

**CITIZENS TRANSIT ADVISORY GROUP (CTAG)**  
**Meeting Summary**  
**December 15, 2015**  
**DISCUSSION SUMMARY**

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Present: Rob Watson, CTAG Co-Chair  
Melvin Feliu, CTAG Co-Chair  
Robert Padgett, City Council  
Robbie Lowrance, Town of Cornelius  
Todd Steiss, Town of Huntersville  
Matt Covington, Mecklenburg County  
Jennifer Braganza, Town of Pineville

Staff: Olaf Kinard, Jason Lawrence, David McDonald, Paulus Ford  
Meeting time 7:30 a.m. – 9:00 a.m.

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**I. Call to Order**

Rob Watson, CTAG Co-Chair, called the meeting to order at 7:42 a.m.

**II. Approval of October 20, 2015 meeting summary**

The meeting summary was approved with a correction to #5.

**III. Fare Collection Technology Overall System Strategy**

Olaf Kinard, Marketing & Communications Director presented the Fare Collection Initiative (see attached presentation). Fare collection technology is a part of the budget recommendation and this is a potential fare increase year. So this is needed knowledge as the budget process goes into its process cycle.

**IV. Southeast Corridor Update**

Jason Lawrence, CATS' Project Manager presented the Southeast Corridor Update (see attached presentation).

**V. Introduction of New CTAG Members**

Joining CTAG was Melvin Feliu, City of Charlotte Mayor appointment; Robert Padgett, City Council Appointment; and Robbie Lowrance, Town of Cornelius appointment.

**VI. CEO's Report**

- None this meeting

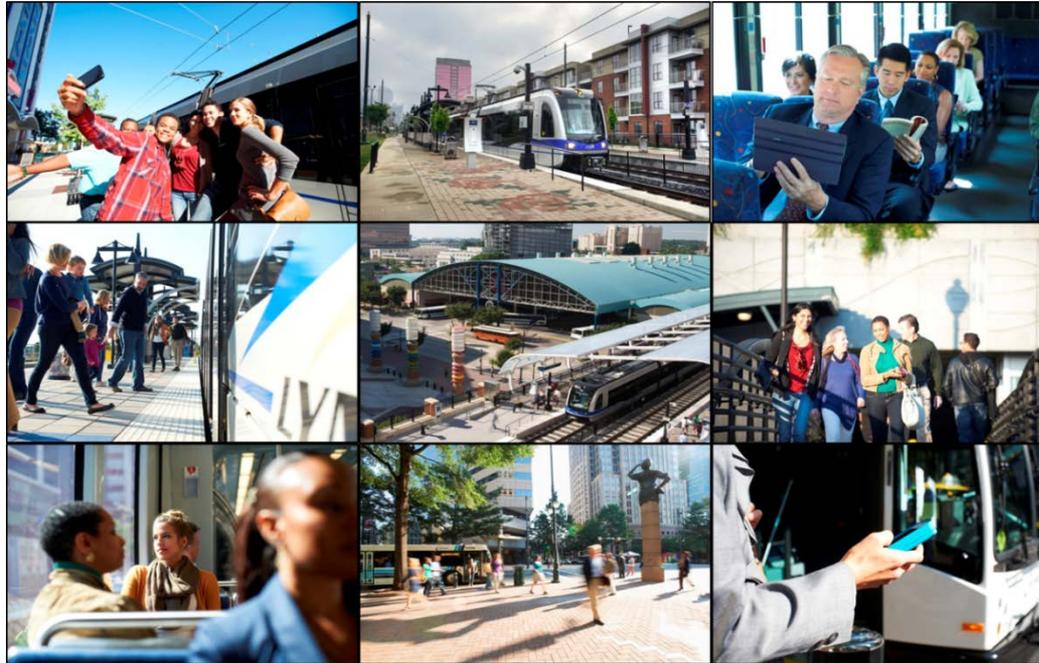
**Adjourn**

The meeting was adjourned at 9:01am

NEXT CTAG MEETING: JANUARY 19, 2016 AT 7:30 AM



# CATS Fare Collection Technology Strategy



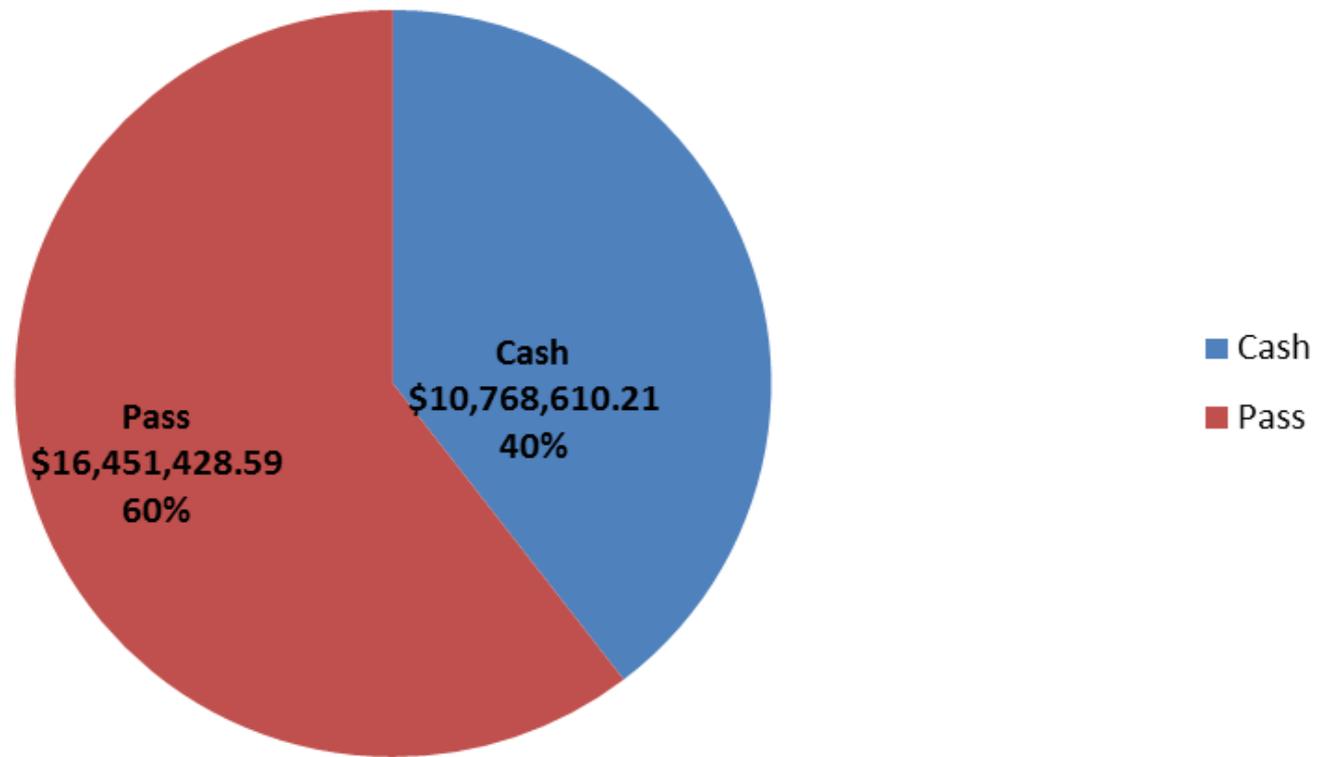
**Olaf Kinard**

**Director - Marketing, Communications & Technology**

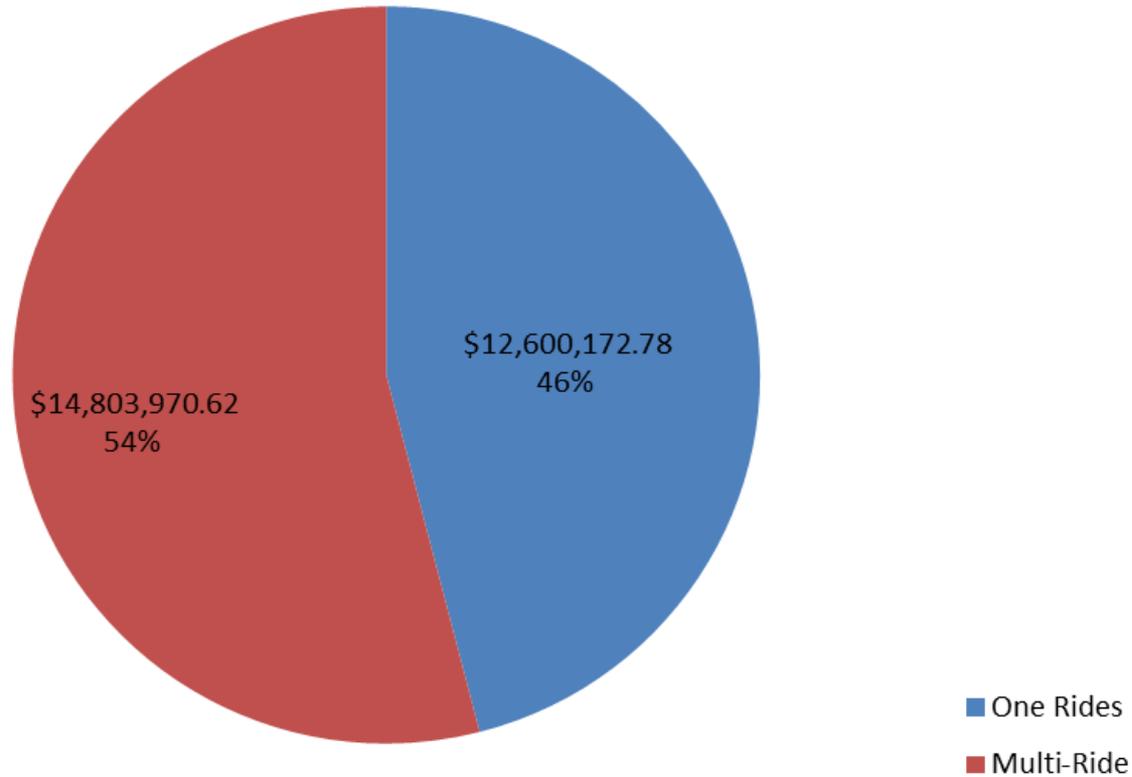
**CTAG Meeting**

**December 15, 2015**

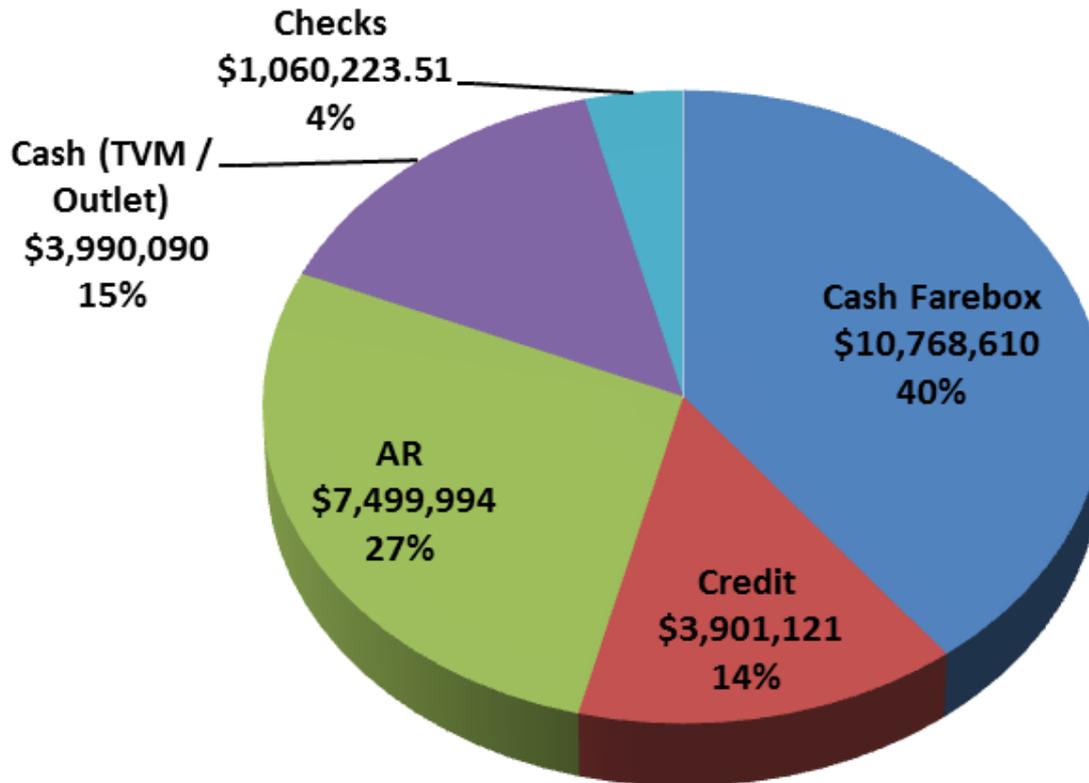
## CATS FY2014 Rider Media Type



## CATS FY2014 Ride Type



## CATS FY2014 Revenue by Payment Type



- Bus fareboxes installed in 1998
- Based on mid-1990's technology
- Supports:
  - Cash
  - Magnetic stripe passes
  - Tokens
- Limitations:
  - Cannot determine bill type
  - Cannot produce change passes
  - Cannot accept contactless, mobile payment, barcodes, NFC (Apple Pay, Google Wallet, etc.)
- Many fareboxes are recycled and outlive buses



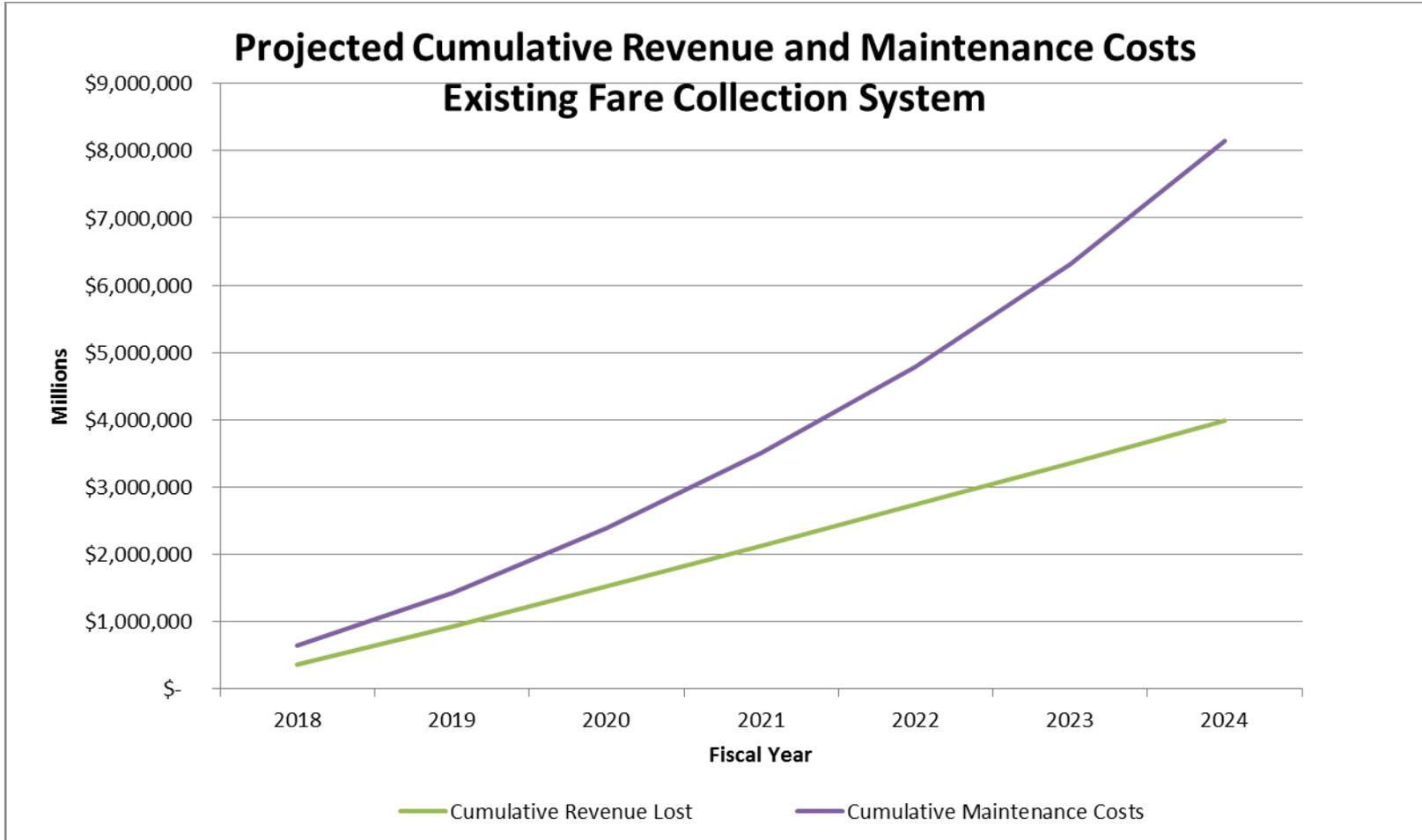
- TVMs installed in 2006-2007
- Based on early 2000 technology
- Supports:
  - Cash
  - Debit / Credit
  - Token
- Issues magnetic passes only
- Limitations:
  - No contactless
  - No mobile payment
  - No change card / pass



# Unreliable Technology

2010		2011		2012		2013		2014		Cumulative Growth Rate	
Maintenance Hours	Work Orders	Maintenance Hours	Work Orders								
49.8%	-18.5%	6.4%	7.2%	25.6%	-26.4%	-20.8%	-20.9%	16.1%	129.5%	84%	17%
				6.8%	7.4%	43.2%	32.7%	35.2%	49.1%	107%	113%

- Hardware maintenance has increased at a high rate on both systems over the past several years
- Maintenance requires additional man hours to replace components in field, refurbish at the maintenance shop, etc.
- Results in lost revenue, ridership counts and increased maintenance costs



NFC = Near Field Communications



Debit / Credit & EMV



Contactless / Smartcard



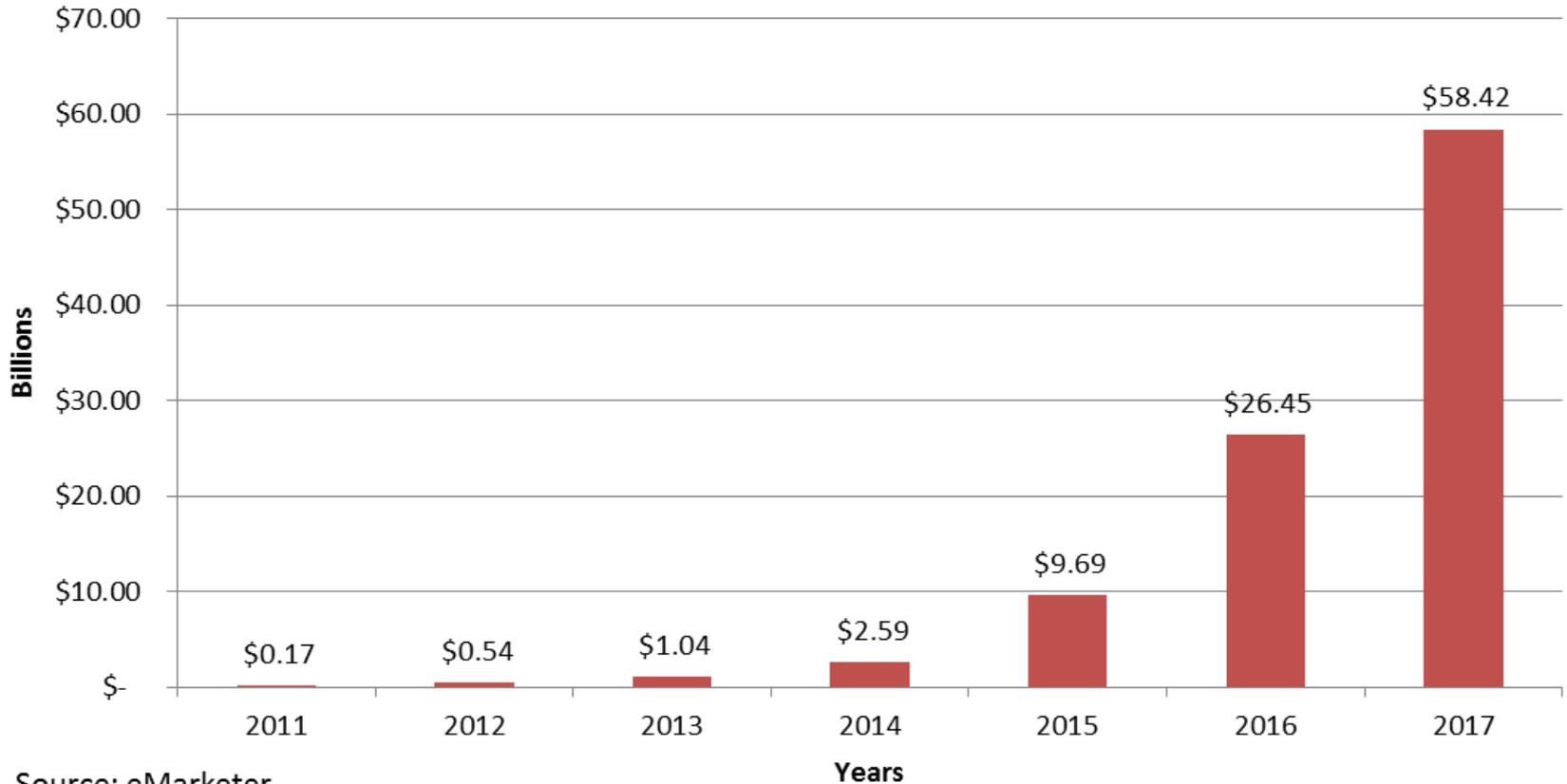
## Mobile Payment



## QR Code / Barcode



## US Proximity Mobile Payment Transaction Value



Source: eMarketer



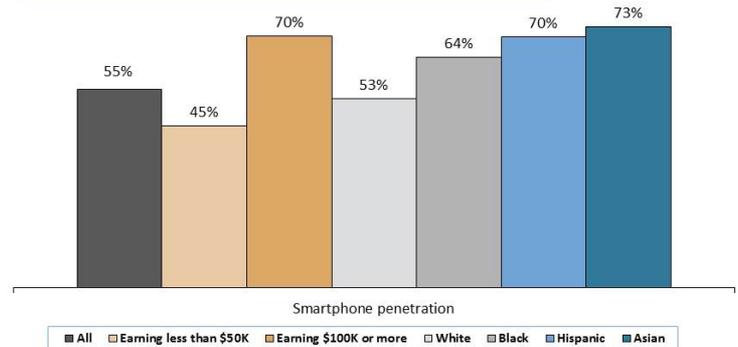
## Minorities Are More Likely than Whites to Own Smartphones



**U.S. Adult Smartphone Penetration**  
(Base = All respondents)

*Smartphone Owners*

**Age:** 75% of 18–34 year olds, 66% of 35–44, 53% of 45–54, 40% of 55–64, 26% of age 65+  
**Race:** 73% Asian, 70% Hispanic, 64% Black, 53% White  
**Income:** 70% of 100K+, 63% of \$75–99K, 57% of \$50–75K, 45% of <\$50K



Source: Mercator Advisory Group CustomerMonitor Survey Series, Payments, 2013, Question S3

© 2013 Mercator Advisory Group

Public Transit has become one of the top usage for mobile payment



## 39% MOBILE PAYMENTS USERS ARE MILLENIALS



**39%**  
MILLENIALS  
Age: 18-26



**31%**  
GEN-XERS  
Age: 27-39



**18%**  
YOUNG BOOMERS  
Age: 40-50



**12%**  
SENIORS  
Age: 51+

- 50% of CATS customers are Millennials and Gen-Xers.
- Attracting and keeping this next generation of customers requires new technology

Ticket Vending Machines purchased for BLE with option to replace TVMs on existing Blue Line



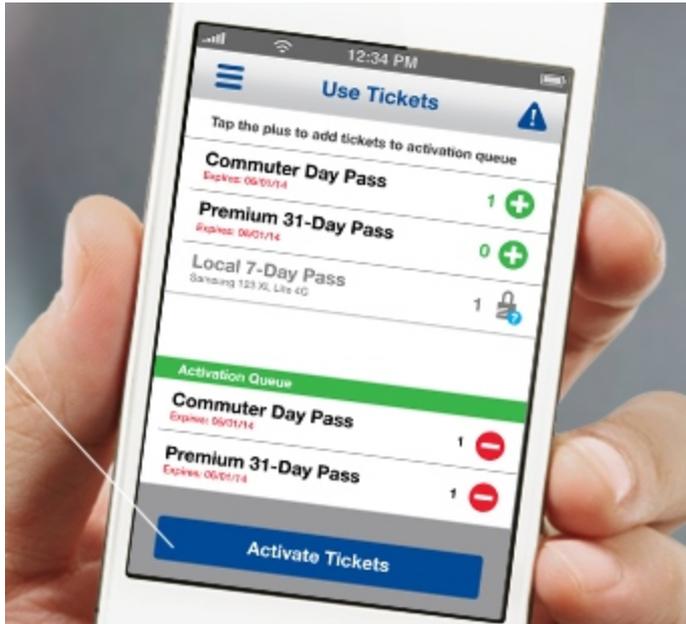
- Contactless
- Cash
- Magnetic
- Change card



- RFP for farebox replacement currently out awaiting responses
- Replacement in late 2016 early 2017

- Contactless
- Barcode reading
- Cash
- Magnetic
- Change card





- Mobile app implementation with completion of TVM and Farebox installations
- Requires barcode reader on buses and fare inspectors device



- Gold Line Phase 2 will include fare collection system
- During next design phase determine platform or on-board fare collection or some combination
- Validators on board vehicles

- Limited pass types
- Exact change or change card / pass
- Capable of debit/credit



Project	Estimated Cost	Allocated Budget
BLE-TVM	\$3,700,000	\$3,700,000
Blue Line – TVM	\$3,400,000	\$3,400,000
Farebox	\$7,500,000	\$7,500,000
Gold Line	\$2,000,000	Determined by 100% design
STS	\$1,000,000	\$1,000,000
Infrastructure	\$700,000	\$700,000
<b>Total Estimated Investment</b>	<b>\$18.3 million</b>	<b>\$16,300,000</b>

Implementation to final infrastructure requires correct timing of financials, staff resources and manufacturing

2016 – 2017

- Install BLE TVMs
- Procure and install bus fareboxes
- Migrate systems to new equipment and operate with existing payment methods and passes
- Make final determination on Gold Line system
- Exercise option to replace TVMs on Blue Line
- Begin discussions with Concord on contactless revenue share with seamless passes

2018 – 2019

- Implement mobile payment
- Procure and install Gold Line fare collection system
- Begin contactless implementation with institutions
- Establish backhouse system for wide-spread distribution of contactless cards

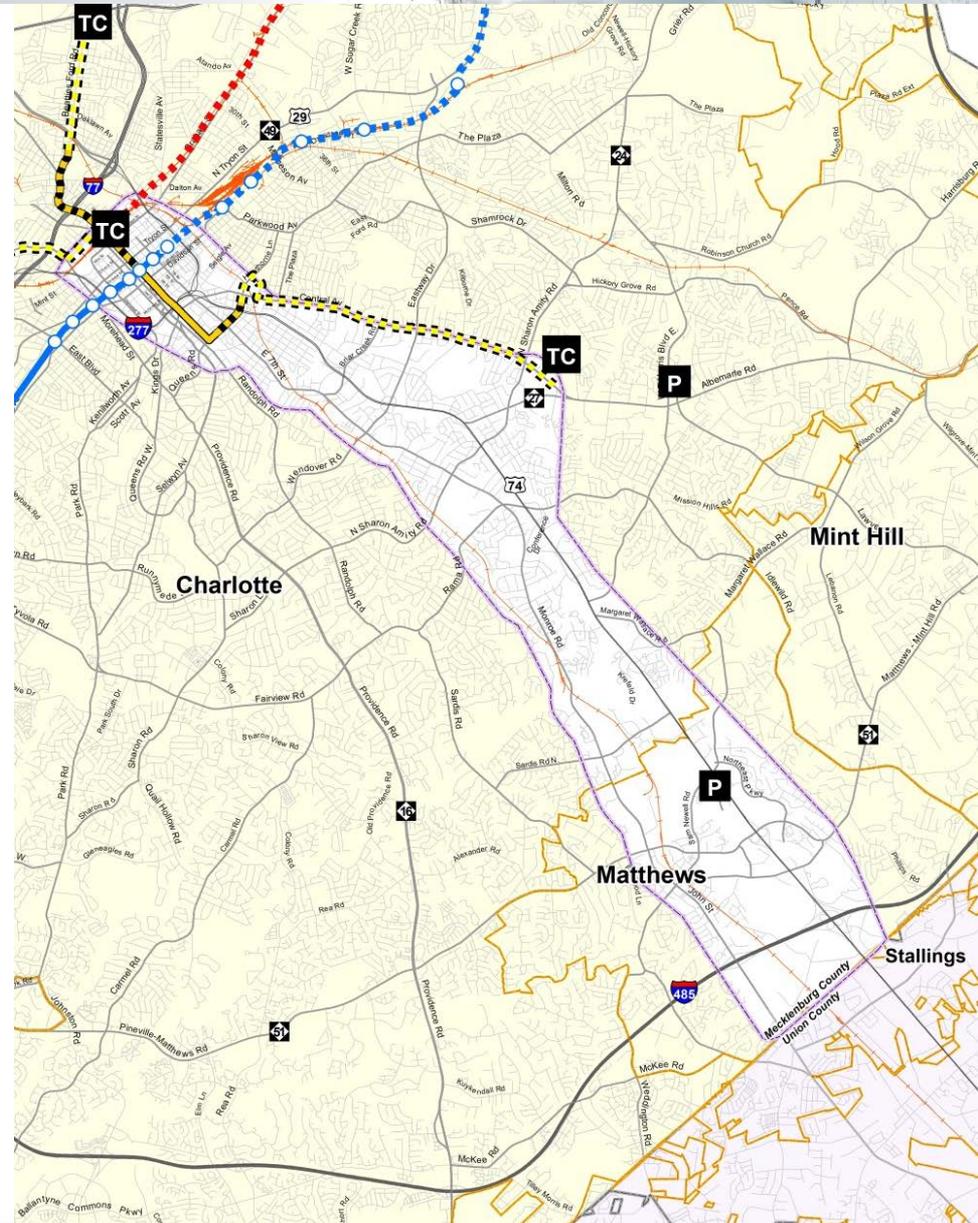




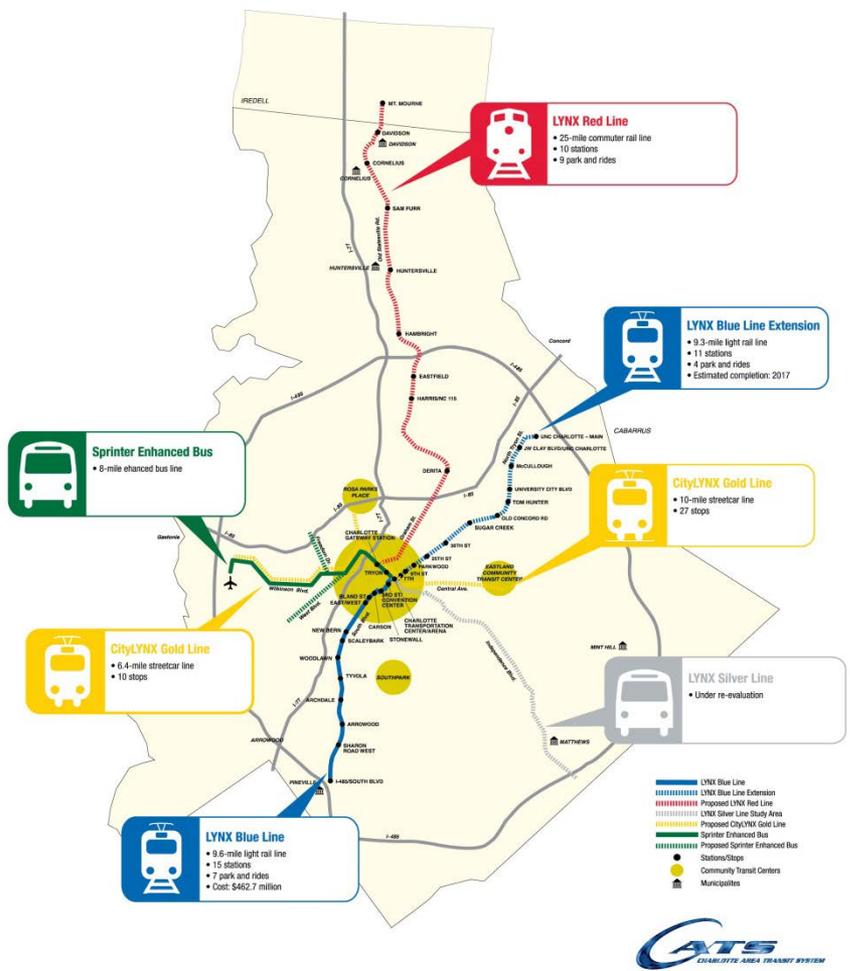
# Southeast Corridor Transit Study

Citizen Transit  
Advisory Group

December 15, 2015



# 2030 Transit System Plan Status



## Operating

- LYNX Blue Line Light Rail Service
- Sprinter Airport Enhanced Bus Service
- CityLYNX Gold Line Phase 1

## Under Construction

- LYNX Blue Line Extension

## Under Design

- CityLYNX Gold Line Phase 2
- Charlotte Gateway Station Track and Bridge

## Under Study

- LYNX Silver Line Rail Technology/Alignment
- Charlotte Gateway Station

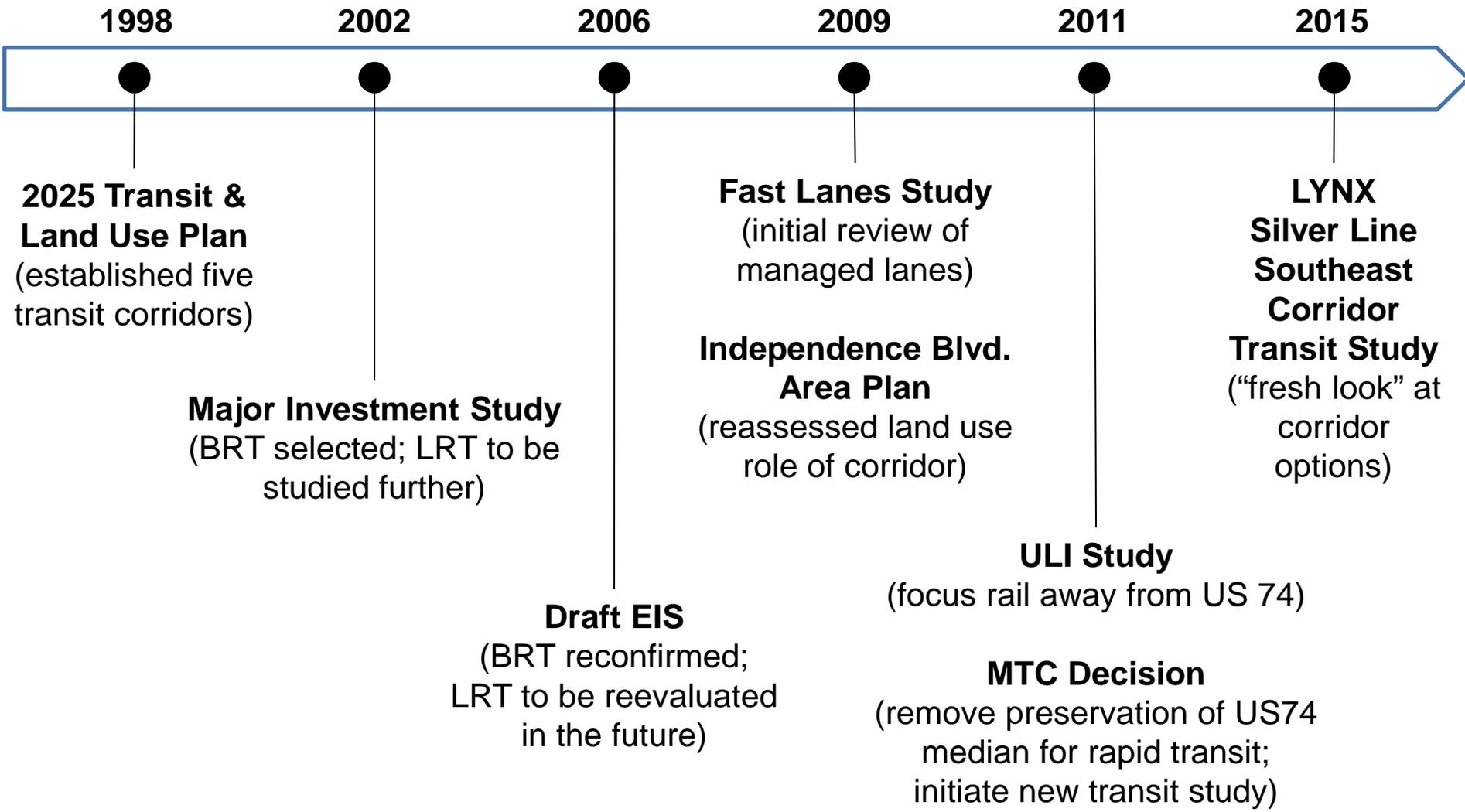
## Unfunded

- LYNX Red Line
- CityLYNX Gold Line Extensions: Beatties Ford Rd, Central Ave, and Airport
- LYNX Silver Line

02/15



# Southeast Corridor Planning History

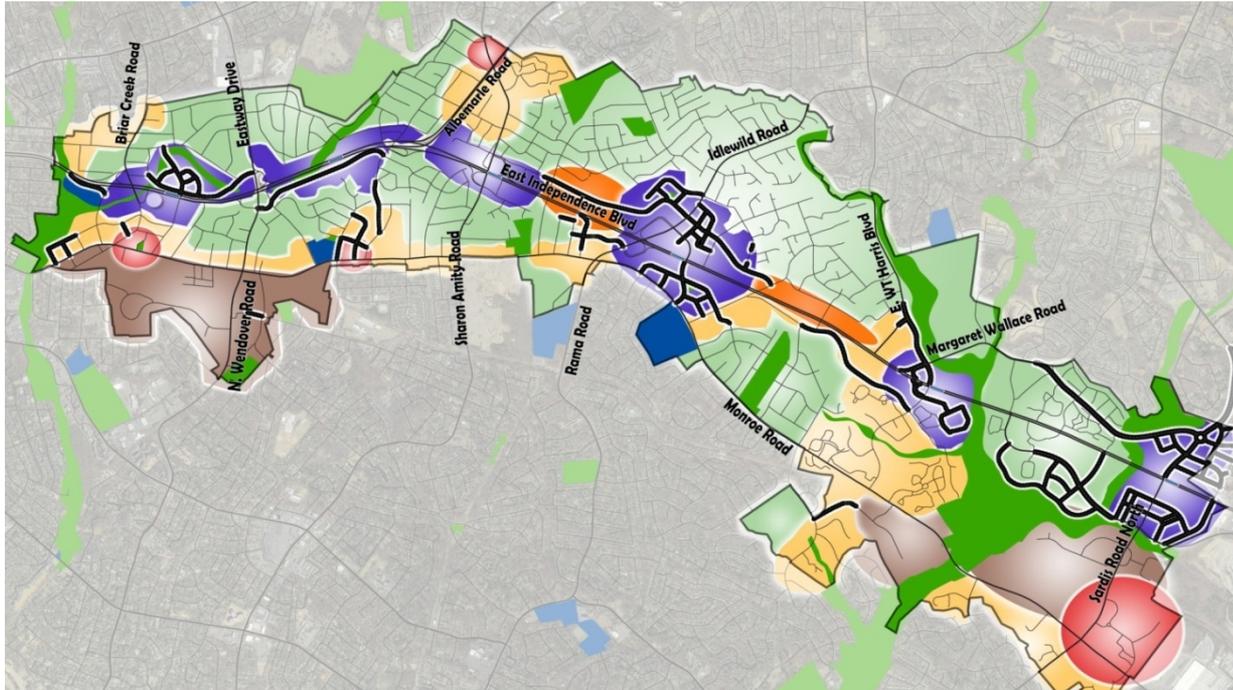


# Independence Boulevard Area Plan

## Key Land Use and Transportation Principles



### KEY PLAN ASSUMPTION: Area Plan DOES NOT reconsider transportation planning decisions

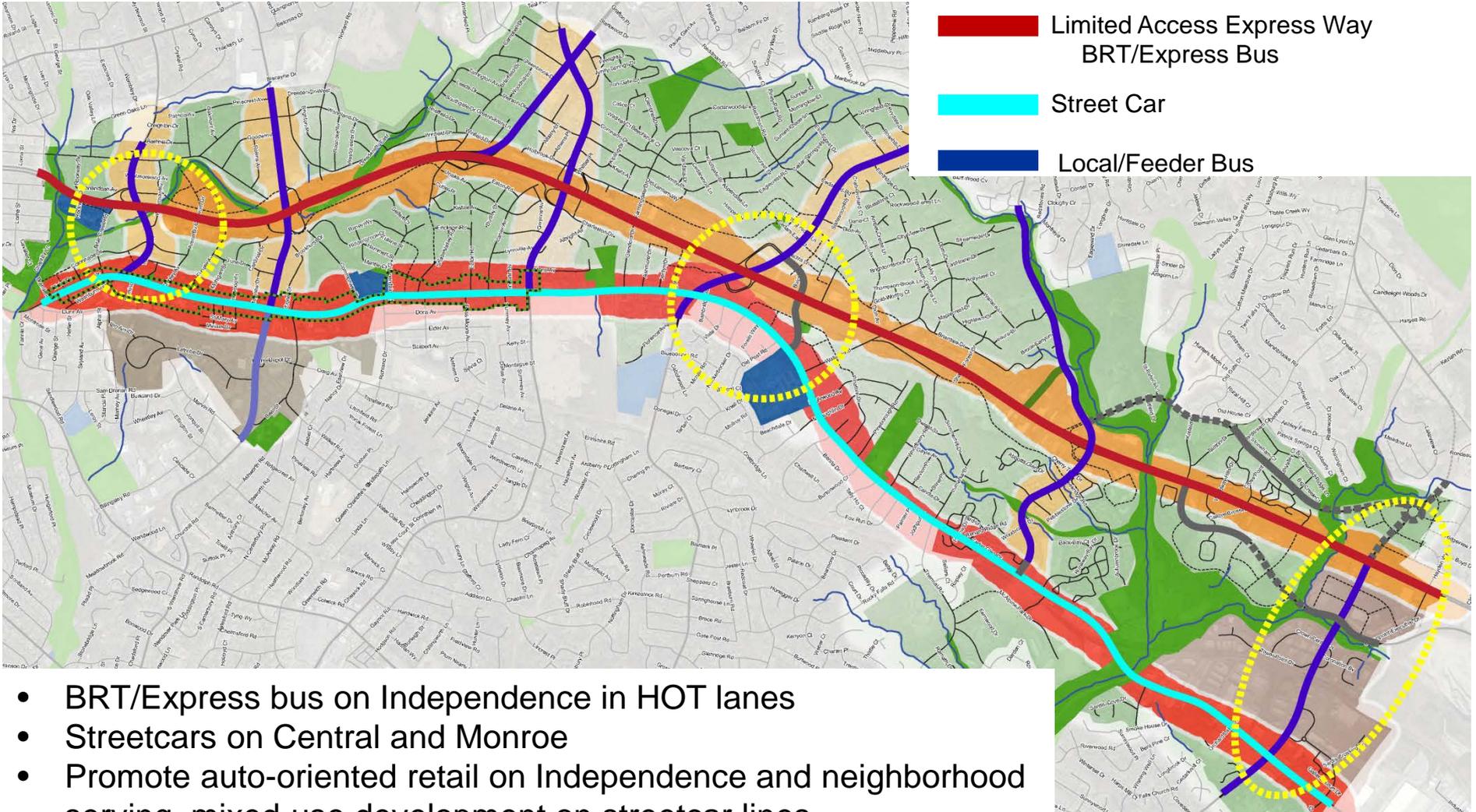


1. Strengthen and Build Neighborhoods
2. Create Nodes
3. Reclaim/Showcase Natural Systems
4. Orient Toward Monroe and Central
5. Leverage Opportunities
6. Provide Transportation Choices
7. Balance Neighborhood, Community, and Regional Needs
8. Define U.S. 74/Transportation Vision

# Key ULI Recommendations



-  Limited Access Express Way  
BRT/Express Bus
-  Street Car
-  Local/Feeder Bus



- BRT/Express bus on Independence in HOT lanes
- Streetcars on Central and Monroe
- Promote auto-oriented retail on Independence and neighborhood serving, mixed-use development on streetcar lines



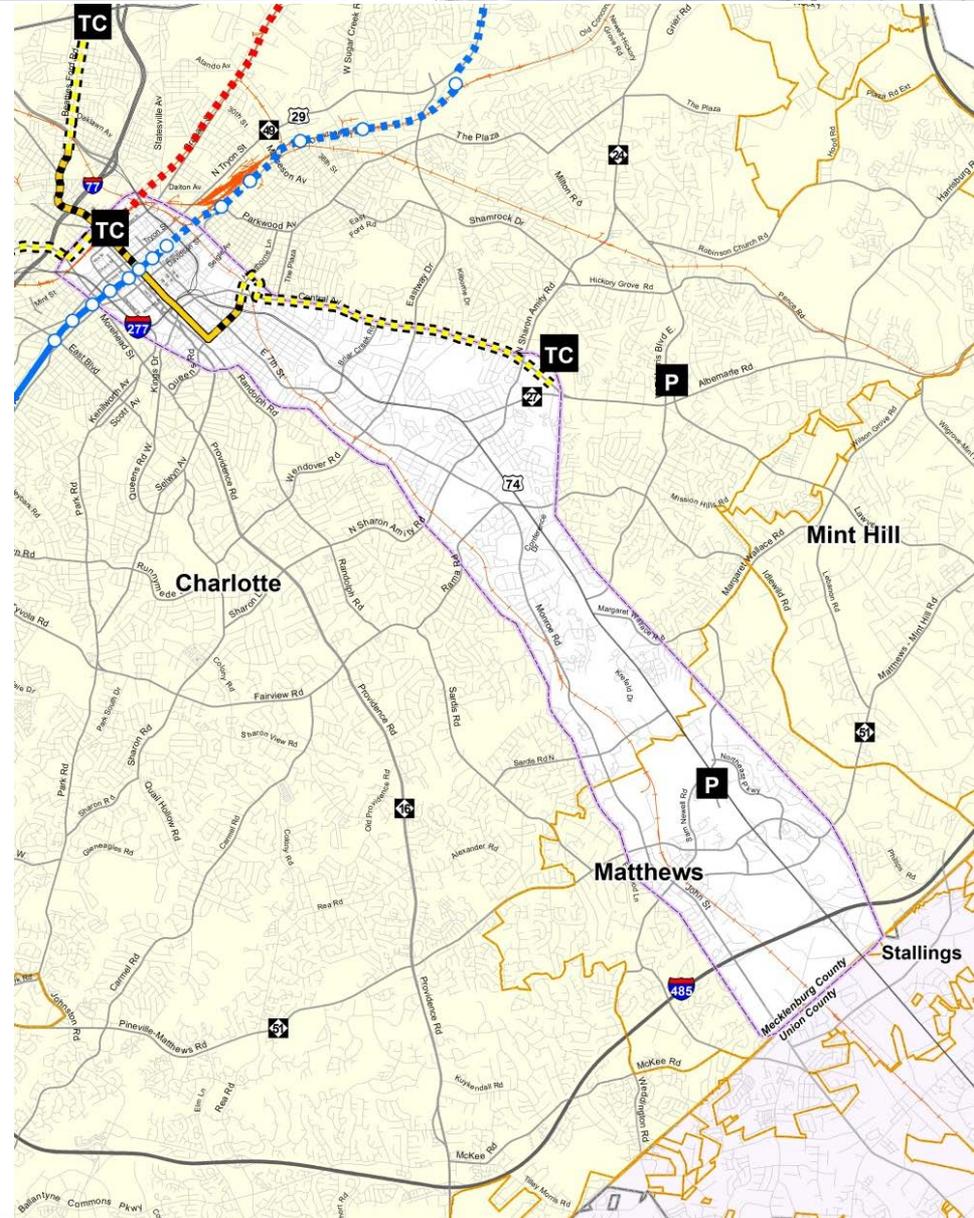
The MTC in 2011 passed the following actions that directed CATS staff to:

- Remove special provisions in the 2030 Transit System Plan that required preservation of Rapid Transit in the median of Independence Blvd.
- Work closely with NCDOT and Charlotte Department of Transportation (CDOT) to incorporate bus services into the design of the Independence Blvd Managed Lanes.
- Bring back a process and plan/schedule for an alignment study to evaluate a rail transit alignment on the Southeast Corridor that is not in the median of Independence Blvd.
- Ensure that the alignment study will review the technologies of light rail, streetcar and commuter rail, and recommend a rail transit alignment, which will involve examining all potential rail alternatives in the corridor, including those previously studied.

# Study Goals



- Define a rail fixed guideway alignment that serves future transportation needs and promotes the land use plans and polices of the Independence Blvd Area Plan and the Town of Matthews.
- Provide interim transit strategy that utilizes the future managed lanes proposed on Independence Blvd.
- Coordinate with land development strategies to protect and preserve the rail fixed guideway alignment.



# How is this study different?



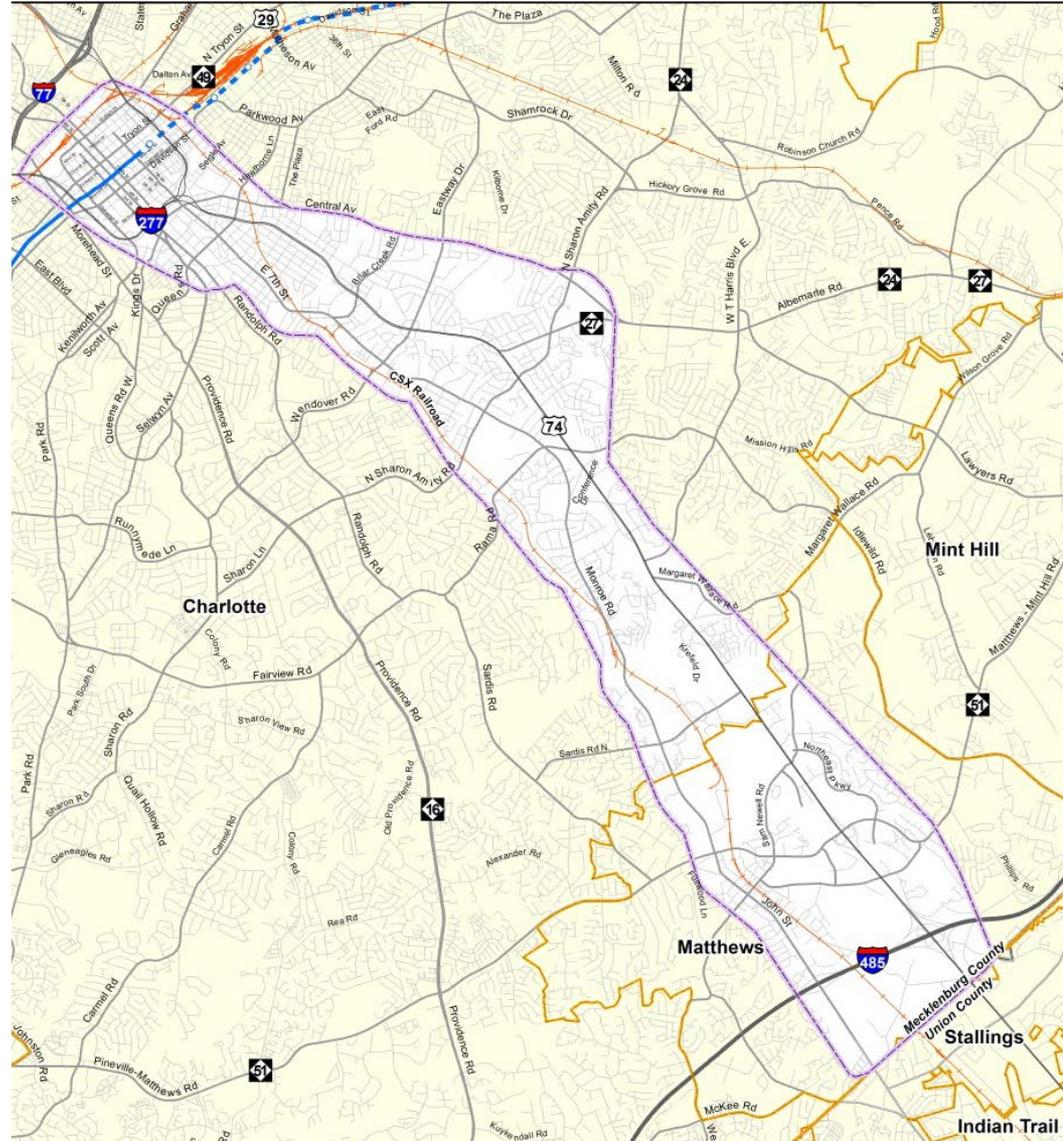
## The study is...

A long-term view of a transit vision for the Southeast Corridor



## The study is not...

Intended to identify a “shovel ready” rail project”



# How is this study different?



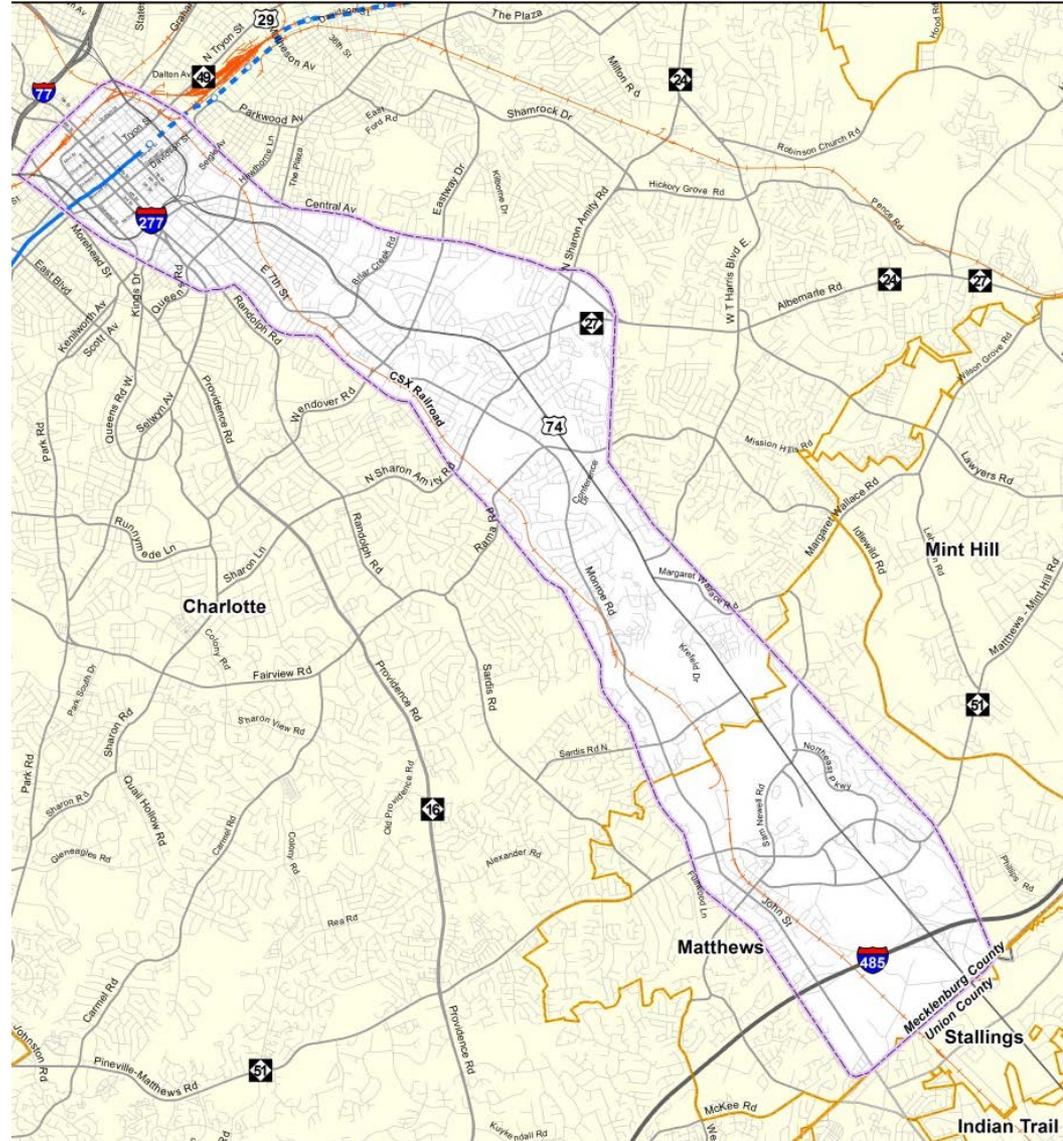
**The study is...**

A definition of rail alignment and technology



**The study is not...**

A fully detailed and designed rail project



# How is this study different?



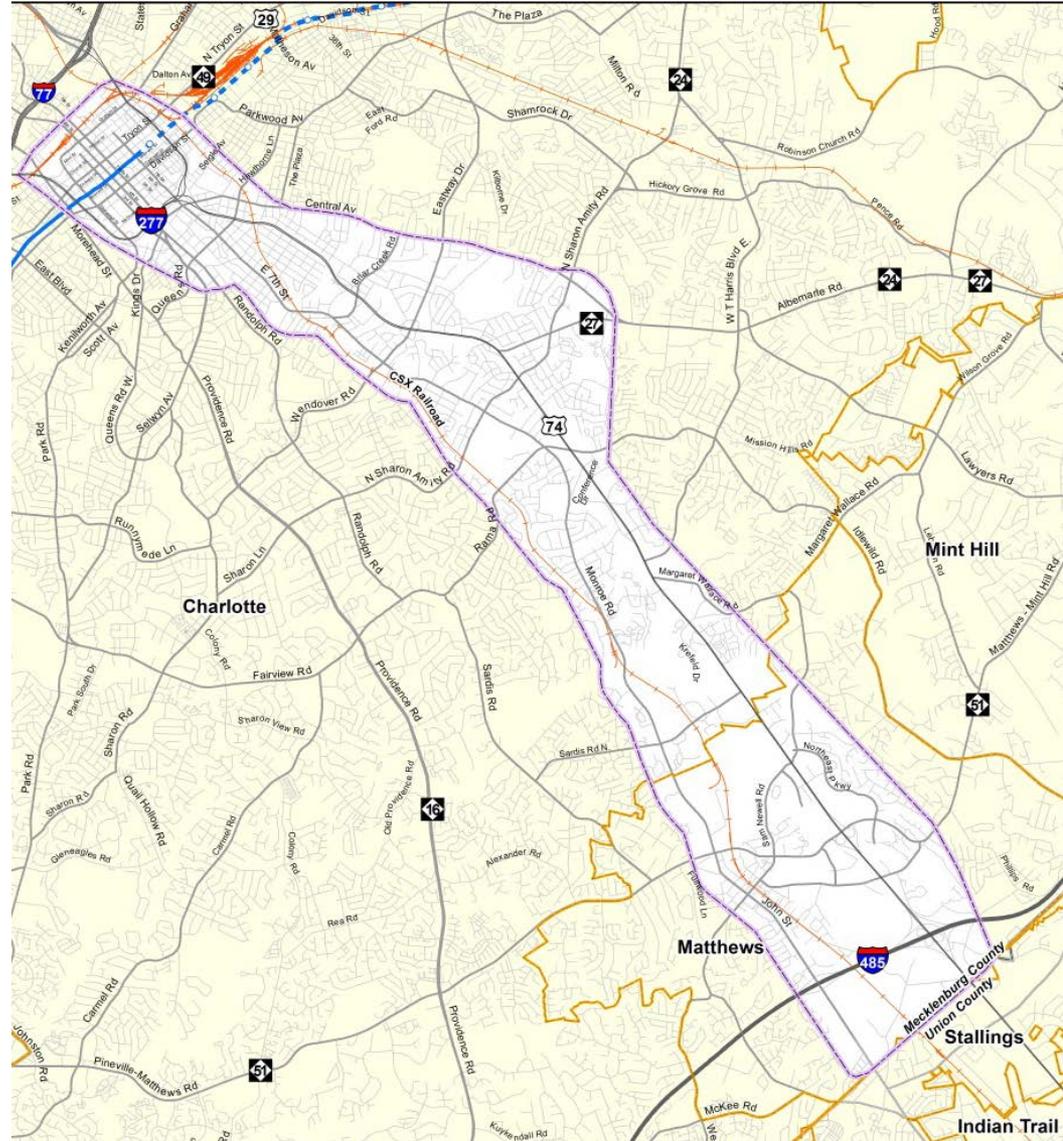
## The study is...

A bus operations plan for future US74 managed lanes



## The study is not...

A bus operations plan as a replacement for a rail project



# How is this study different?



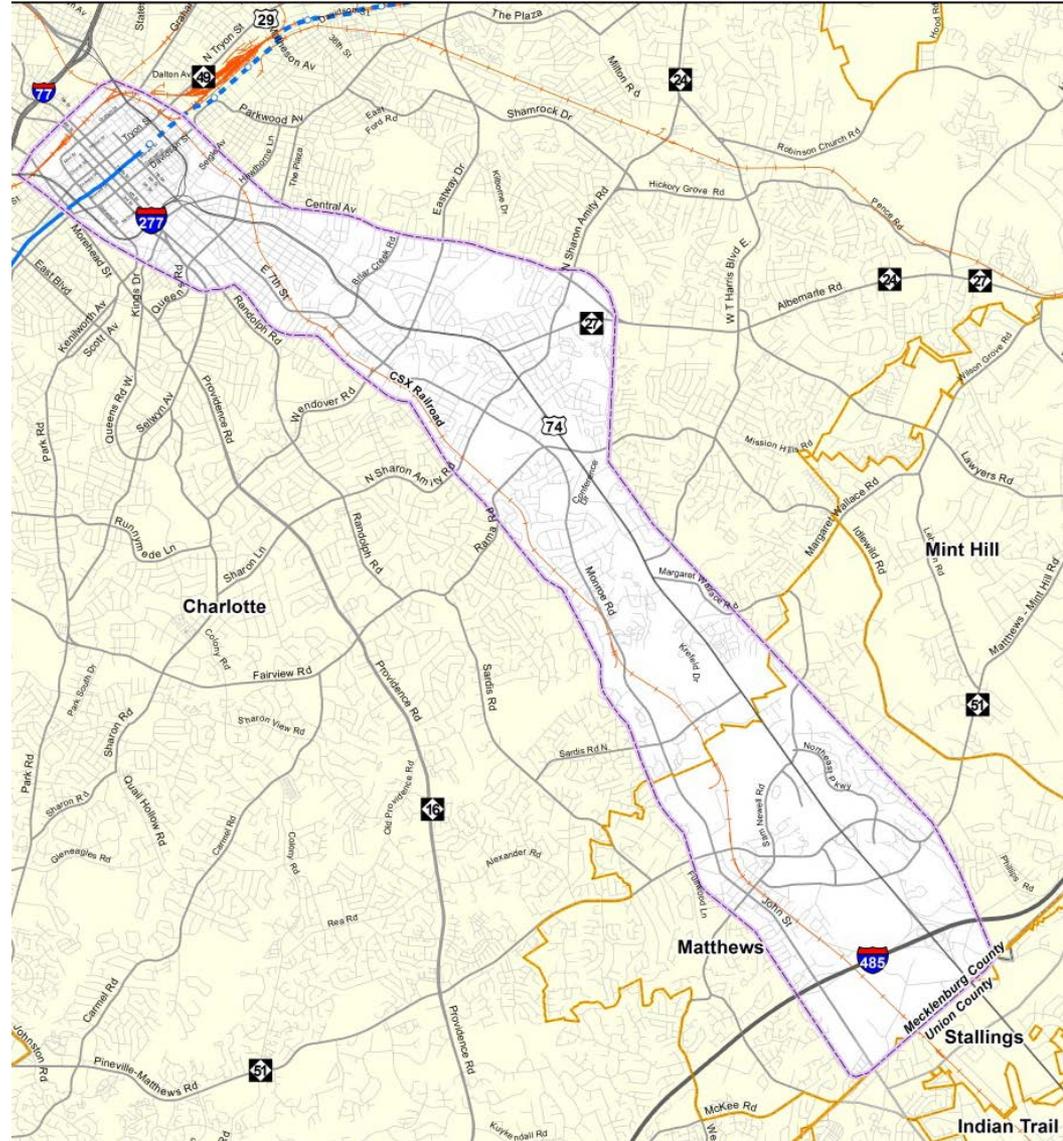
**The study is...**

Information to be considered in future system funding discussions



**The study is not...**

Constrained by current CATS financial projections



# Corridor Givens



The need for transit in the corridor already has been firmly established through previous studies



The transit modes in the corridor will include bus and rail



The bus element will focus on service in the US 74 express lanes



Automobile lane capacity and fixed guideway will need to be carefully balanced

# Study Elements

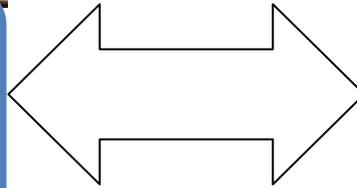


## RAIL

between Uptown  
Charlotte and Matthews

WHERE to put it?

HOW should it function?



## BUS

service integrated with  
US74 express lanes

HOW to provide better  
bus service using the  
express lanes?

How do the rail and bus elements best work together?

# Rail Design Possibilities



Photo Credit: ericmorr, Flickr



Photo Credit: David Wilson, Flickr



Photo Credit: David Wilson, Flickr

Photo Credit: Ryan Stacey, Flickr

- In-street running
- Shared lanes with auto traffic
- Simple platform stops
- Single vehicles
- Obeys regular traffic signals
- Blends in with existing neighborhoods

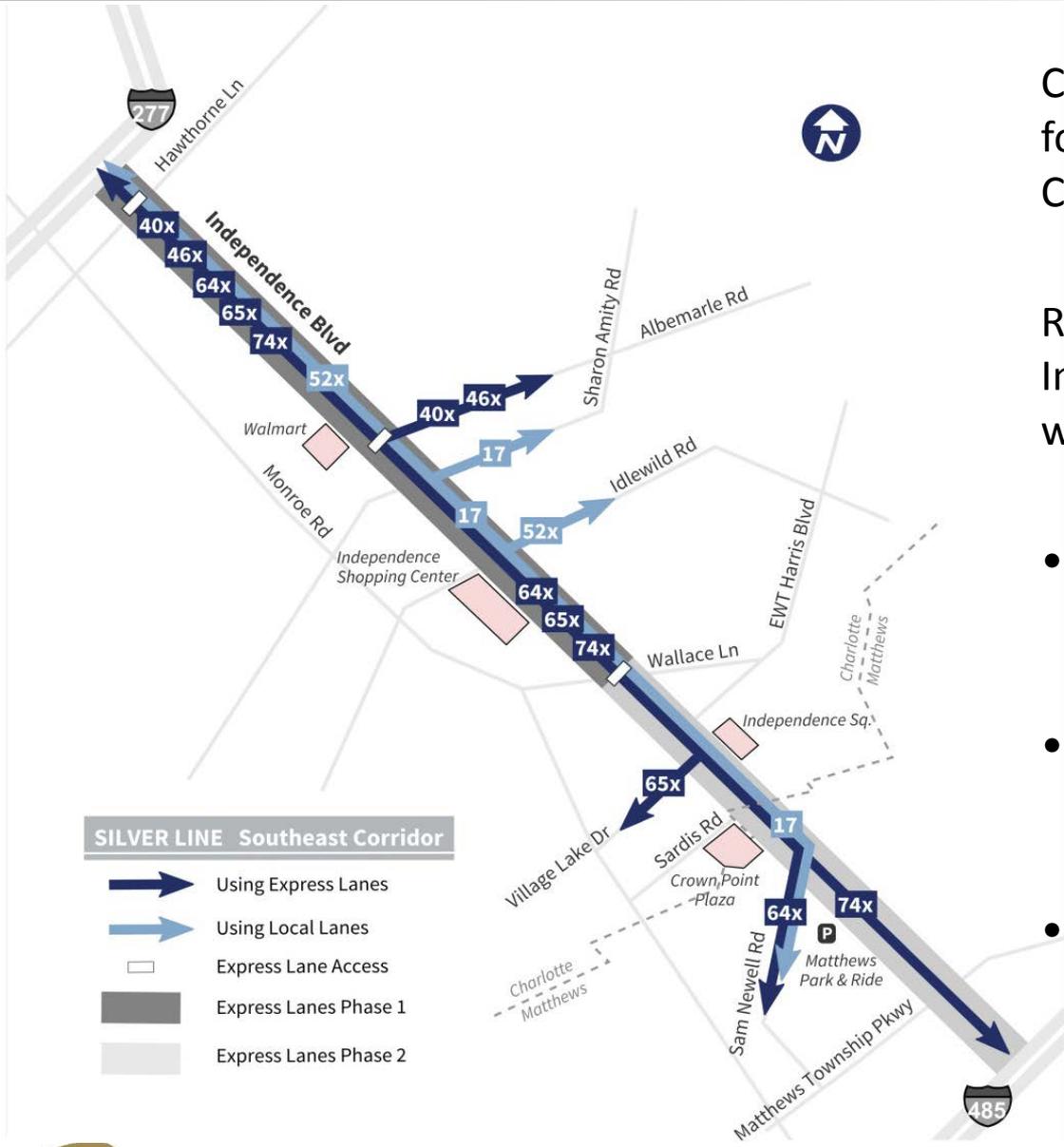
- Operates in street right-of-way, but typically in own dedicated lane
- Stations blend into streetscape
- Single or multiple vehicles
- Interaction with traffic at intersections

- Operates in own dedicated space
- Significant stations
- Single or multiple vehicles
- Limited interaction with autos (grade separations or at-grade crossings)



- Identify needs of corridor, then define the rail options
- Does not have to function the same way throughout the corridor
- This corridor's rail options could have operating characteristics of Light Rail, Commuter Rail, & Streetcar

# Bus Operations Plan

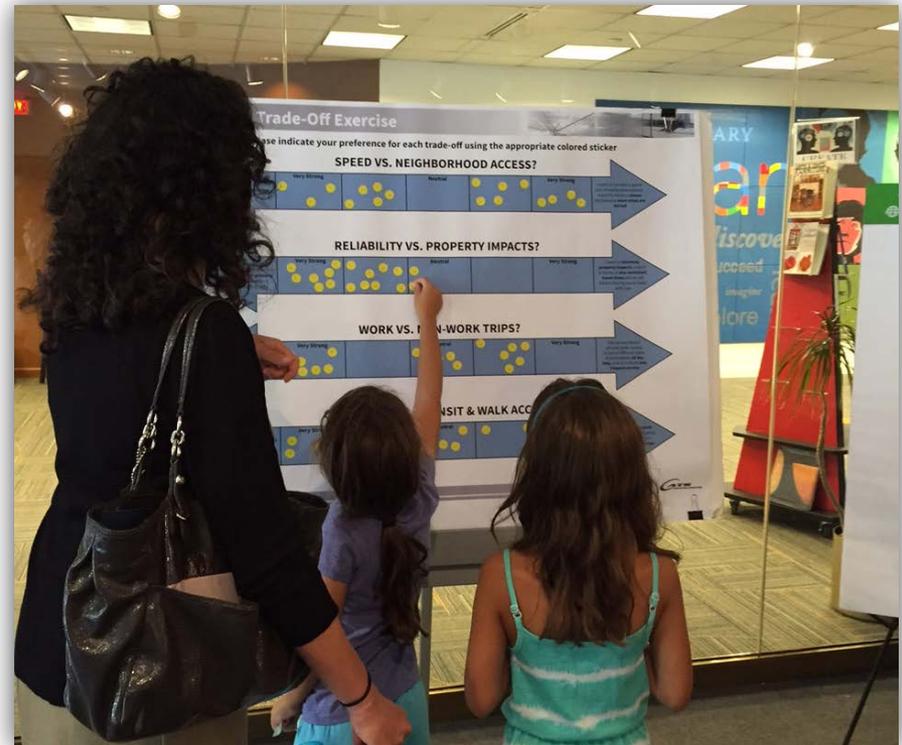


CATS will provide an operations plan for all bus routes in the Southeast Corridor.

Recommendations for the Independence Blvd Express Lanes will include:

- An express route plan for 40x, 46x, 52x, 64x, 65x, 74x
- Future Park and Ride recommendations
- An evaluation of access points

- 189 in attendance over the three August workshops.
- 90% of participants agreed that staff at the event were knowledgeable.
- The majority at the Matthews and Uptown Library workshops agreed that rail in the corridor should have an efficient and reliable travel time, even if it means significant property must be acquired for a dedicated right-of-way.
- At The Midwood International and Cultural Center only a slight majority agreed with the same trade off.





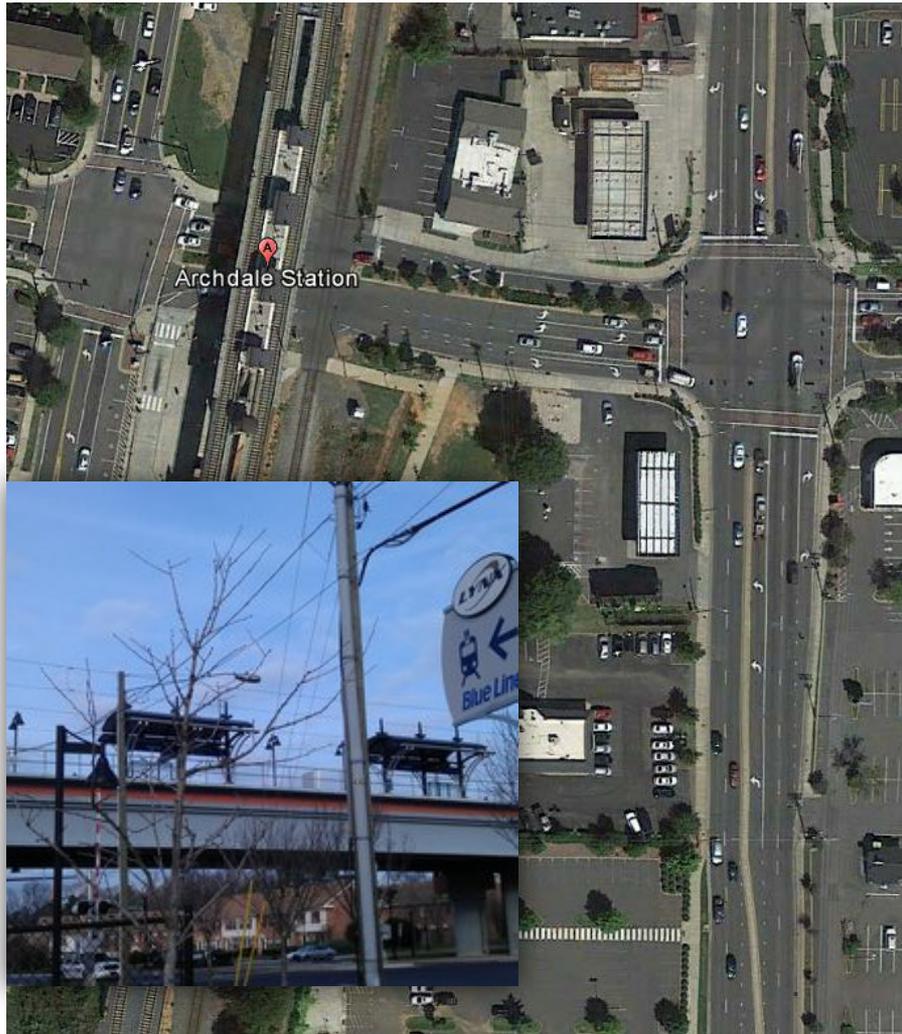
## Who are we trying to serve?

- Commute / peak work
- Off-peak work
- Entertainment / events
- Recreation (shopping and dining)
- Others?





## LYNX Blue Line: Lessons Learned



- Parking for LYNX Blue Line was spread throughout the corridor.
- Some of those stations have low park and ride counts, however walk up and bus transfer ridership is high.
- LYNX BLE park and ride locations are more market focused.
- Lessons learned from LYNX Blue Line and BLE will be applied to the LYNX Silver Line transit study and upcoming corridor planning.



## Markets

- Who will use rail in the corridor and why?

## Nodes

- Where are the activity centers where rail transit is critical?

## Stations

- Where will passengers interface with the rail line?
- What type of station?

# Recap of Two-Day Workshop

- Desire to provide access to a number of destinations
- Less focus on serving long-distance commute trips via rail; do not duplicate bus in express lanes
- Consider use of existing infrastructure (interlining)
- Exclusive rail right-of-way is a high priority
- Consider future extension as a single line to the airport
- Multiple potential hubs in the Town of Matthews





Establish **high-quality transit** to **connect** and **strengthen** existing, emerging, and future activity centers



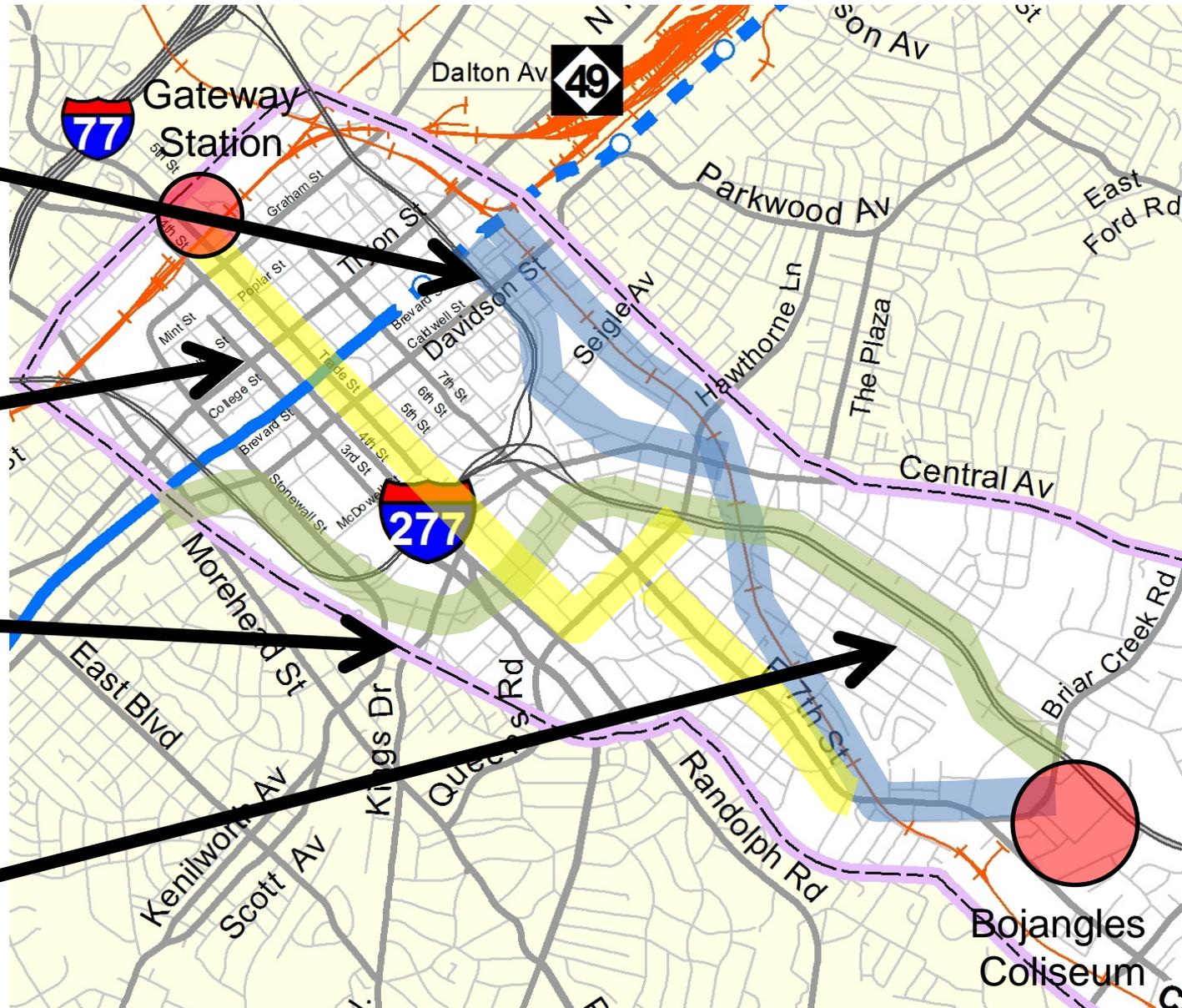
**Create more transit options** for the large number of people already living in, working in, or visiting the corridor



**Use transit to help focus and shape growth** at key nodes along the corridor, while preserving existing neighborhoods

# Emerging Options to Study

- Use of CSX tracks difficult, but consider nearby streets
- Consider interlining with Gold Line
- Consider access to Midtown area
- Consider side-running options adjacent to US74



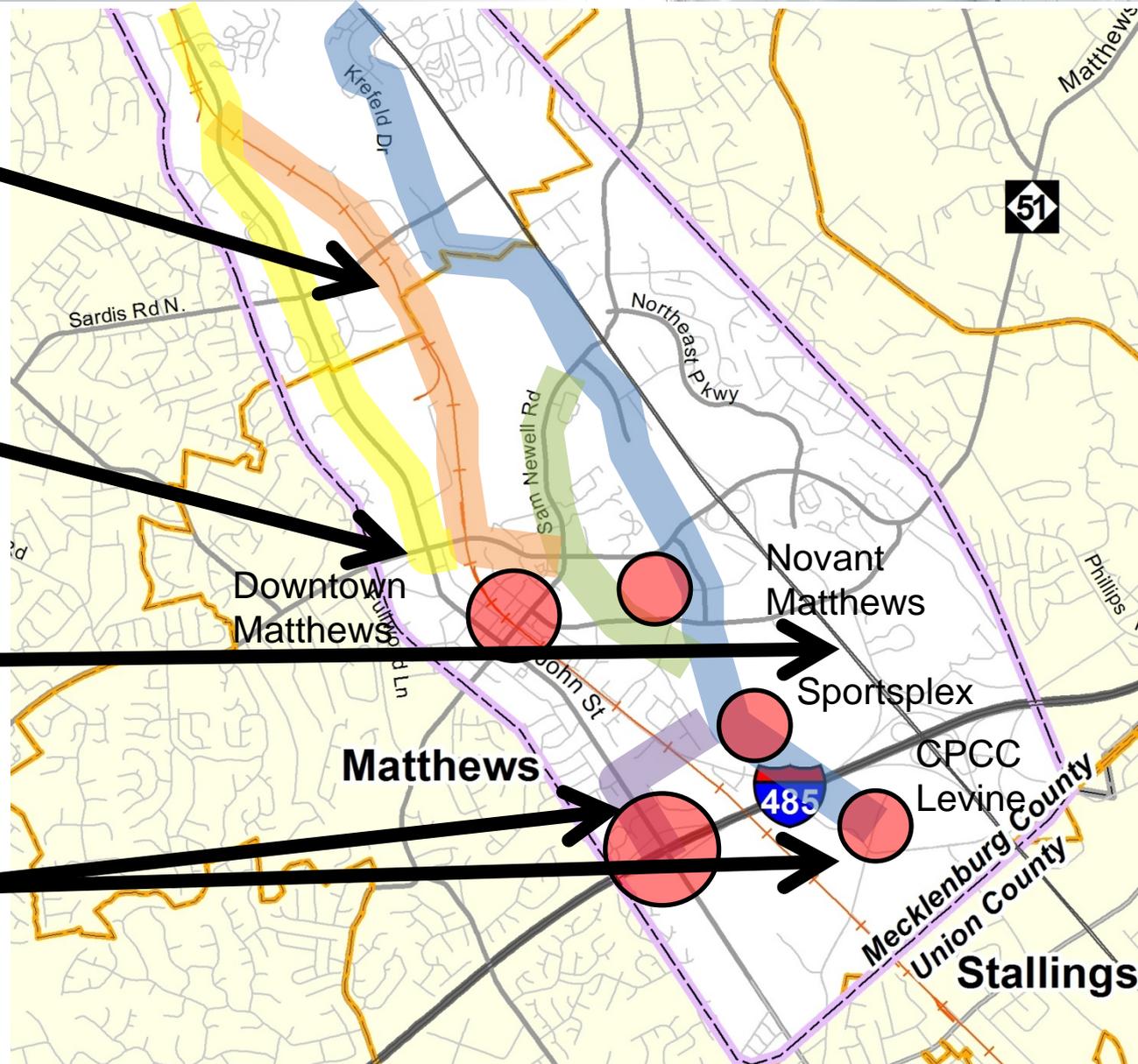
# Emerging Options to Study

- Consider side-running options adjacent to US74
- Consider shared or exclusive ROW on Monroe Rd.
- Idlewild Rd. is emerging as a significant hub
- Consider use of extended Krefield Dr.



# Emerging Options to Study

- Consider use of CSX ROW (not shared tracks)
- Consider options that access Downtown Matthews
- No strong options for rail in US74 ROW
- Consider end-of-line station locations



# Non-Leading Service Options

- Commuter Rail service
  - Would be duplicative of bus service in express lanes
- Long stretches of in-street rail
  - Exclusive ROW is desired where possible to maintain attractive travel time
- Shared use of CSX tracks
  - Significant challenges
  - Shared use of ROW could be considered where ROW is wider



# Next Steps



1. Confirm and communicate vision and goals

2. Define initial list of responsive rail options

3. Develop design concepts for rail options

4. Evaluate impacts of rail options

5. Select preferred rail option

6. Define corridor preservation and implementation strategy



# Upcoming MTC Meetings



MTC Meeting Date	Items to Present
January 2016	<ul style="list-style-type: none"><li>• Present US74 managed lanes bus plan (for information)</li><li>• Update on detailed evaluation process and progress for rail</li></ul>
February 2016	<ul style="list-style-type: none"><li>• Adoption of US74 managed lanes bus plan</li><li>• Status update on detailed evaluation phase for rail</li></ul>
March 2016	<ul style="list-style-type: none"><li>• Results of detailed evaluation phase for rail</li><li>• Seek general concurrence on rail alignment and mode</li></ul>
April 2016	<ul style="list-style-type: none"><li>• Follow-up on refinements to general rail alternative</li><li>• Overview / progress report on corridor preservation plan</li></ul>
May 2016	<ul style="list-style-type: none"><li>• Present draft final summary report including Rail LPA (for information); includes details on mode and alignment, stations, corridor preservation strategy, conceptual cost estimates, next steps</li></ul>
June 2016	<ul style="list-style-type: none"><li>• Adoption of Rail LPA</li></ul>

***The 2030 System Plan will be updated to include the adopted Rail LPA as the the new recommendation for the Southeast Corridor***