

Lessons Learned: LYNX Blue Line Extension Light Rail Transit Project



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RAIL CONFERENCE //



Presentation Outline

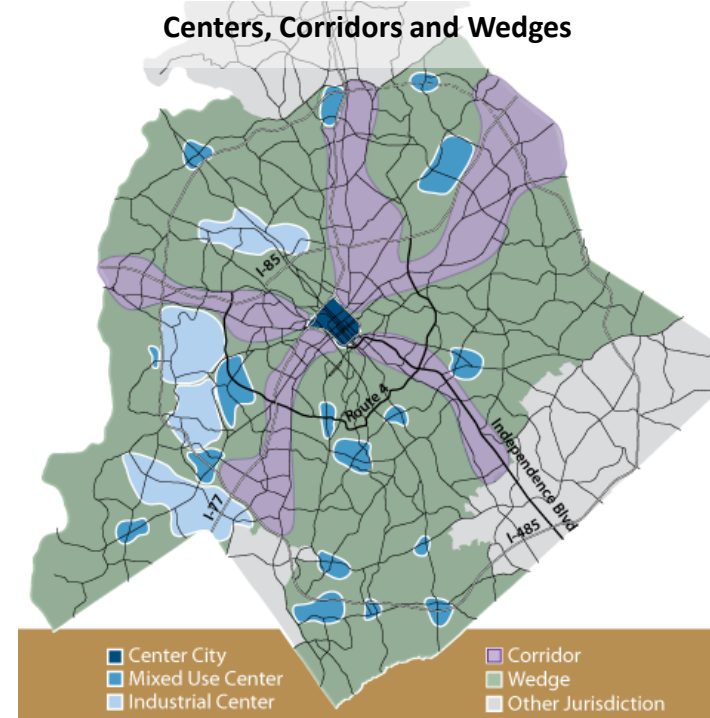
- Regional Context
- Project Overview
- Successes, Challenges and Lessons Learned
 - Design Opportunities
 - Stakeholder Coordination
 - Budget and Contingency Management



Growth Framework

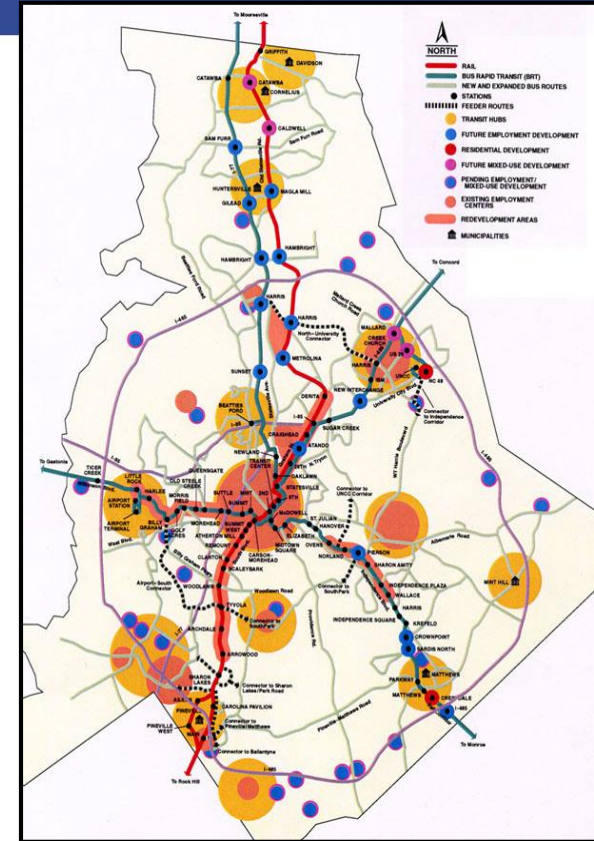


Centers, Corridors and Wedges



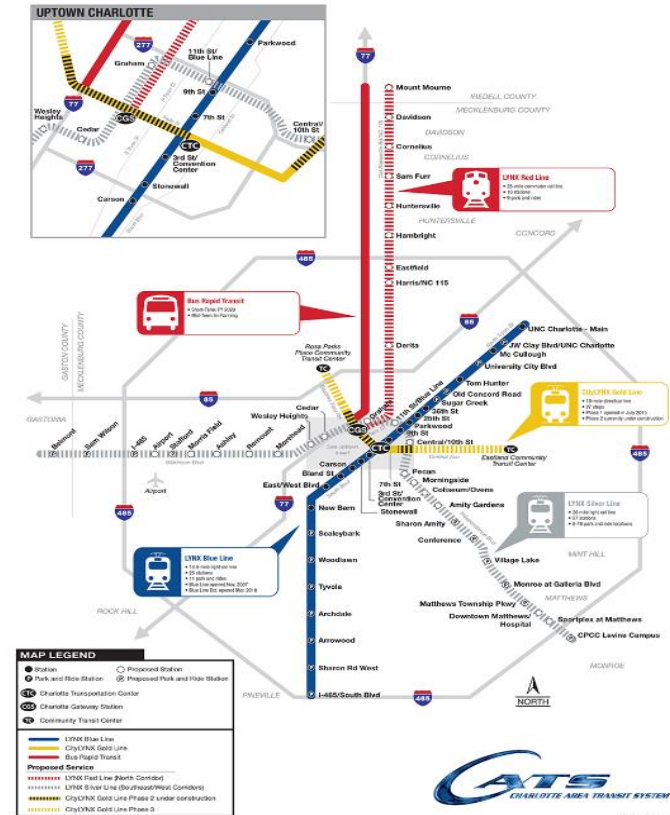
Transit Plan Goals

- ½ cent Sales Tax approved in 1998 by Mecklenburg County voters
- Transit Plan adopted by the Metropolitan Transit Commission in 2002 and updated approximately every 4 years
- Integrates rapid transit and mixed-used development along 5 transportation corridors
- Provides more transportation choices to meet mobility needs
- Supports sustainable growth for region



2030 Transit System Plan

- LYNX Blue Line Light Rail (2007)
- LYNX Blue Line Extension Light Rail (Opened March 2018)
- CityLYNX Gold Line Streetcar
 - Phase 1 (Opened 2016)
 - Phase 2 (under Construction)
- LYNX Red Line / North Corridor BRT
- LYNX Silver Line Light Rail



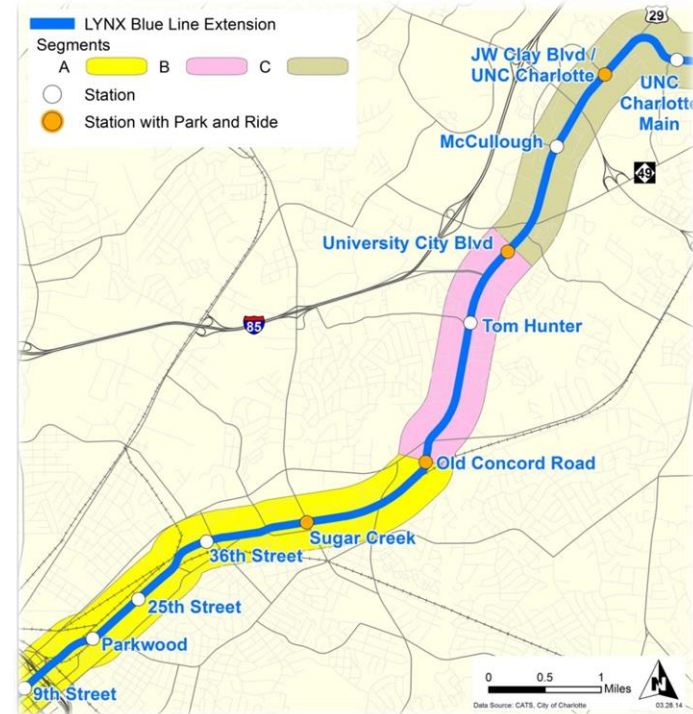
LYNX Blue Line

- Opened November 24, 2007
- Uptown Charlotte to I-485 at South Boulevard - 9.6 miles
- 15 stations (7 park & rides)
- Operates seven days a week from 5:00 a.m. to 1:00 a.m.
- Service frequency
 - Rush hour: 10 minutes
 - Non-rush hour: 15-20 min.
- Ridership exceeded projections



LYNX Blue Line Extension

- 9.3 miles, 11 stations
- 4 park and ride facilities
- Accommodates 3-car trains
- Increase in LRV fleet from 20 to 42
- Addition of second vehicle storage yard and operations facility
- 25,000+ daily riders by 2035
- 7.5 min. service frequency
- Design-Bid-Build project delivery



Project Benefits

- Connects Charlotte's Northeast Corridor
- Creates 18.6-mile North-South rapid transit spine
- Provide a transportation alternative in overburdened corridor
- Serves transit-dependent communities
- Connects 27,000 students at UNC Charlotte campuses
- LYNX Blue Line success is CATS' Lesson Learned



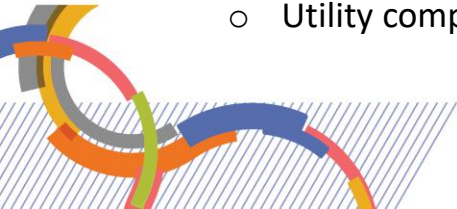
Milestone Schedule

Milestone	Date
FTA Permission to Enter Preliminary Engineering	Nov 2007
Record of Decision	Dec 2011
FTA PMOC Risk Assessment	Mar 2012
FTA Financial Capacity Assessment	Jun 2012
FTA Permission to Enter Final Design	July 2012
FTA Full Funding Grant Agreement	Oct 2012
Start of Construction	Jan 2014
Revenue Service Date	Mar 2018



Project Challenges

- Size and complexity of project
- Aggressive schedule since inception
- Involves many different entities for coordination of work
 - 17 different construction contracts
 - 3 Major Railroads
 - UNC Charlotte
 - Private Developer
 - City of Charlotte
 - NCDOT
 - Utility companies



Success: Partnerships Leveraged



36th Street Grade Separation – NCDOT, NCRR, Norfolk Southern

UNC Charlotte Alignment
and Station



Lessons Learned: Schedule

- Ongoing communication critical to address third party requirements & schedules
 - Utilities
 - Railroads
 - University
- Contract amendments with Civil A and Civil B/C to recover schedule affected by coordination issues (primarily private utilities and railroads)
- Public outreach and communication

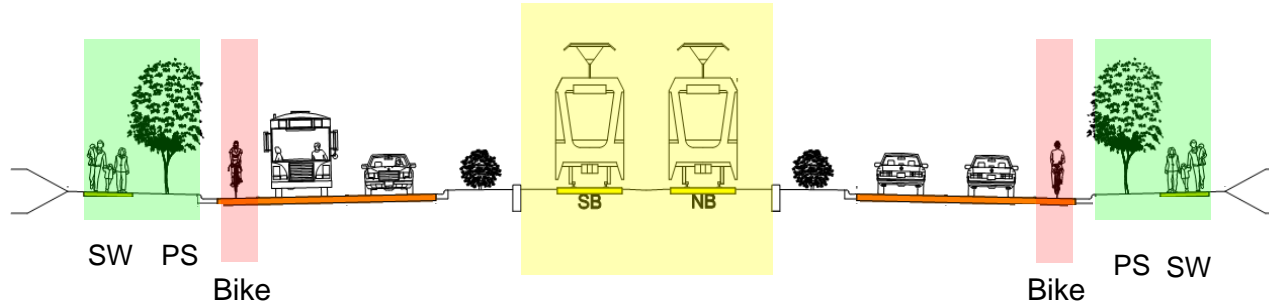


Design Success: Transformative Project

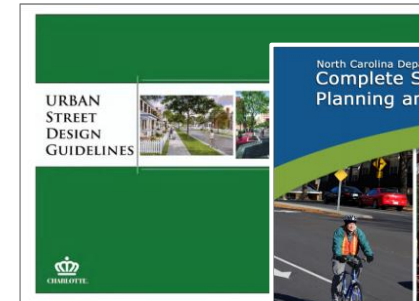
- Transformed North Tryon Street into a “Complete Street”
- Implemented an urban design framework to reduce community impacts
- Stimulated economic revitalization and transit-oriented development :
 - \$790 million in new and proposed development since 2011



Multi-modal Opportunities



- + Light rail
- + Continuous & wider sidewalks
- + Continuous & wider planting strips (trees)
- + Bike lanes



Urban Design Framework

- Design criteria to provide guidance for treatment of BLE infrastructure that have community impacts
- Recommends design treatments for highly visible areas outside the transit station
- Developed cooperatively by CATS and City Planning Dept.



UDF Guidelines Application

Walls and Bridges



Fencing and Barriers



Trackway/Pedestrian Crossings

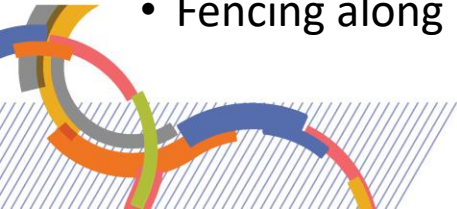


System Elements



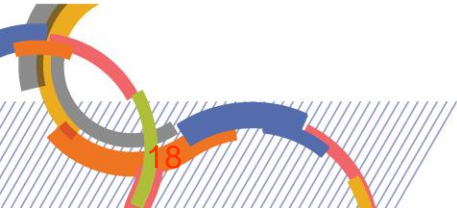
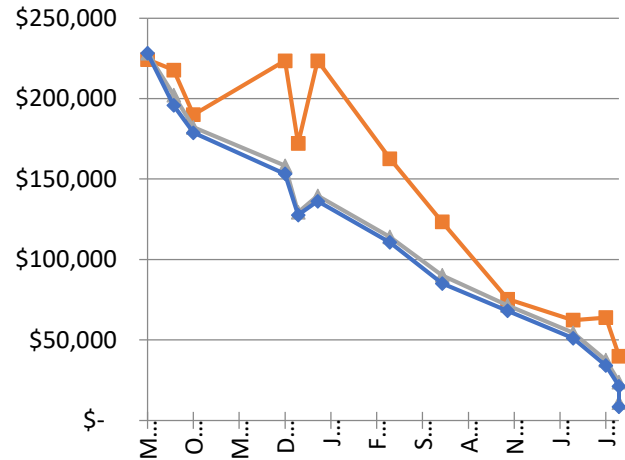
Lesson Learned: Safety is Priority

- Protected corridor
 - Dedicated guideway for light rail
 - Gated crossing protection at all at-grade intersections
 - Major intersections grade separated
- Pedestrian protection
 - Sidewalks throughout
 - Pedestrian gates at non-station crossings along N. Tryon St.
 - Pedestrian bridges from parking garages
- Fencing along both sides of light rail in median



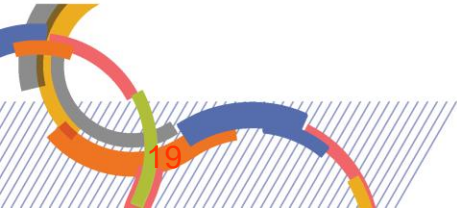
Success: Budget and Contingency Management

- \$1.16 Billion budget
 - 50% FTA, 26% NCDOT, 24% CATS
- Opened on-time and under budget
- Used an internal risk management process to identify risks and mitigation plans early
- Advanced design to 65% before finalizing budget
- Used project management software to improve transparency, reporting and accountability



Lessons Learned: Change Control

- Minimize design changes during construction
- Ensure adequate resources for Contract Administration and Project Controls
- Clearly define Change process and requirements and train project team
- “If it wasn’t documented, it didn’t happen”



Keep Building on Success



Questions?

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