Modern Streetcar Design in Texas
Climbing the Learning Curve

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Dallas Modern Streetcar

- Olive Street
  - McKinney to Bryan
- Districts
  - Uptown
  - Arts District
  - CBD
Where Does the Modern Streetcar Exist?

Seattle, WA

Tacoma, WA

Portland, OR

Dallas Arts District

• Landmarks
  – Winspear Opera House
  – Wyly Theatre
  – Nasher Sculpture Center
  – Meyerson Symphony Center
Deck Park

- **5.2 Acre Park**
  - Will span over Woodall Rodgers Freeway, connecting the Arts District and Downtown with Uptown and Victory Park
  - Public / Private partnership
  - Currently under construction

- **The Woodall Rodgers Park Foundation is conducting a $105 million campaign to design, build, program, and operate.**

Olive Street Extension
Proposed Initial Project

- Approximately 3,250 feet of new track
- 6 proposed stops
- Accommodates both historic and modern streetcars

- Phase 1 will have streetcar stops
- Phase 2 will have raised platforms for ADA access.

Design Considerations

- Design Intent
- Track Slab
- Typical Section
- H&V Alignment – Existing vs. Proposed
- Valley Gutters & Track Drains
- Special Paving Elements
- Rail: Tee vs. Girder
- System Elements
- Existing Bridges
- Private Utility Coordination
**Design Intent**

- Minimize Impacts
  - Limited Excavation
  - Pavement Removal: 1 lane
  - Utility Relocation

**Track Slab**

- Track Slab - Spans 10 feet
Typical Section

PROPOSED CONCRETE PAVEMENT

EXISTING ASPHALT OVERLAY OVER CONCRETE PAVEMENT

PROPOSED TRACK SLAB

TYPICAL SECTION
Mckinney Avenue to Woodall Rodgers Freeway

Olive Street at San Jacinto
H&V Alignments

- **Existing Street and Curb Alignment vs. Proposed Streetcar**
  - **Horizontal**
    - Offset curbs across intersections
    - More restrictive criteria on curves
    - Spirals on curves
  - **Vertical**
    - More restrictive criteria on vertical curves
    - Valley gutters at intersections
H&V Alignments

Valley Gutters & Track Drains
Special Paving Elements

Image provided by WRT

Tee Rail vs. Girder Rail

- Tee Rail

Girder Rail
Tee Rail vs. Girder Rail

Image showing difference in gap width between “Tee” Rail and “Girder” Rail

Images provided by LTK Engineers

System Elements

- Physical elements of the electrical system that provide power to the streetcar:
  - Overhead Contact System (OCS) – foundations, poles and contact wires
  - Traction Power Substation (TPSS)

- Major elements of the train control system:
  - Powered turn-outs
  - Controller cabinets
  - Signals
System Elements
Summary

- Stakeholder coordination
- Paving improvements beyond the track slab
- Restrictions related to bridges and structures
- Profile differences between rail and street
- Additional drainage requirements
- Special paving elements
- Traction Power Substation Location
- Type of rail

Modern Streetcar Plan for CBD