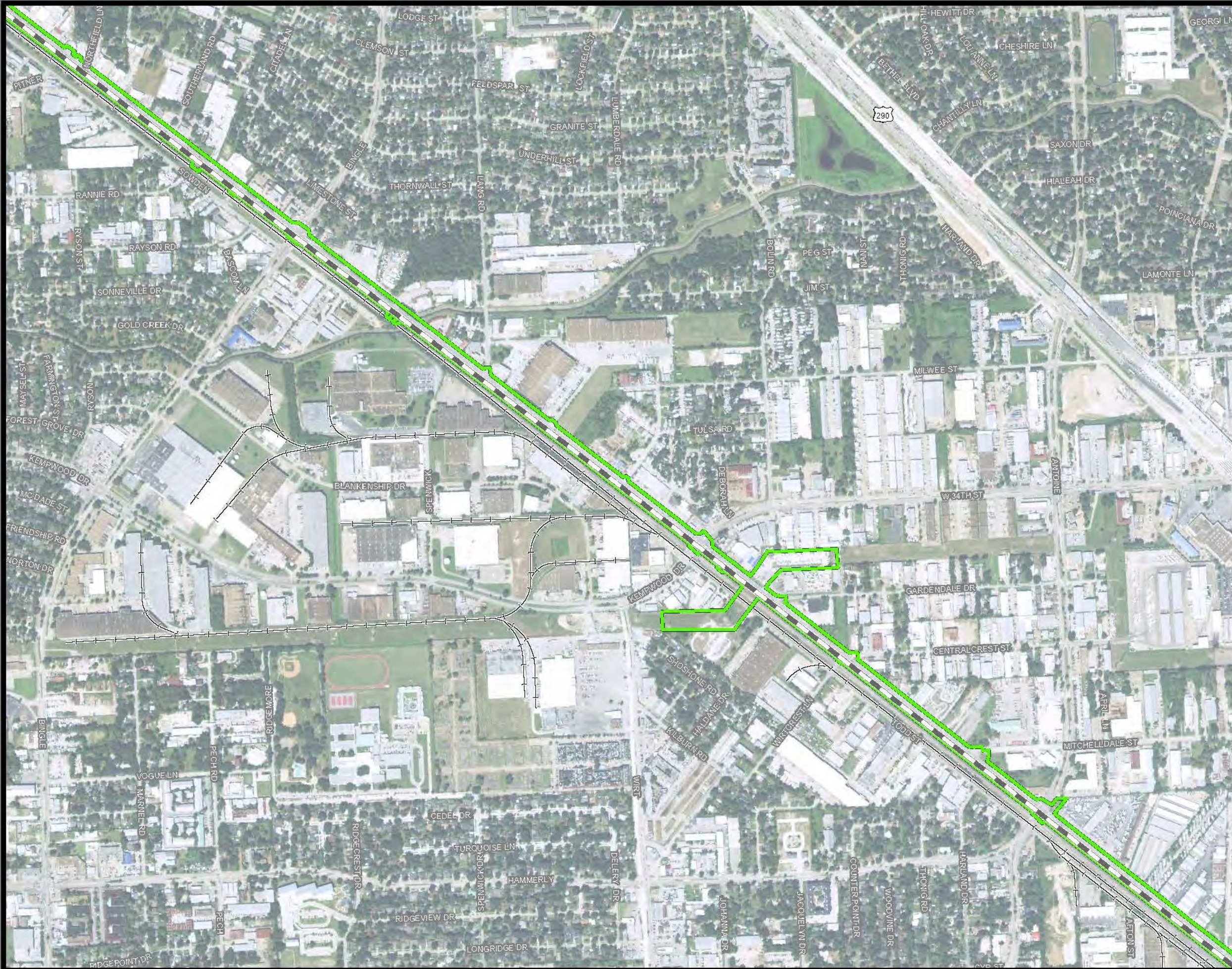
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 21 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 251 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



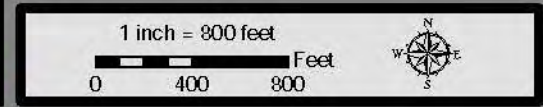


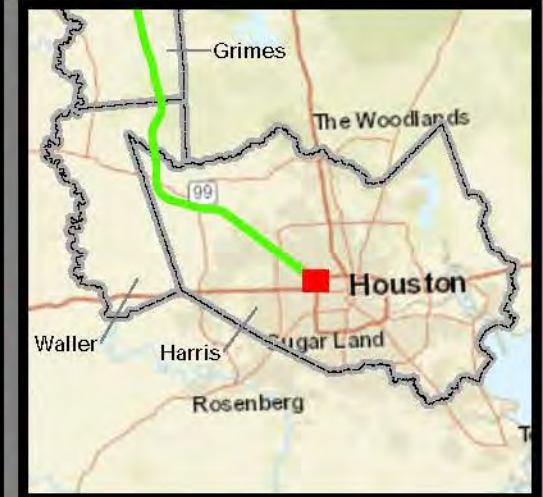
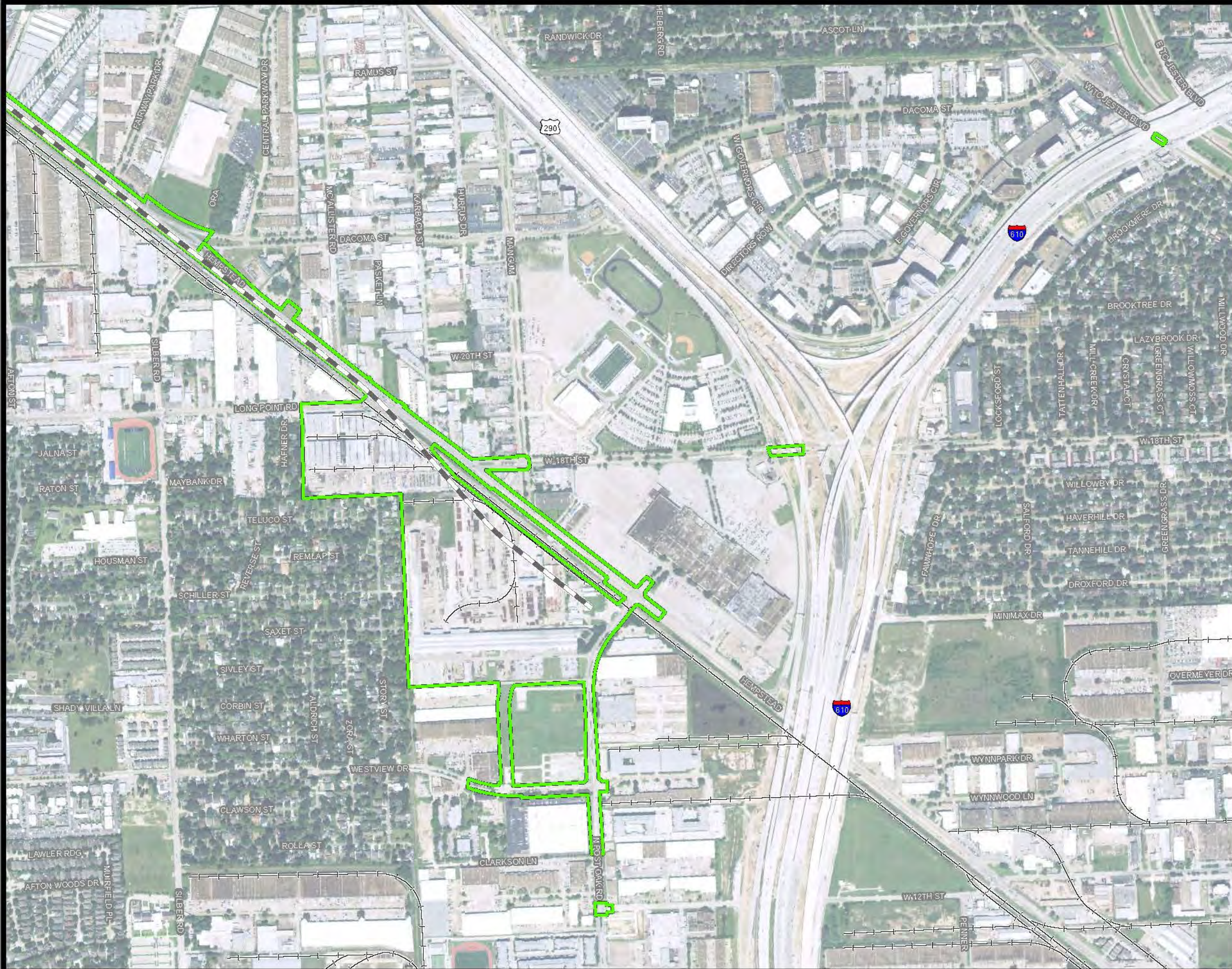
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5
 Sheet 22 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 252 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



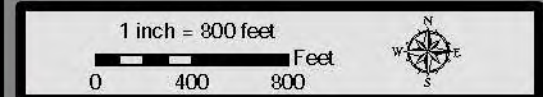


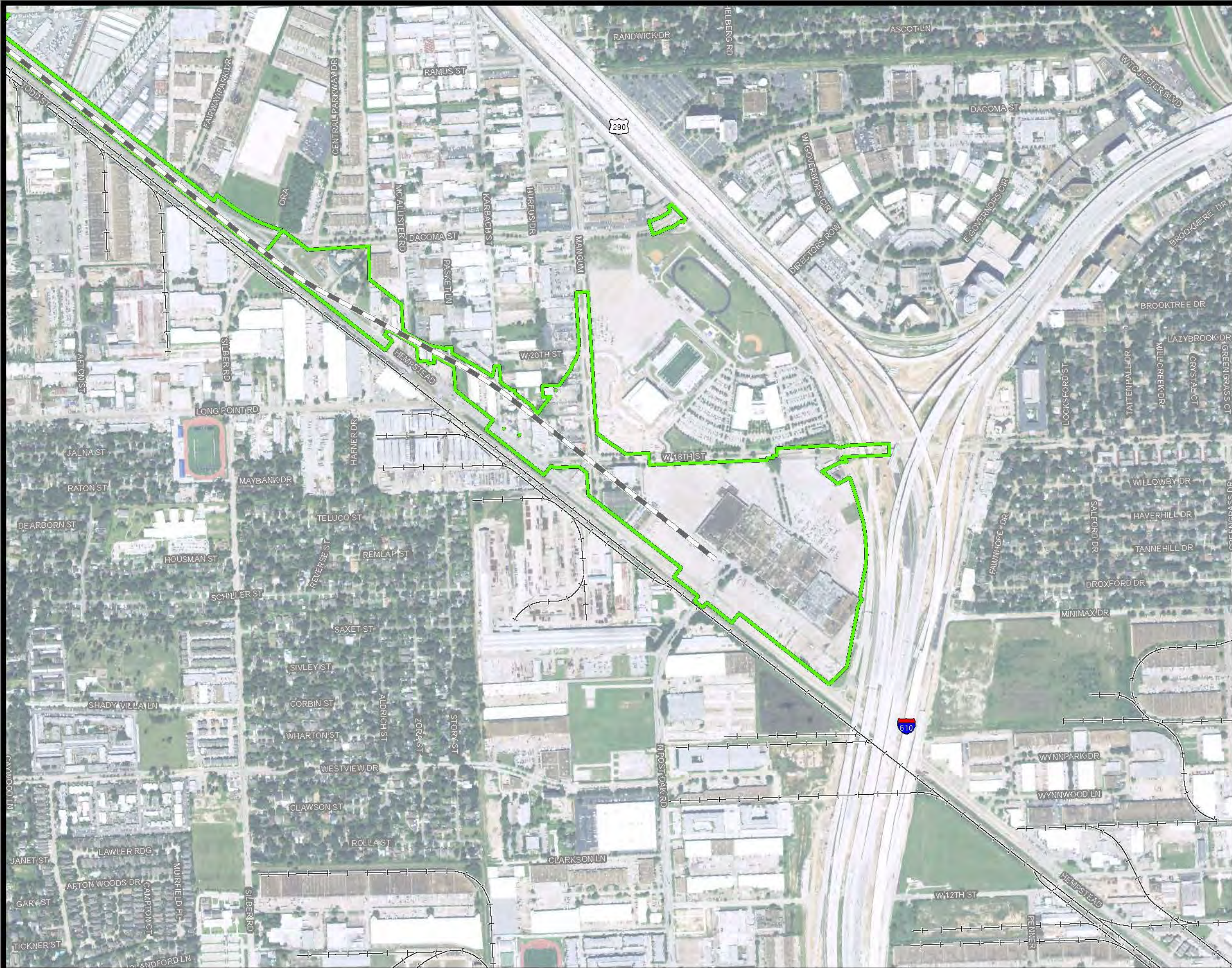
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5, Industrial Site Terminal Option
 Sheet 23 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 253 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



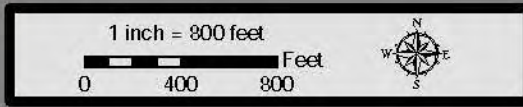


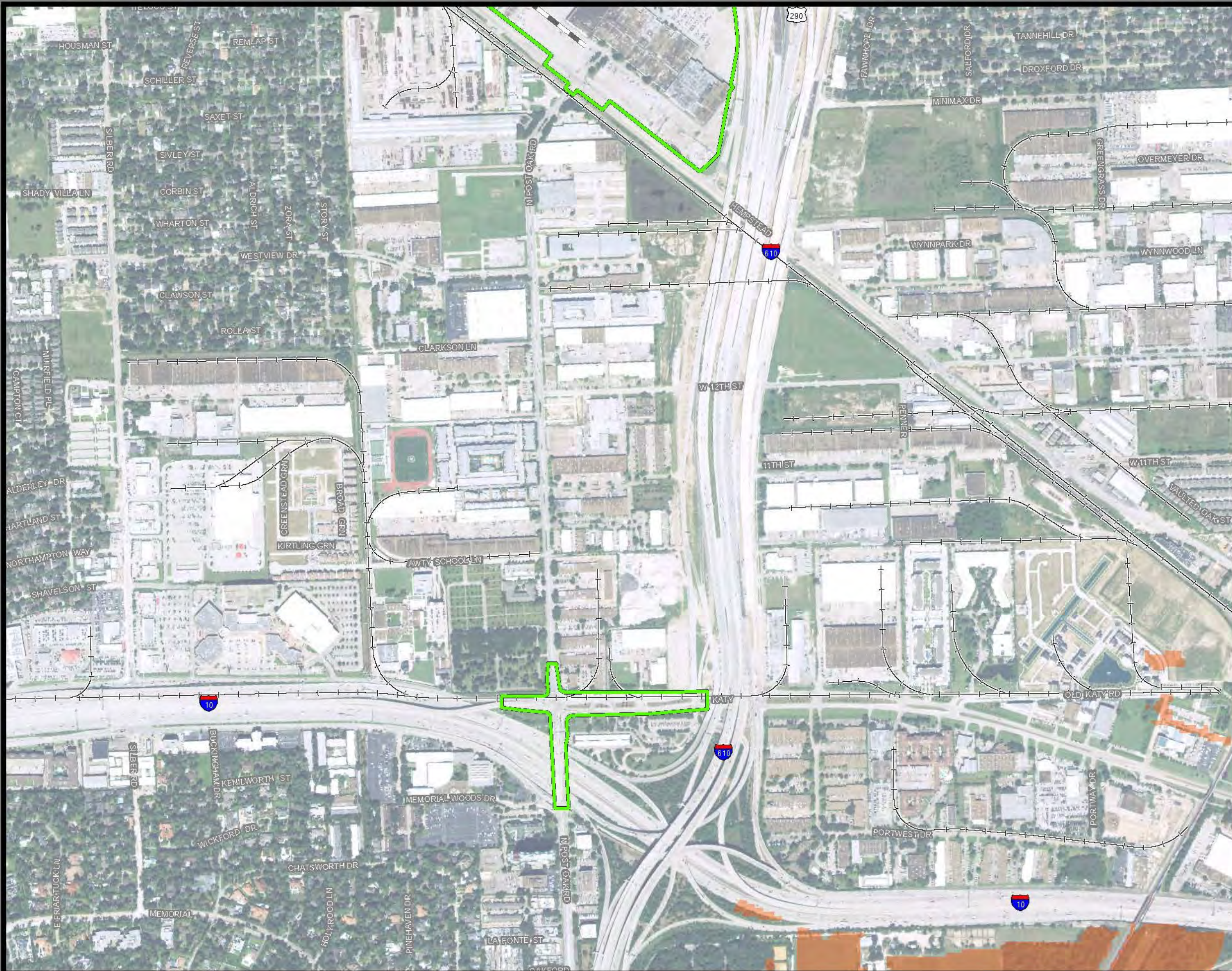
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5, Northwest Mall Terminal Option
 Sheet 24 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 254 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



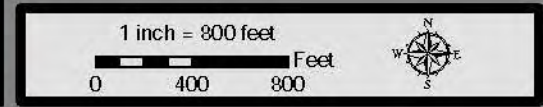


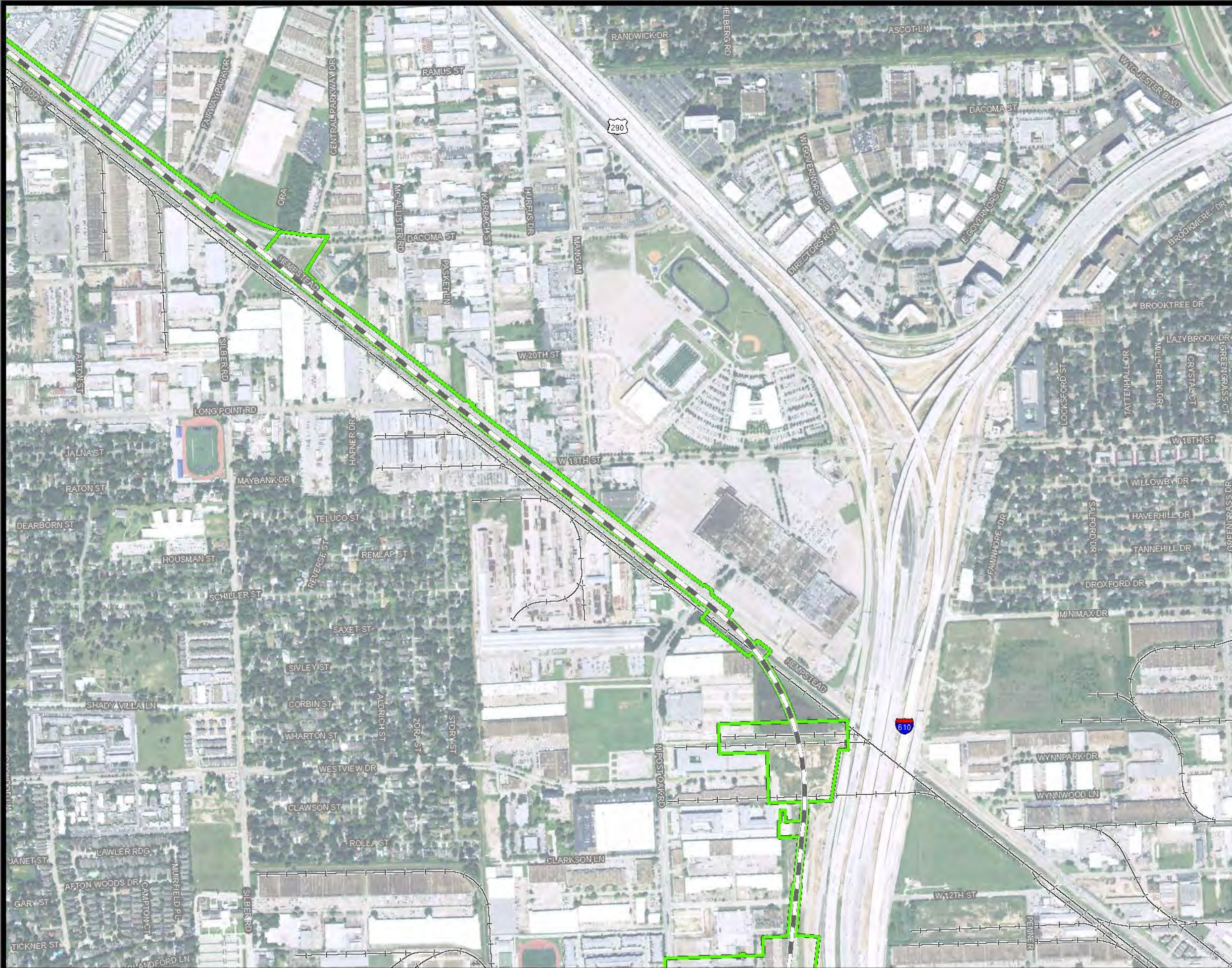
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5, Northwest Mall Terminal Option
 Sheet 25 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 255 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016



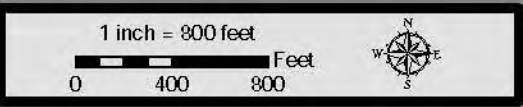


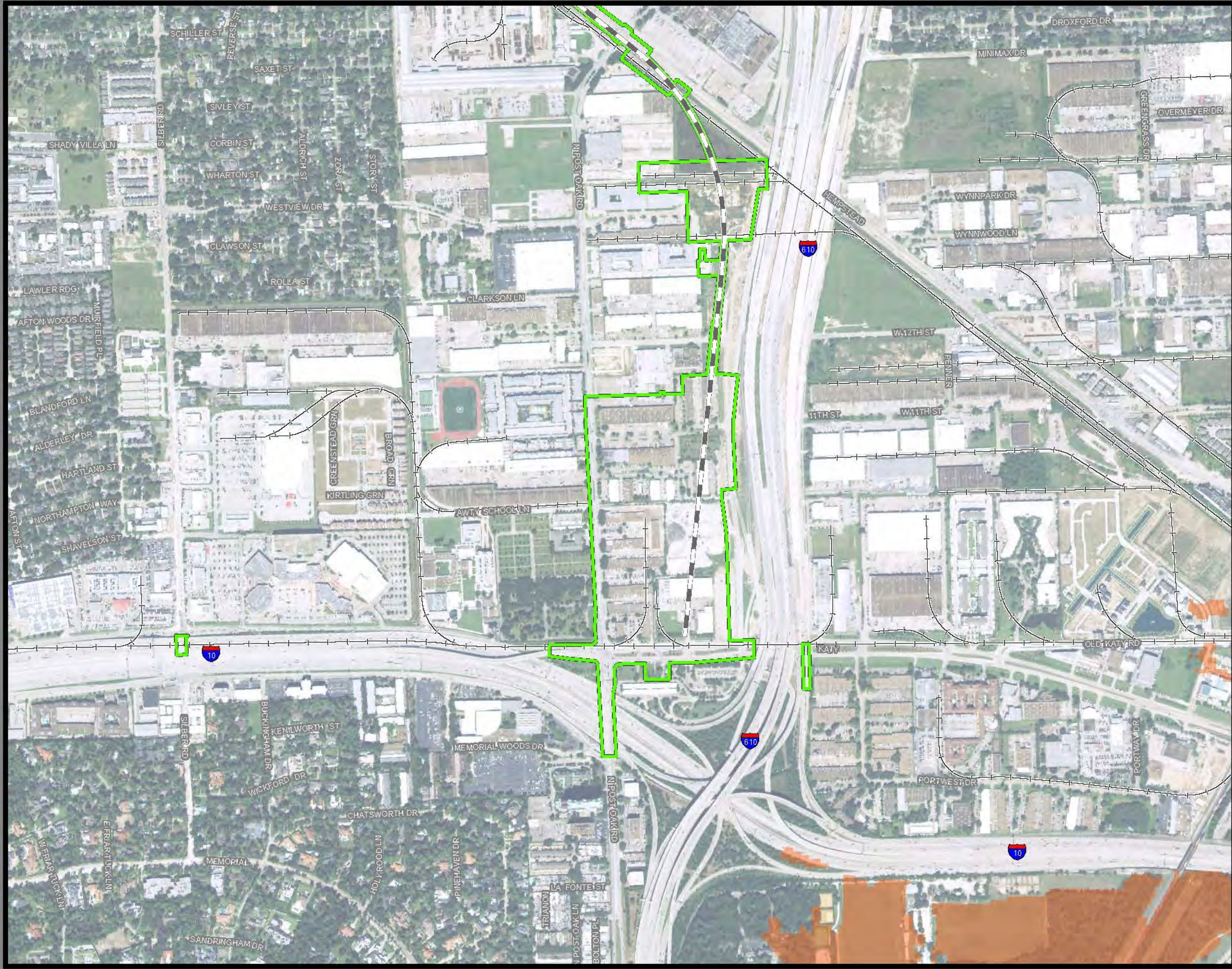
Dallas to Houston
High-Speed Rail Project
Texas Prairie Dawn 2016 Imagery
Segment 5, Northwest Transit Center Terminal Option
Sheet 26 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 266 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
Aerial Imagery: USDA NAIP 2016



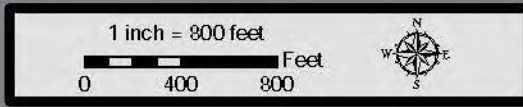


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn 2016 Imagery
 Segment 5, Northwest Transit Center Terminal Option
 Sheet 27 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 257 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; ESRI World Street Map
 Aerial Imagery: USDA NAIP 2016





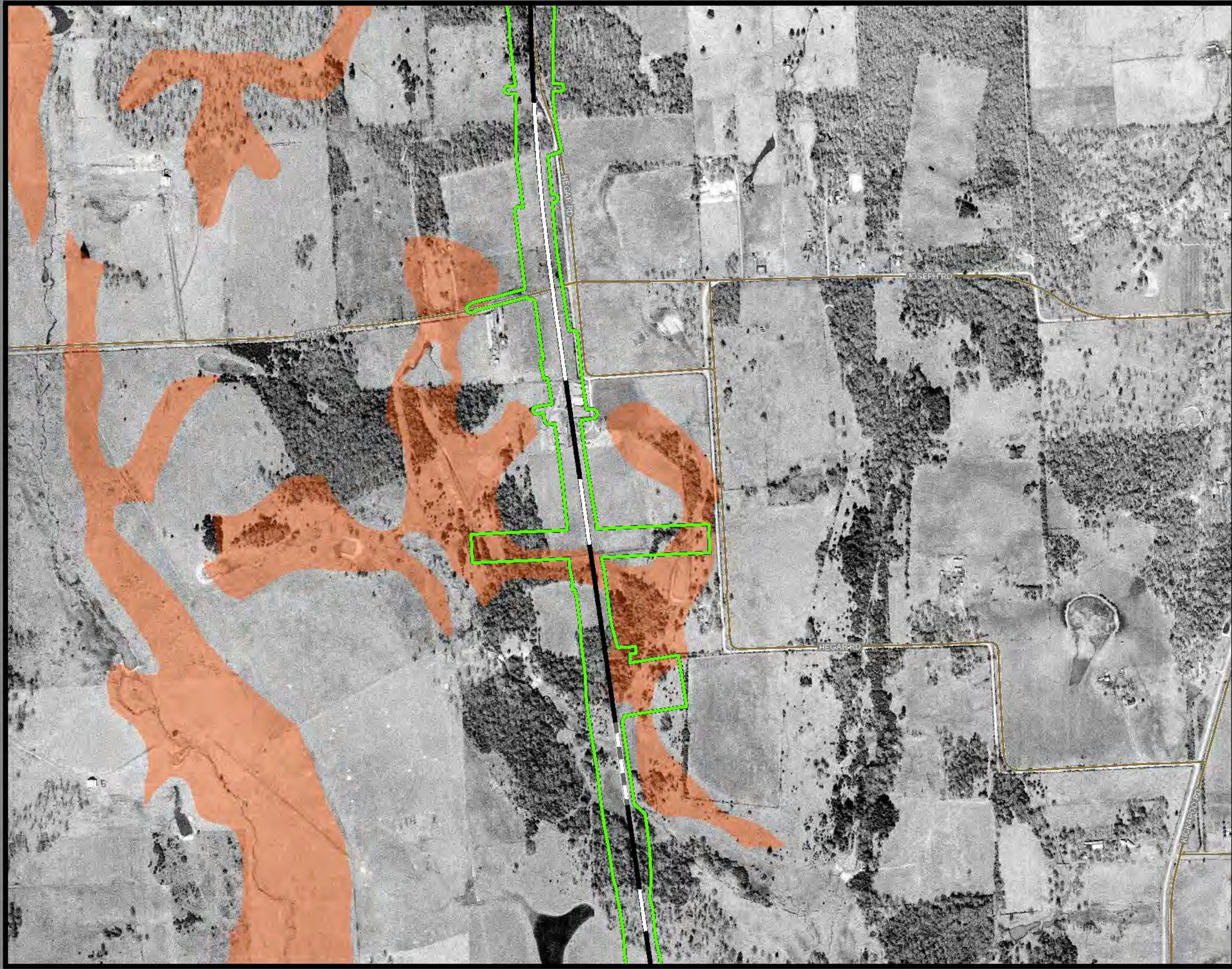
**Dallas to Houston
High-Speed Rail Project**
Texas Prairie Dawn Historical Imagery
Segment 5
Sheet 1 of 27

- Legend**
- Limits of Disturbance**
 - Segment 5
 - Track Configuration**
 - Viaduct
 - Embankment
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 231 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



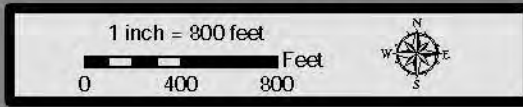


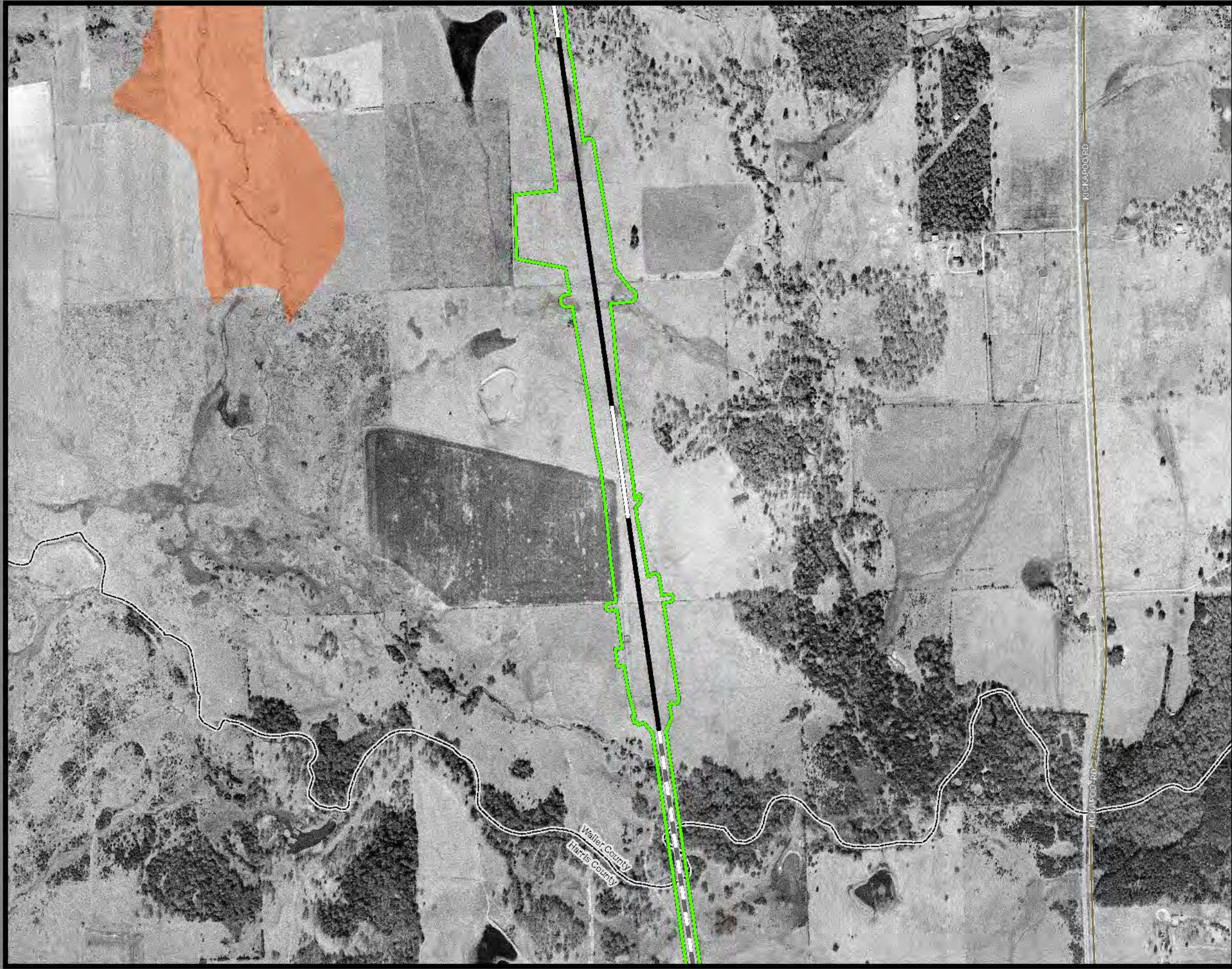
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 2 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 232 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989





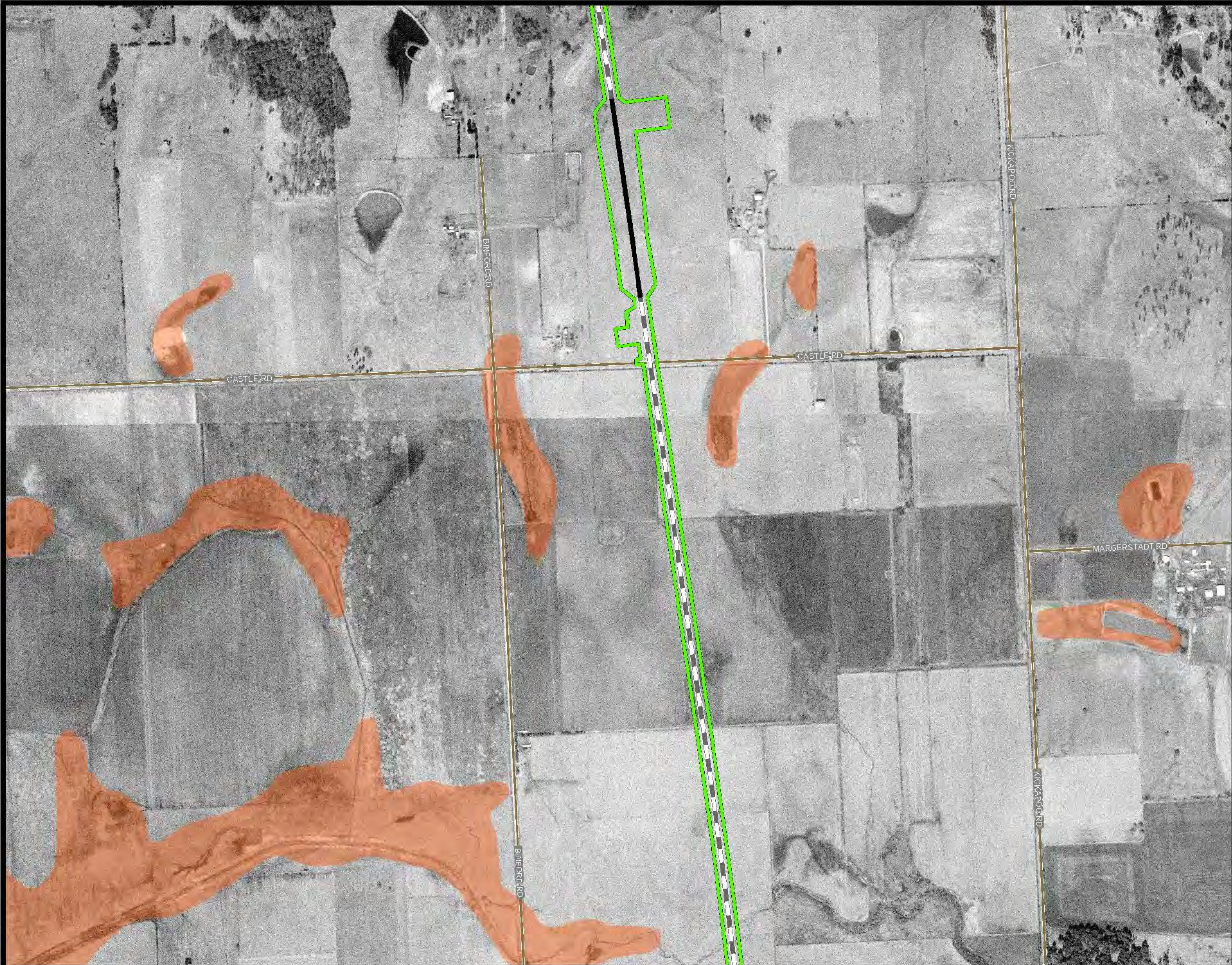
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 3 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 233 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



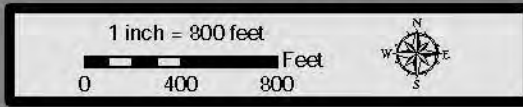


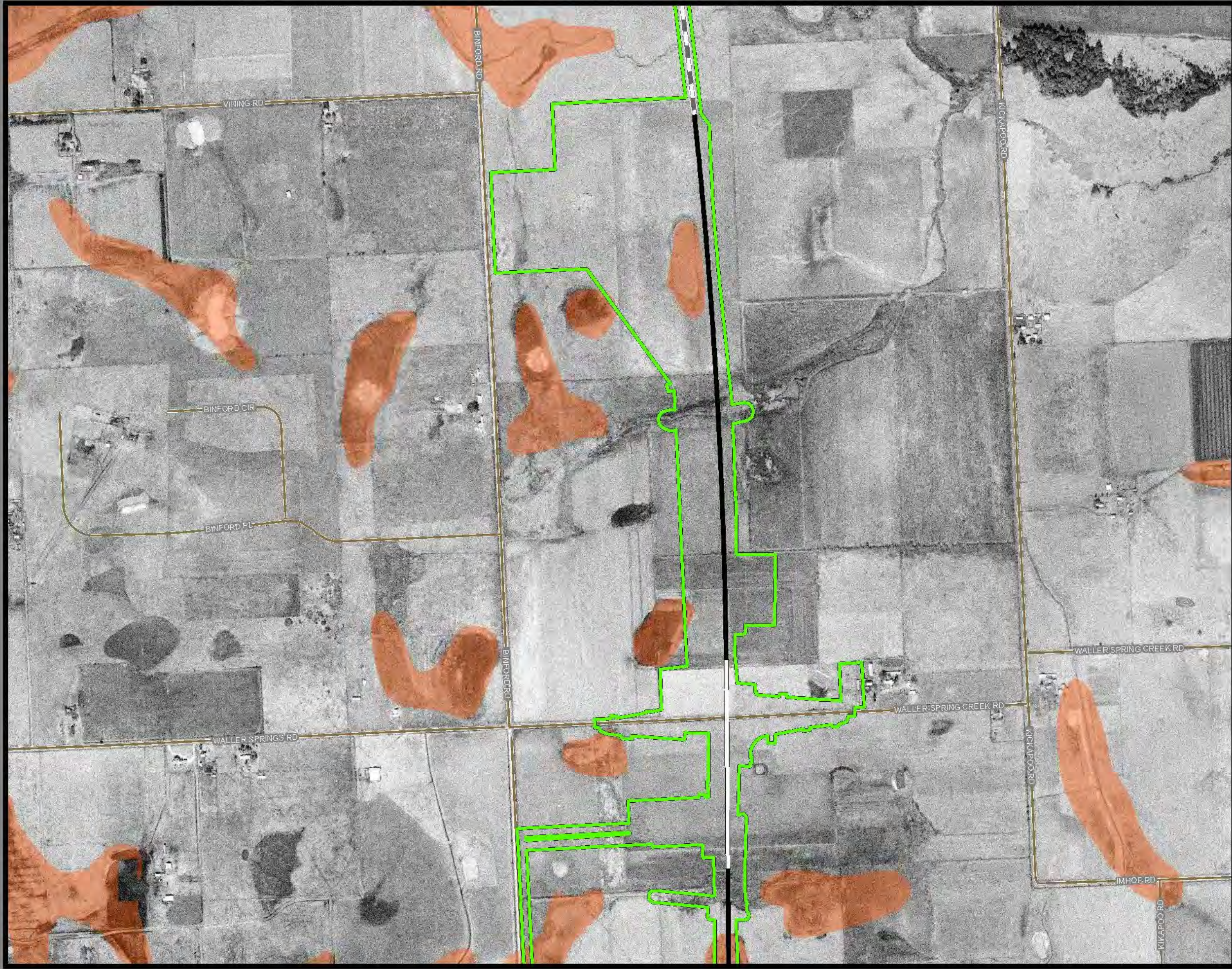
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 4 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 234 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



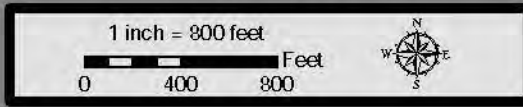


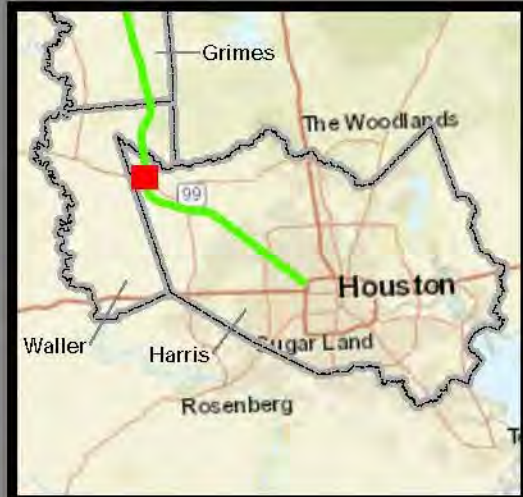
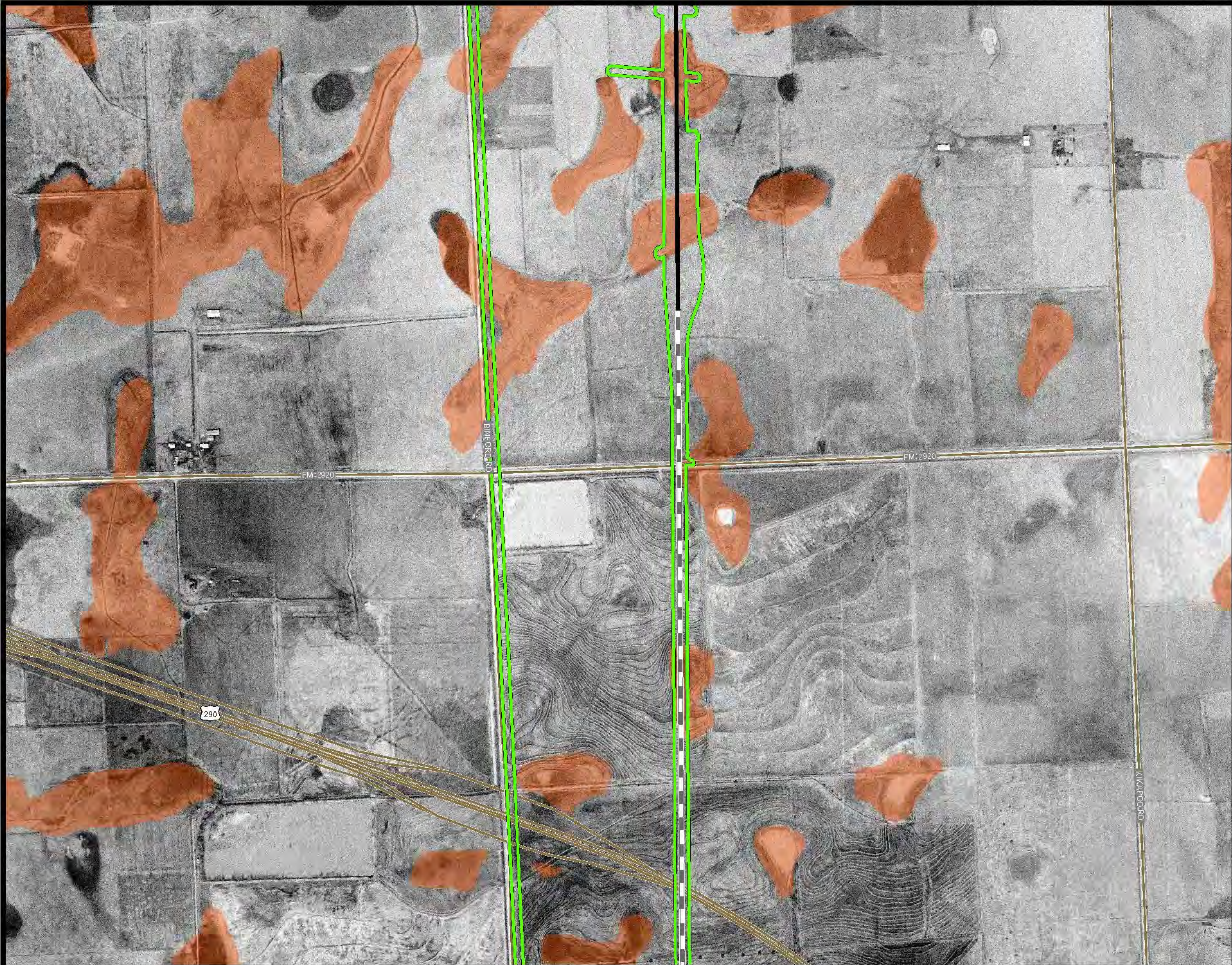
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 5 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 235 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



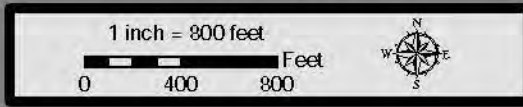


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 6 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 236 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989





Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 7 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 237 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



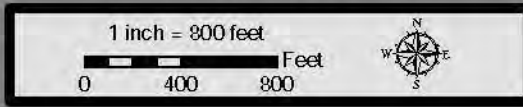


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 8 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 238 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



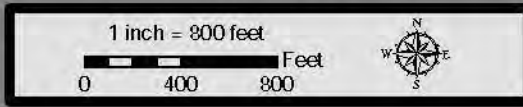


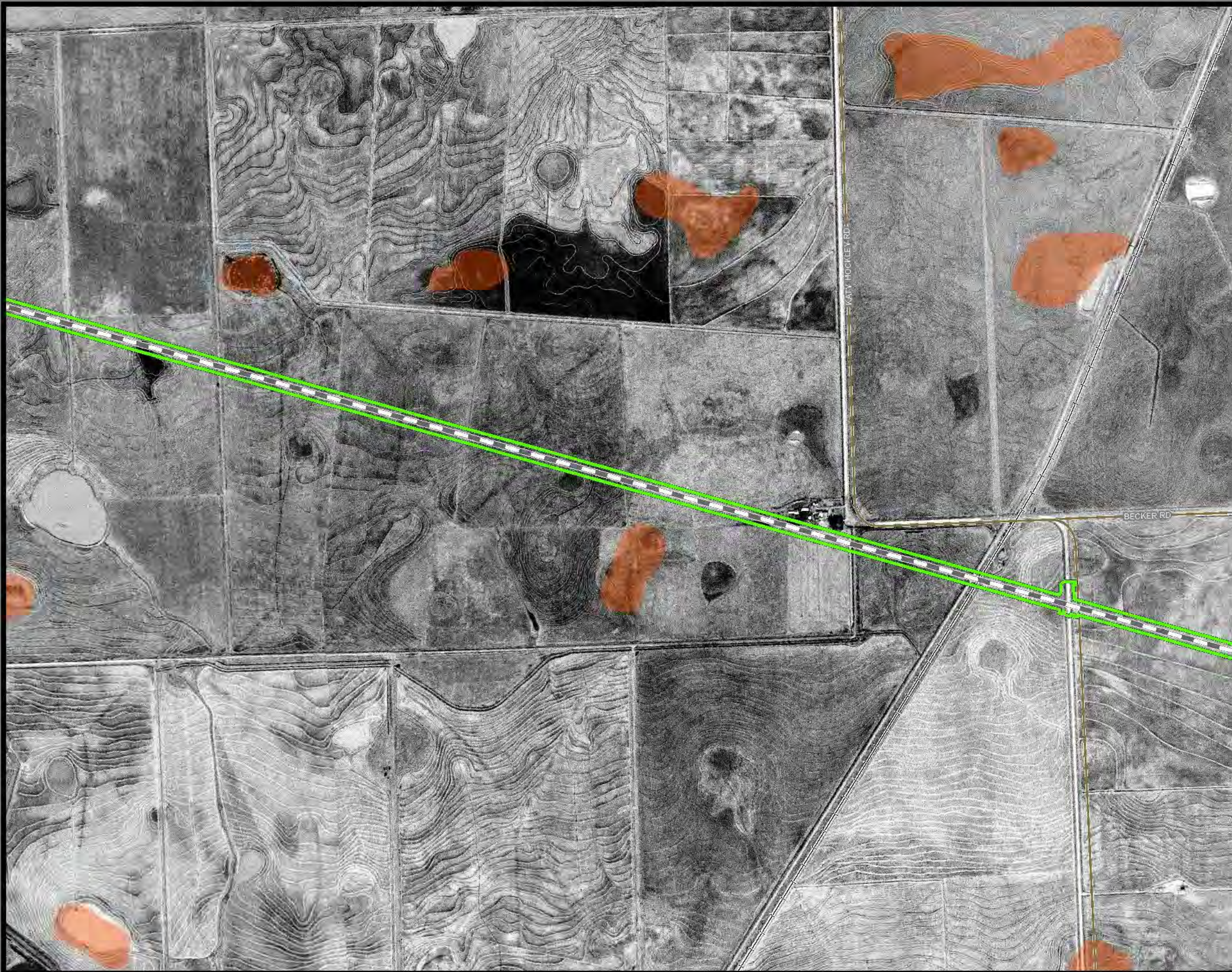
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 9 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 239 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



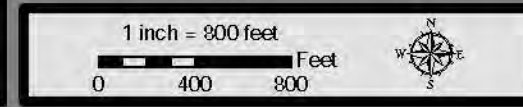


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 10 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 240 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



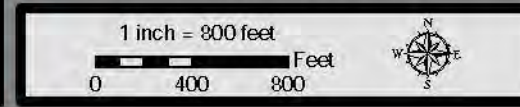


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 11 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 241 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



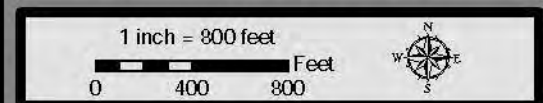


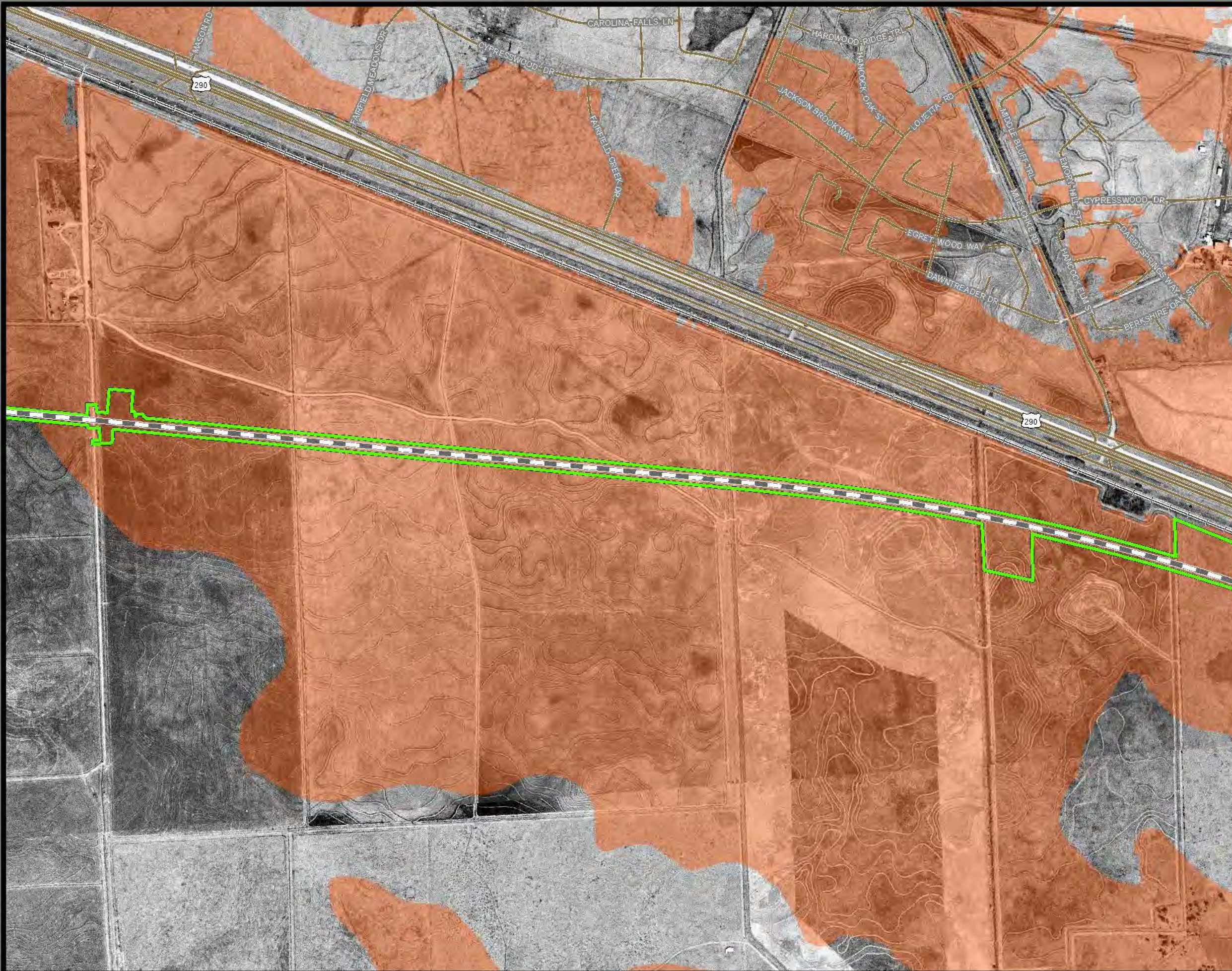
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 12 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 242 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



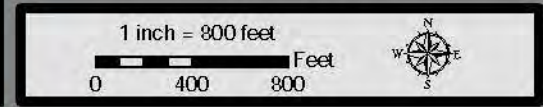


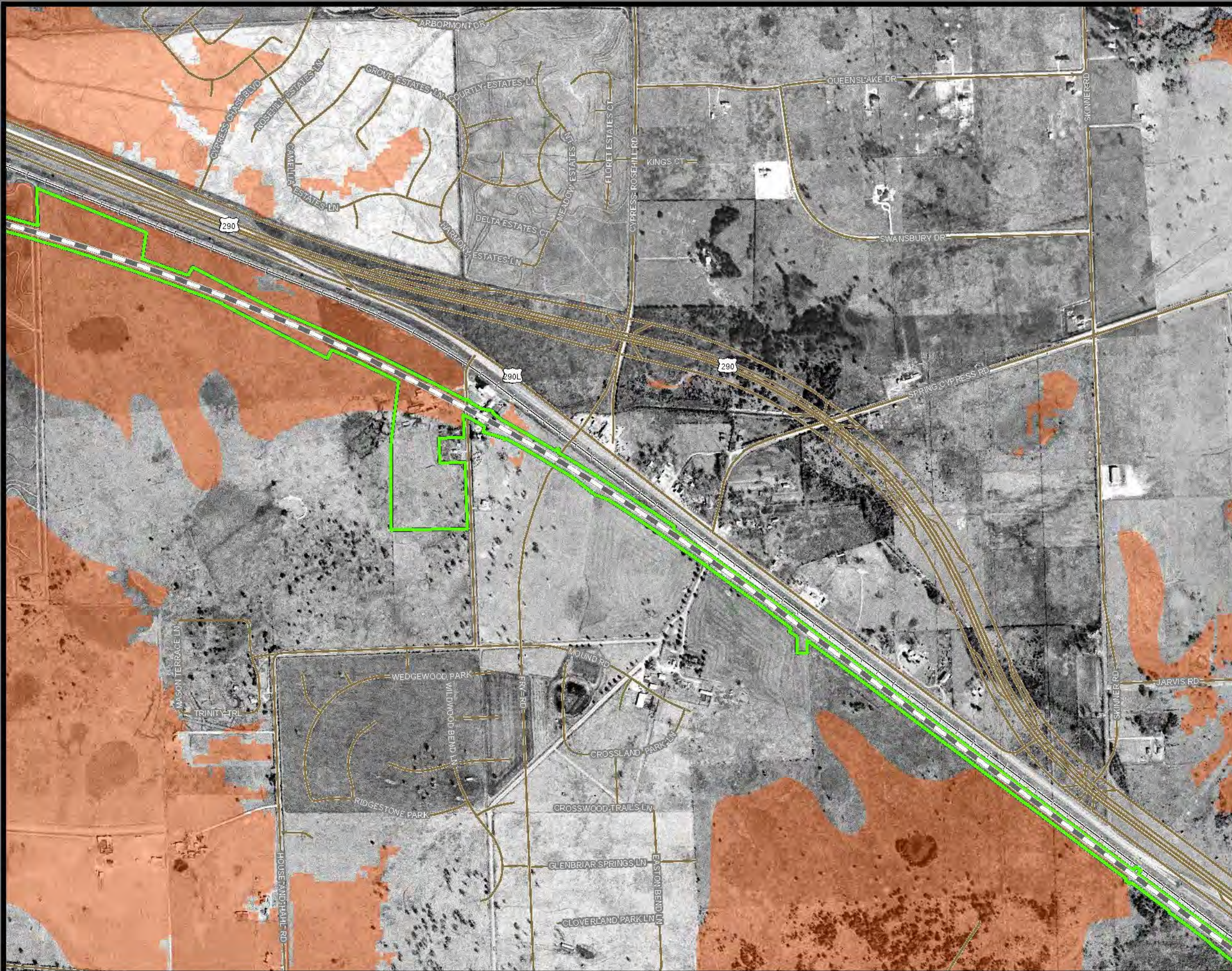
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 13 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 243 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



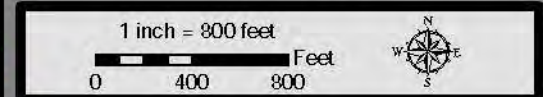


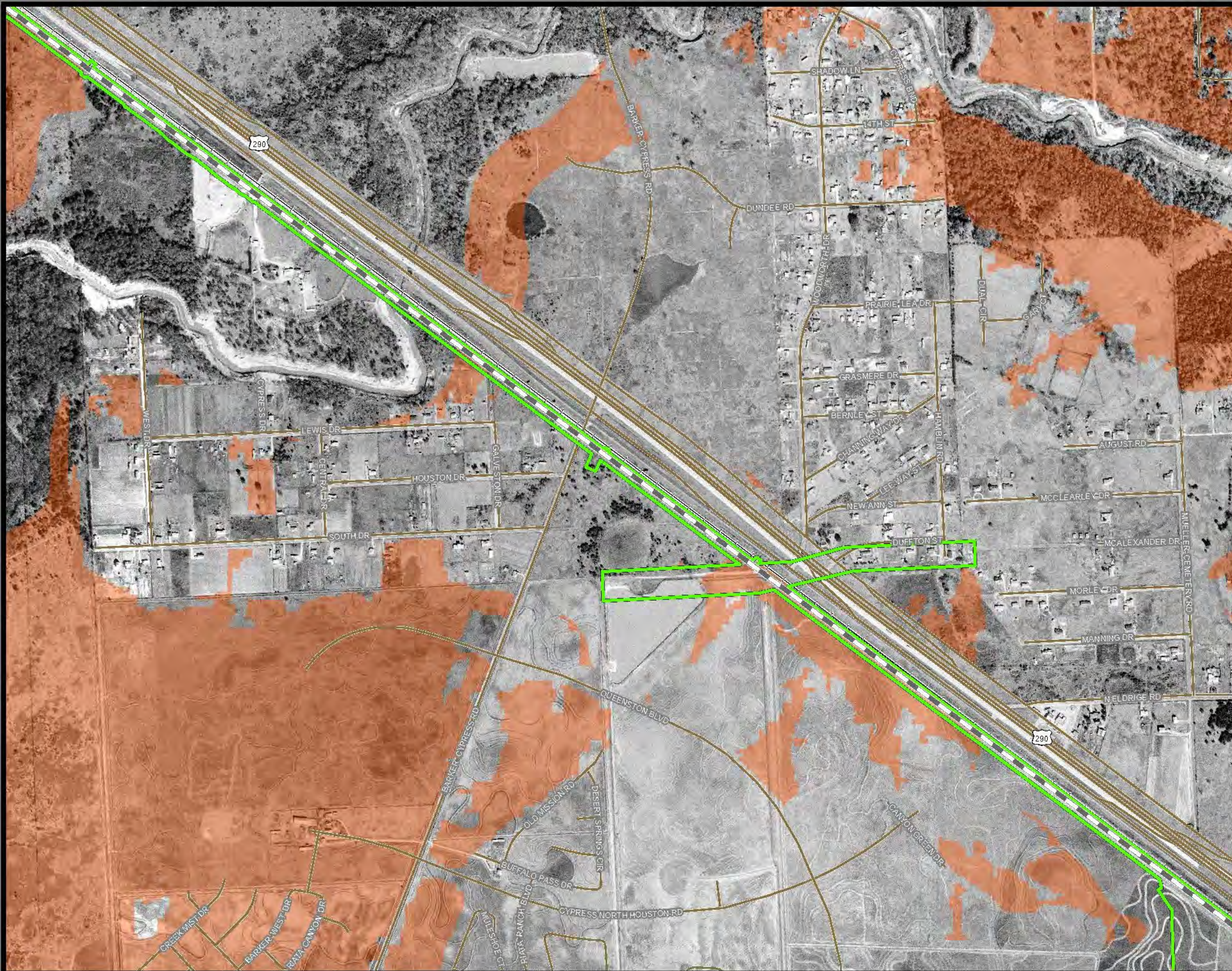
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 14 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 244 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



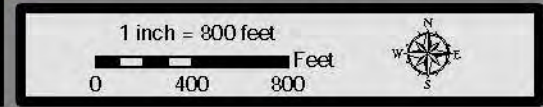


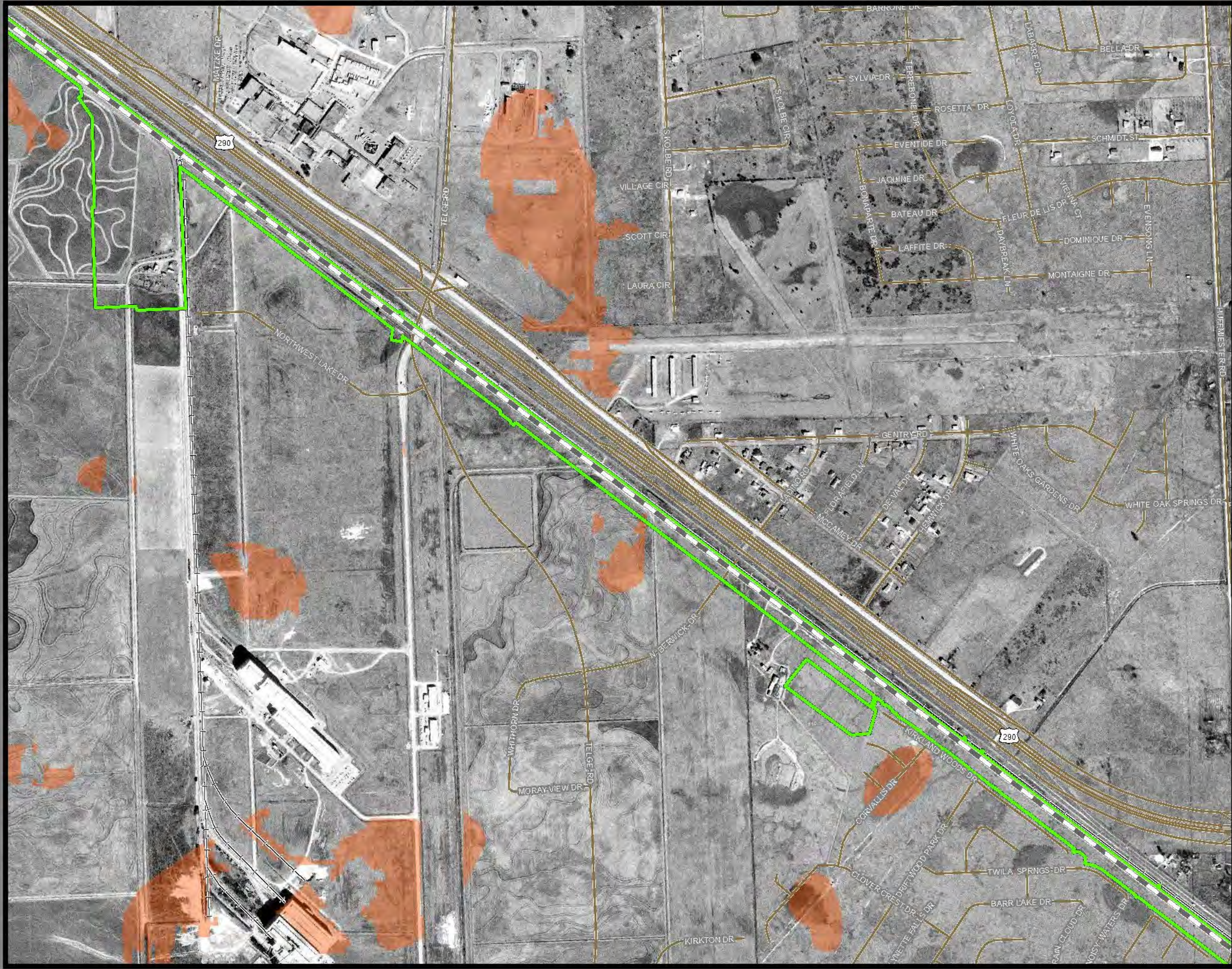
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 15 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 245 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



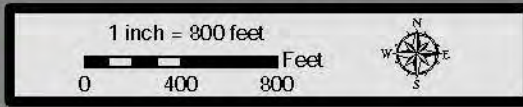


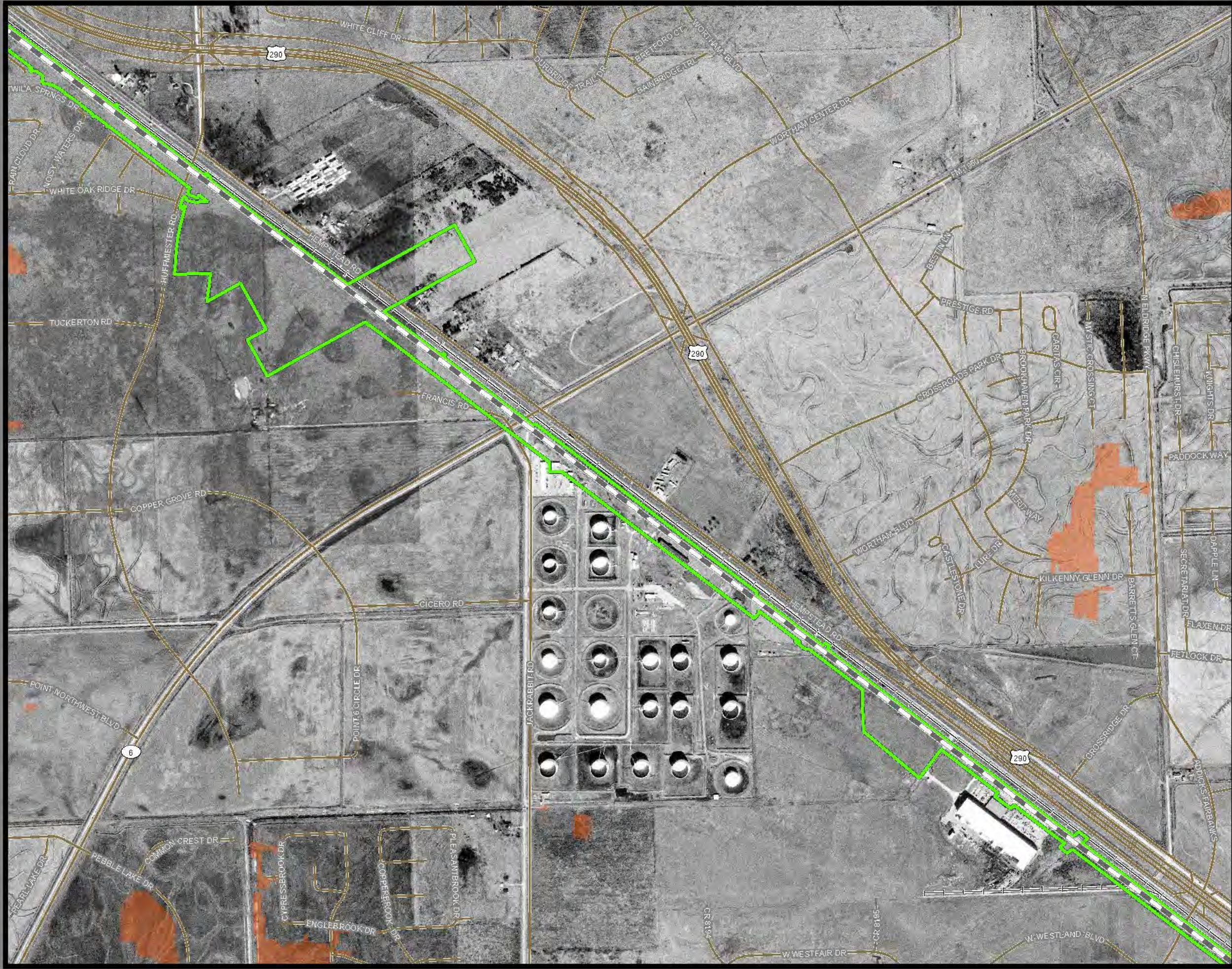
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 16 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 246 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



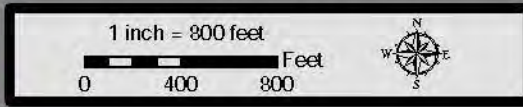


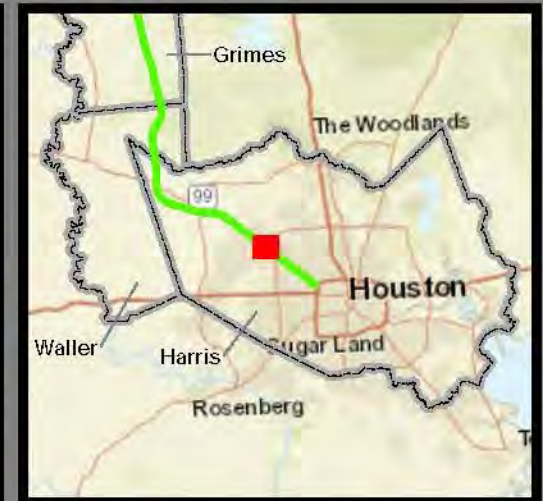
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 17 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 247 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



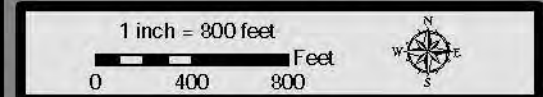


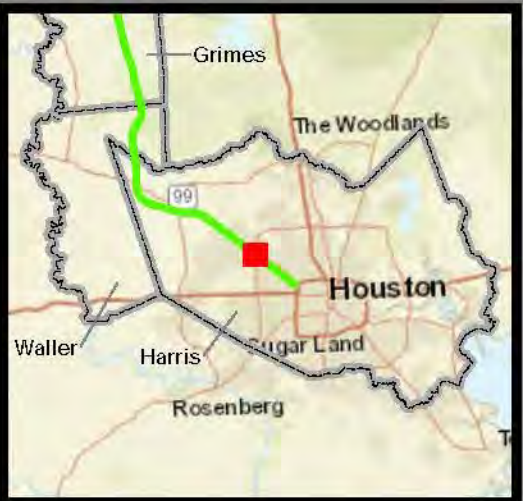
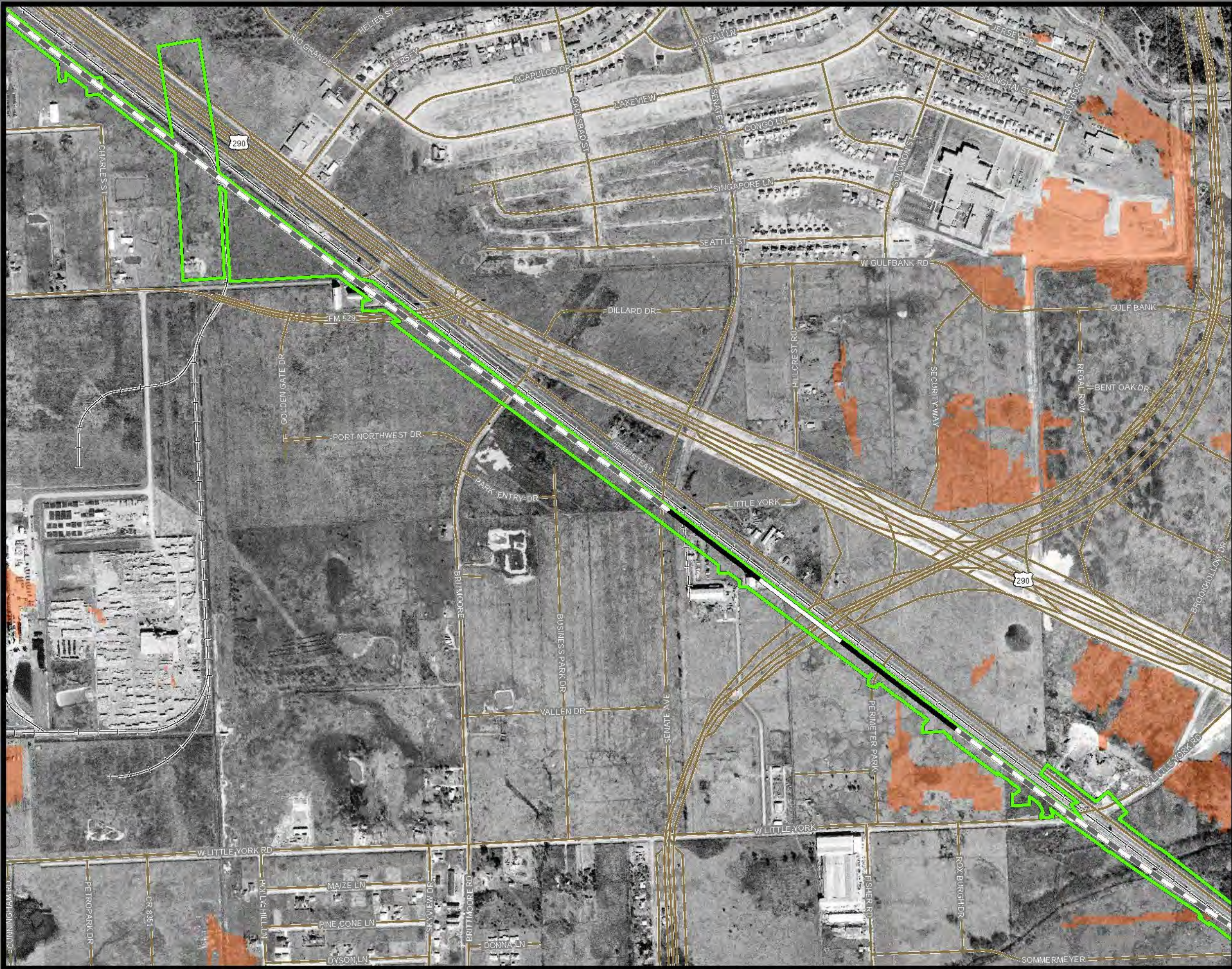
Dallas to Houston
High-Speed Rail Project
Texas Prairie Dawn Historical Imagery
Segment 5
Sheet 18 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 248 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



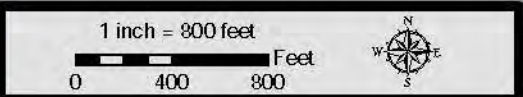


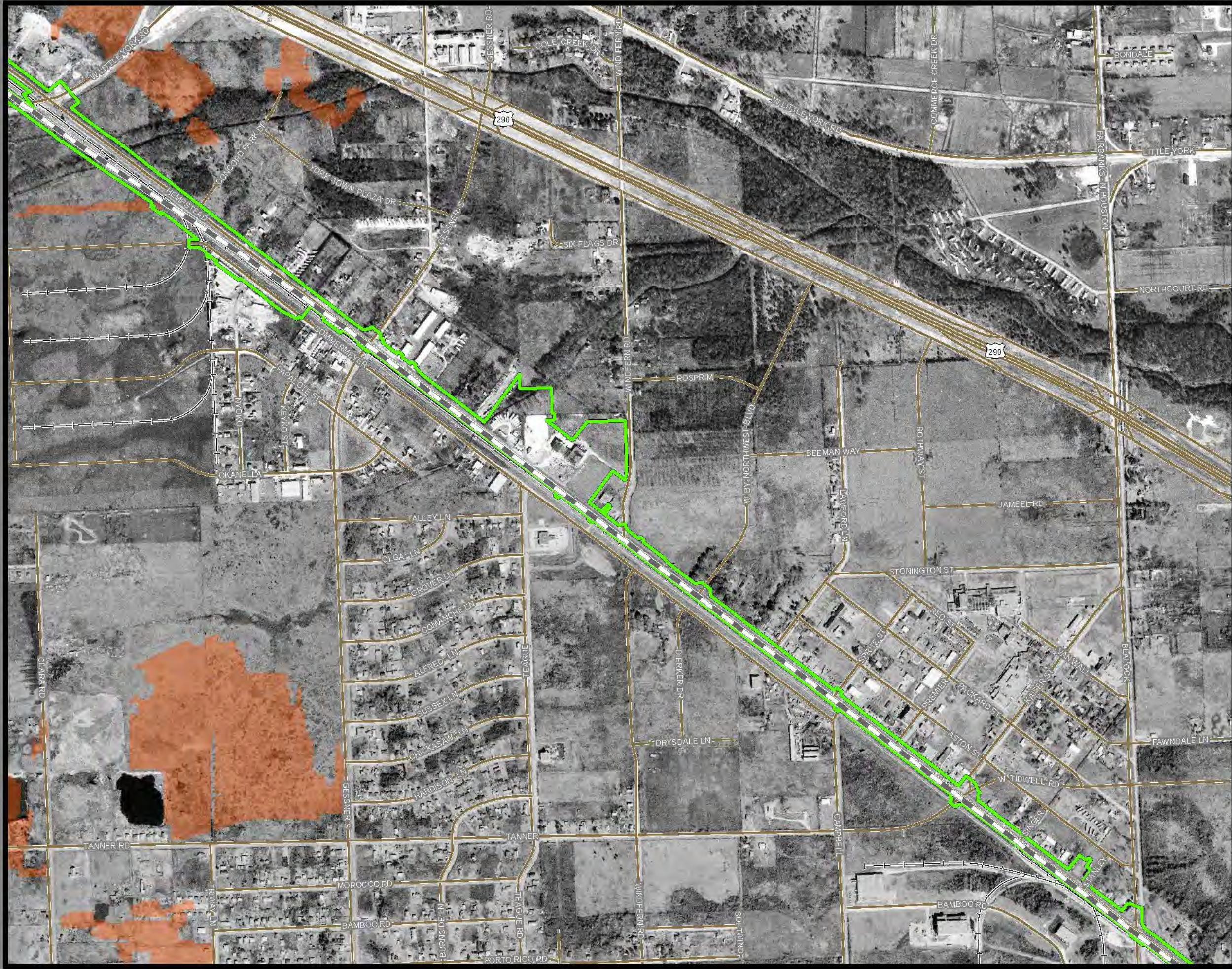
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 19 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - Embankment
 - Cut
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 249 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989





Dallas to Houston
High-Speed Rail Project
Texas Prairie Dawn Historical Imagery
Segment 5
Sheet 20 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 250 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



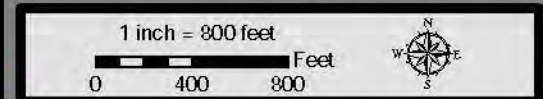


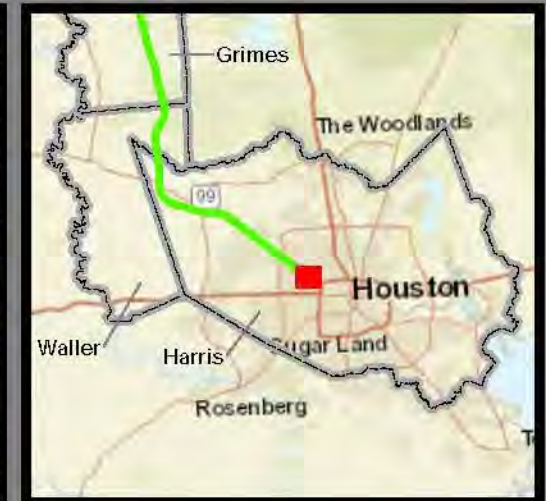
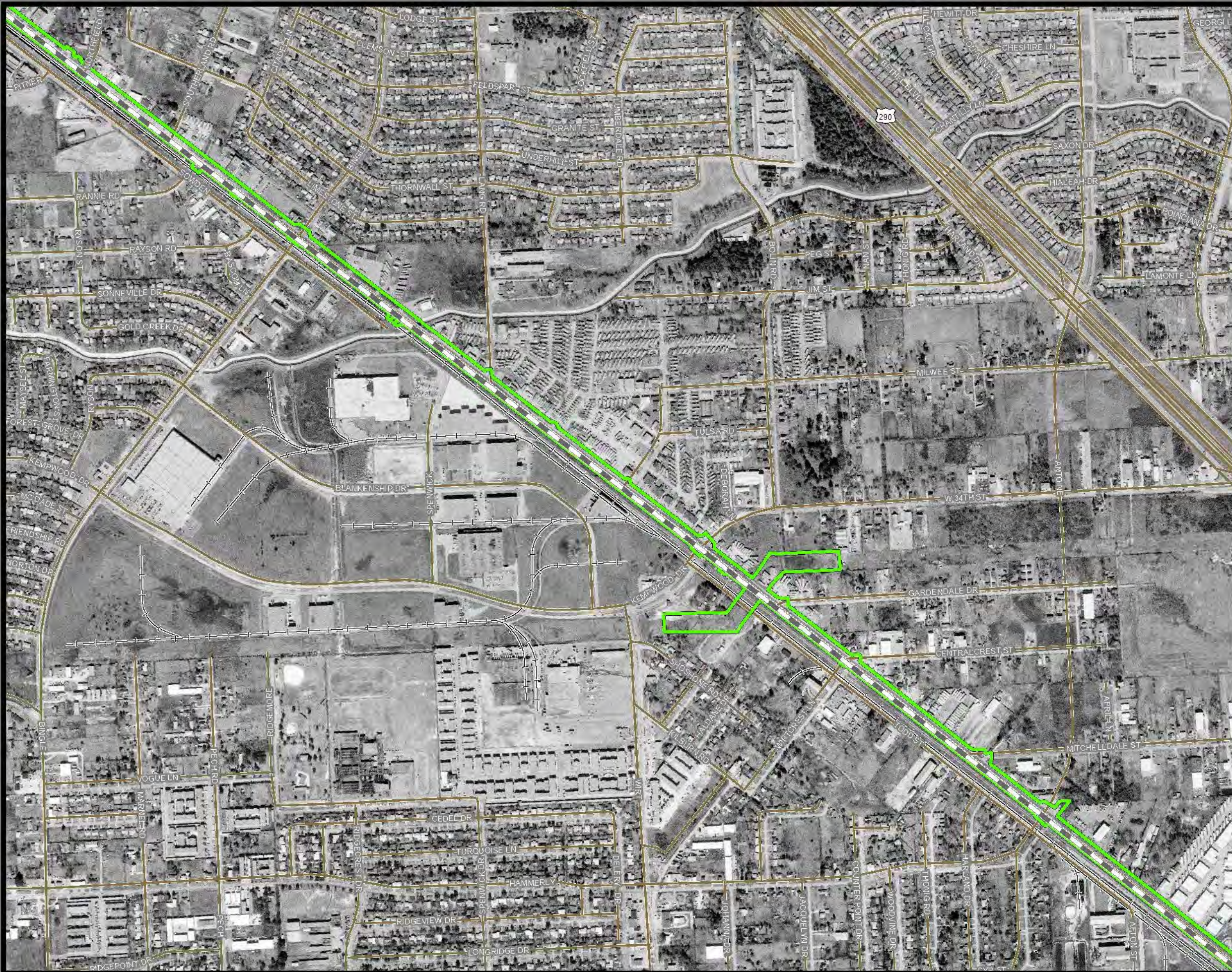
Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 21 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 251 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map
 Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



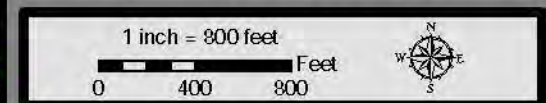


Dallas to Houston
 High-Speed Rail Project
 Texas Prairie Dawn Historical Imagery
 Segment 5
 Sheet 22 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 252 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



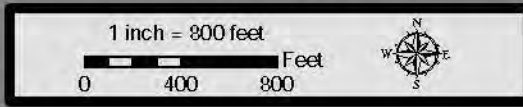


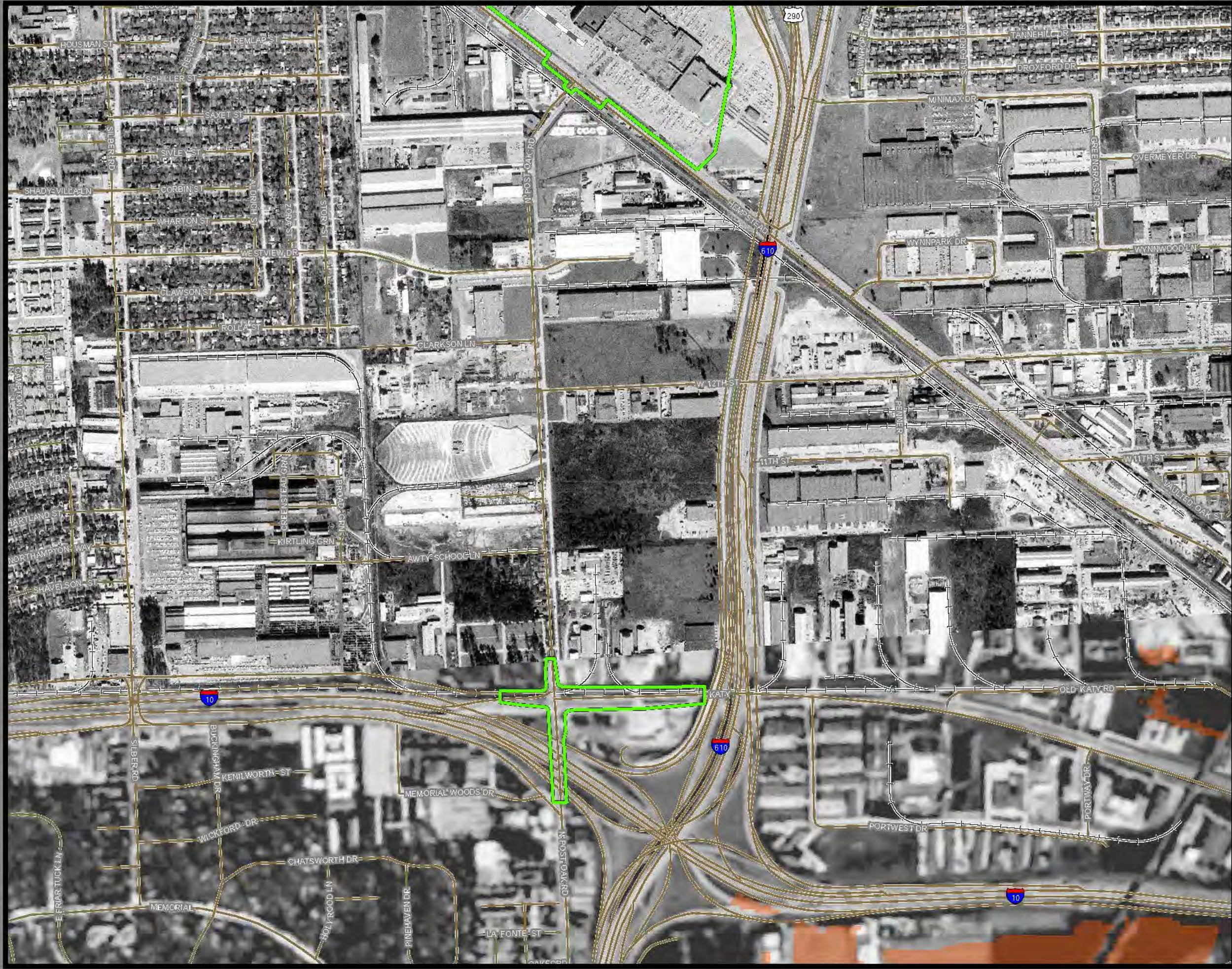
Dallas to Houston
High-Speed Rail Project
Texas Prairie Dawn Historical Imagery
Segment 5, Northwest Mall Terminal Option
Sheet 24 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 254 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989





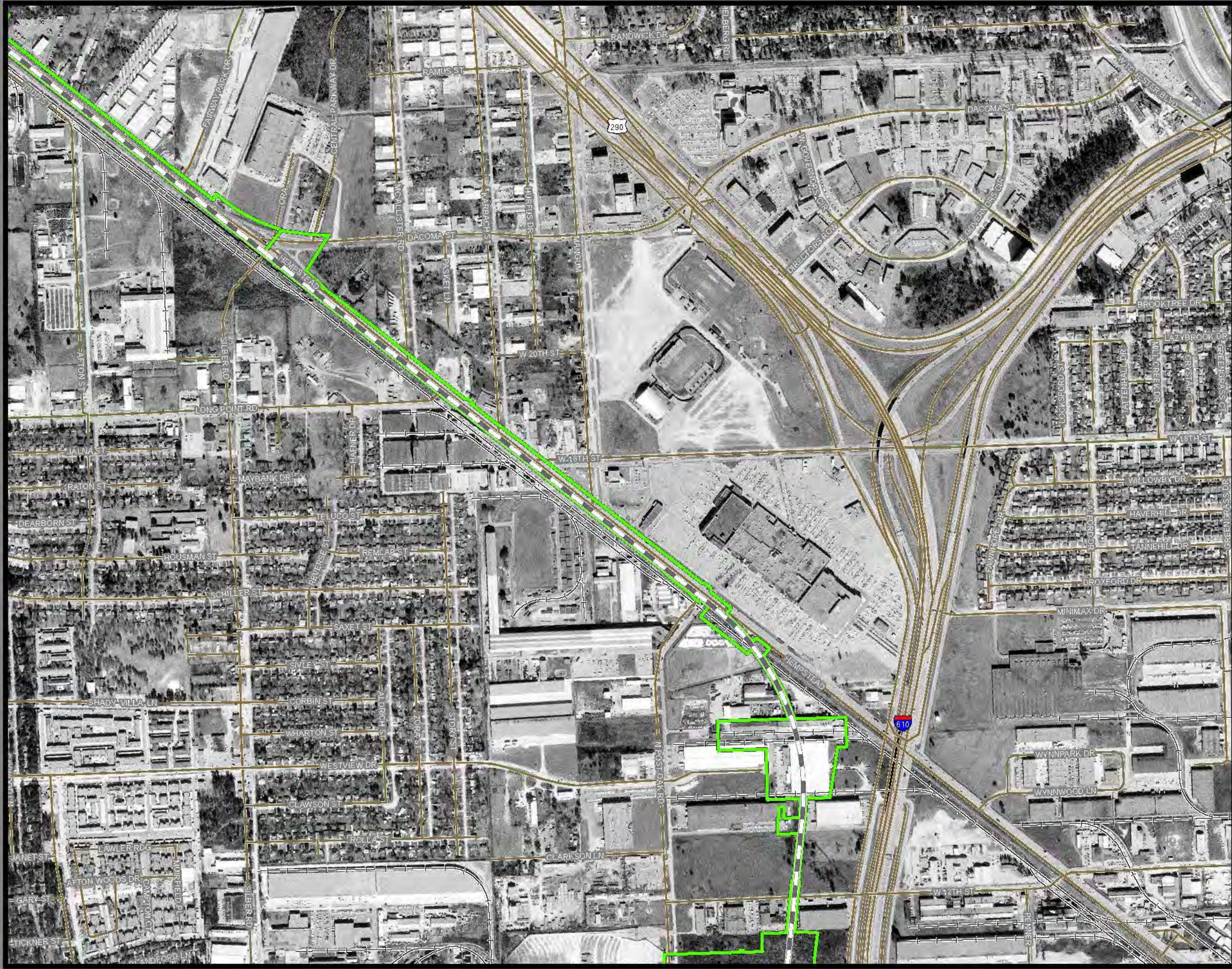
Dallas to Houston
 High-Speed Rail Project
Texas Prairie Dawn Historical Imagery
 Segment 5, Northwest Mall Terminal Option
 Sheet 25 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road
 - Texas Prairie Dawn (TXPD) Modeled Habitat

***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 255 of 257.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989



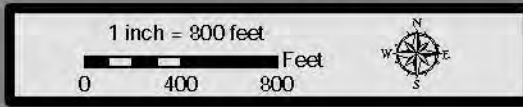


Dallas to Houston
High-Speed Rail Project
Texas Prairie Dawn Historical Imagery
Segment 5, Northwest Transit Center Terminal Option
Sheet 26 of 27

- Legend**
- Limits of Disturbance
 - Segment 5
 - Track Configuration
 - Viaduct
 - County Boundary
 - Railroad
 - Road


***This map book is a modified subset of the Natural Resources Mapbook in Appendix D of the EIS. This sheet corresponds with Sheet 266 of 267.

Data Sources: County Boundaries - US Census TIGER 2015; TXPD Modeled Habitat - AECOM Habitat Suitability Model 2016; Railroads - TxDOT 2015; Roads - TxDOT 2018; ESRI World Street Map Aerial Imagery: EDR Historical Imagery 1973, 1977, 1989




APPENDIX B – PHOTOGRAPHIC DOCUMENTATION

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 1	
Photographer: A. Hargrave	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 5 observed on parcel TX-MA-043.000 at 30.9810525334, -96.042749916 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.</p>	


Photograph No. 2	
Photographer: A. Hargrave	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 6 observed on parcel TX-MA-043.000 at 30.9810525334, -96.042749916 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.</p>	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 3	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 7 observed on parcel TX-MA-043.000 at 30.9810643212, -96.0427439488 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.</p>	

Photograph No. 4	
Photographer: A. Hargrave	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 8 observed on parcel TX-MA-043.000 at 30.9810385242, -96.0427194431 (NAD83). <i>S. cernua</i> individual located about a foot from individual 8.</p>	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 5	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 9 observed on parcel TX-MA-043.000 at 30.9810626679, - 96.0427669782 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	

Photograph No. 6	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 10 observed on parcel TX-MA-043.000 at 30.9810121089, - 96.0427026982 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 7	
Photographer: A. Hargrave	
Date: 11/02/2018	
Comments: Navasota ladies'-tresses (Spiranthes parksii) individual 12-16 observed on parcel TX-MA-043.000 at 30.9808511218, - 96.0426696113 (NAD83). Note the white-tipped bracts and green lateral lines on the petals	

Photograph No. 8	
Photographer: A. Hargrave	
Date: 11/02/2018	
Comments: Landscape photo of parcel TX-MA-043.000 where 21 Navasota Ladies 'Tresses were observed in 2018.	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No.
9

Photographer:
A. Hargrave

Date:
11/02/2018



Comments:
Photo of known plant associate Long Bract Wild Indigo (*Baptisia bracteata*) located on parcel TX-MA-043.000 where 21 Navasota Ladies 'Tresses were observed in 2018.

Photograph No.
10


Photographer:
J. Liggio


Date:
11/02/2018




Comments:
Navasota ladies' -tresses (*Spiranthes parksii*) individual 11 observed on parcel TX-MA-043.000 at 30.9808766386, -96.0426481345 (NAD83). Note the white-tipped bracts and green lateral lines on the petals


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 11	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 17 observed on parcel TX-MA-043.000 at 30.9808485172, - 96.0426509874 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	


Photograph No. 12	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 18 observed on parcel TX-MA-043.000 at 30.9808345783, - 96.0427184011 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 13	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 19 observed on parcel TX-MA-043.000 at 30.980841097, - 96.0427301679 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	


Photograph No. 14	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 20 observed on parcel TX-MA-043.000 at 30.9808422577, - 96.0427781337 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 15	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 21 observed on parcel TX-MA-043.000 at 30.9808260236, - 96.0427833045 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	


Photograph No. 16	
Photographer: J. Liggio	
Date: 11/02/2018	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 22 observed on parcel TX-MA-043.000 at 30.9808260236, - 96.0427833045 (NAD83). Note the white-tipped bracts and green lateral lines on the petals</p>	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 17	
Photographer: J. Liggio	
Date: 11/02/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 23 observed on parcel TX-MA-043.000 at 30.9808283444, - 96.0427840619 (NAD83). Note the white-tipped bracts and green lateral lines on the petals	

Photograph No. 18	
Photographer: J. Liggio	
Date: 11/02/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 24 observed on parcel TX-MA-043.000 at 30.9808283444, - 96.0427840619 (NAD83). Note the white-tipped bracts and green lateral lines on the petals	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 19	
Photographer: J. Liggio	
Date: 11/02/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 25 observed on parcel TX-MA-043.000 at 30.9810266131, - 96.0428461133 (NAD83). Note the white-tipped bracts and green lateral lines on the petals	

Photograph No. 20	
Photographer: A. Hargrave	
Date: 10/18/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 26 observed on parcel TX-MA-04-054.000 at 31.0685833333, - 95.9540027778 (NAD83). Note the insect damage.	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 21	
Photographer: A. Hargrave	
Date: 10/25/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 27 observed on parcel TX-FR- O4-099.000 at 31.7870388889, - 96.2440944444 (NAD83). Note the white-tipped bracts.	


Photograph No. 22	
Photographer: A. Hargrave	
Date: 10/25/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 28 observed on parcel TX-FR- O4-099.000 at 31.7871055556, - 96.2450416667 (NAD83).	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 23	
Photographer: A. Hargrave	
Date: 10/25/2018	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individuals 29 and 30 observed on parcel TX-FR- O4-099.000 at 31.7871277778, - 96.245025 (NAD83). Note the white-tipped bracts.	


Photograph No. 24	
Photographer: J. Liggio	
Date: 11/02/2018	
Comments: Nodding ladies'-tresses (<i>Spiranthes cernua</i>) observed on parcel TX-MA- 043.000.	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 25	
Photographer: A. Hargrave	
Date: 10/18/2018	
Comments: Landscape photo of parcel TX-MA-04-054.000 where 1 Navasota Ladies 'Tresses was observed in 2018.	


Photograph No. 26	
Photographer: A. Hargrave	
Date: 10/25/2018	
Comments: Landscape photo of parcel TX-FR-04-099.000 where 4 Navasota Ladies 'Tresses were observed in 2018.	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 27	
Photographer: S. Arnold	
Date: 11/01/2017	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 1 observed on parcel TX-MA-043.000 at 30.98066910, - 96.04268503 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.</p>	

Photograph No. 28	
Photographer: J. Liggio	
Date: 11/01/2017	
<p>Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 2 observed on parcel TX-MA-043.000 at 30.98066910, - 96.04268503 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.</p>	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 29	
Photographer: S. Arnold	
Date: 11/01/2017	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 3 observed on parcel TX-MA-043.000 at 30.97948577, - 96.04242967 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.	

Photograph No. 30	
Photographer: J. Liggio	
Date: 11/10/2017	
Comments: Navasota ladies'-tresses (<i>Spiranthes parksii</i>) individual 2 observed on parcel TX-MA-043.000 at 30.98066910, - 96.04268503 (NAD83). Note the white-tipped bracts and green lateral lines on the petals.	


Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 31	
Photographer: A. Hargrave	
Date: 3/11/2019	
Comments: View of potential large-fruited sand verbena habitat on parcel TX-LE-O4-075.000.	

Photograph No. 32	
Photographer: A. Hargrave	
Date: 3/12/2019	
Comments: View of potential large-fruited sand verbena habitat on parcel TX-FR-O4-011.000.	

Client: Texas Central Railway	Project Number: 60418787
Project Name: Dallas to Houston High Speed Rail Project	Site Location: Dallas, Ellis, Navarro, Freestone, Limestone Leon, Madison, Grimes Waller, and Harris Counties, Texas

Photograph No. 33	
Photographer: A. Hargrave	
Date: 3/11/2019	
Comments: Artificially maintained sandy area on parcel TX-FR-04-011.000.	

Photograph No. 34	
Photographer: A. Hargrave	
Date: 3/12/2019	
Comments: Artificially maintained sandy area on parcel TX-FR-04-011.000.	

APPENDIX C – SPECIES LIST FROM USFWS



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140

Arlington, TX 76006-6247

Phone: (817) 277-1100 Fax: (817) 277-1129

<http://www.fws.gov/southwest/es/arlingontexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

November 07, 2019

Consultation Code: 02ETAR00-2019-SLI-1890

Event Code: 02ETAR00-2020-E-00528

Project Name: Dallas to Houston High Speed Rail

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy

guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arlington Ecological Services Field Office

2005 Ne Green Oaks Blvd

Suite 140

Arlington, TX 76006-6247

(817) 277-1100

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Texas Coastal Ecological Services Field Office

17629 El Camino Real #211

Houston, TX 77058

(281) 286-8282

Project Summary

Consultation Code: 02ETAR00-2019-SLI-1890

Event Code: 02ETAR00-2020-E-00528

Project Name: Dallas to Houston High Speed Rail

Project Type: TRANSPORTATION

Project Description: Dallas to Houston High Speed Rail corridor

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/31.243362721025523N96.02342052327488W>



Counties: Dallas, TX | Ellis, TX | Freestone, TX | Grimes, TX | Harris, TX | Leon, TX | Limestone, TX | Madison, TX | Navarro, TX | Waller, TX

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
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Birds

NAME	STATUS
<p>Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i></p> <p>No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33</p>	Endangered
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758</p>	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058

Phone: (281) 286-8282 Fax: (281) 488-5882
<http://www.fws.gov/southwest/es/TexasCoastal/>
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To:

November 07, 2019

Consultation Code: 02ETTX00-2019-SLI-2135

Event Code: 02ETTX00-2020-E-00489

Project Name: Dallas to Houston High Speed Rail

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: <http://www.fws.gov/southwest/es/TexasCoastal/Map.html>. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website <http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is not likely to adversely affect - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek concurrence from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem health in the local area and avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that you implement the best management practices found at: <http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html>.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at <http://www.fws.gov/endangered/what-we-do/cca.html>.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at <http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html>.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidelines, we recommend you review information provided at <http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf>.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at <http://www.aplic.org/>.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: <http://www.fws.gov/habitatconservation/communicationtowers.html>, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: <http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html>.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List
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Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office

17629 El Camino Real #211

Houston, TX 77058

(281) 286-8282

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Arlington Ecological Services Field Office

2005 Ne Green Oaks Blvd

Suite 140

Arlington, TX 76006-6247

(817) 277-1100

Project Summary

Consultation Code: 02ETTX00-2019-SLI-2135

Event Code: 02ETTX00-2020-E-00489

Project Name: Dallas to Houston High Speed Rail

Project Type: TRANSPORTATION

Project Description: Dallas to Houston High Speed Rail corridor

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/31.243362721025523N96.02342052327488W>



Counties: Dallas, TX | Ellis, TX | Freestone, TX | Grimes, TX | Harris, TX | Leon, TX | Limestone, TX | Madison, TX | Navarro, TX | Waller, TX

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind related projects within migratory route. <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind related projects within migratory route. <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758</p>	Endangered

Amphibians

NAME	STATUS
<p>Houston Toad <i>Bufo houstonensis</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2206</p>	Endangered

Clams

NAME	STATUS
<p>Texas Fawnsfoot <i>Truncilla macrodon</i></p> <p>No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8965</p>	Candidate

Flowering Plants

NAME	STATUS
Large-fruited Sand-verbena <i>Abronia macrocarpa</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1882	Endangered
Navasota Ladies-tresses <i>Spiranthes parksii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1570	Endangered
Texas Prairie Dawn-flower <i>Hymenoxys texana</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6471	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.