

# **Creating GreenVillages Development in Urban Corridors at Multi-Modal Transportation Hubs**

Podcar 9 – Silicon Valley

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# Thank You

- Thank you for your individual and collective efforts to move PRT/ ATN/ Podcars forward
- Thank you for encouraging, advising, correcting , including a “good ole boy” from South Carolina

What Goal Motivates You .. Or Communities to Action?

- Clue: It's like a radio station
- Wii-FM

# Wii-FM in Greenville PRT Journey

- A Big Thinker - John  
Research professor - Joachim  
Technology promoter – Brad  
Media reporters – UBJ, GSA Business, Gv Business  
Corporate validators – GHS, GSP  
Teaching professor – Bill
- Political advocate – Fred  
Divine intervention - appointments  
Industry experts –Mike,  
Fraternity of experts - Peter, Dr. Ed, Martin, Nathan,  
Business developers/entrepreneurs
- Friends Come and Go, Enemies ...

# Begin with end in mind - My 90% Predictions

- In 2016, Greenville will deploy a “fleet” of LSEV
  - Phase 1, connected LSEV on a campus or SRT
  - Phase 2, assisted LSEV
  - Phase 3, automated LSEV (aTaxi shuttles)
- In 2016, Greenville will extend an RFP for a PRT/ATN system
  - At GSP Airport
  - On GCEDC corridor/ SRT or a downtown loop

# Can GreenVillages Development Reduce Potential Barriers to Podcar Projects?

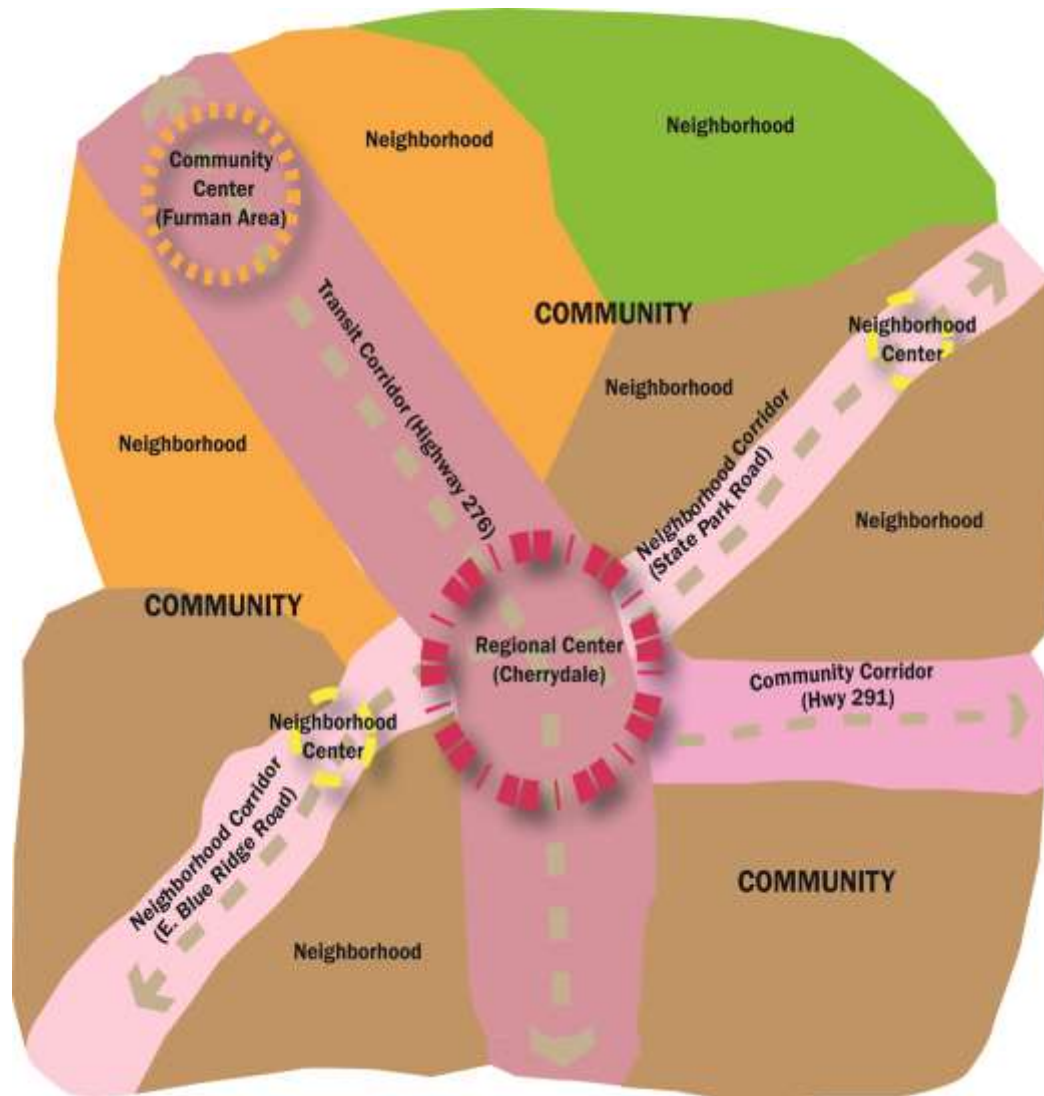
What are the barriers to Podcars and automated transport?

- Technology – What makes planes fly?
- Market Need
- **Business case – Financing and Repayment**
- Human Factors – Auto Centric
- Existing Technology (19<sup>th</sup> & 20<sup>th</sup> Century)
- **Money – Financing and Repayment**
- Bureaucratic/ Governmental
- Political Will
- **Money – Financing and Repayment**

New Mindset – Weak Federal and State; Strong Counties and Cities

# “Imagining Our Future” Concept Greenville County Master Land Use Plan

- Centers, Corridors, and Communities as Planning Principles
- **Centers** Focus Mixed Use development
- **Corridors** Connect Centers via Multi-Modal Transport
- **Communities** and Neighborhoods Prosper



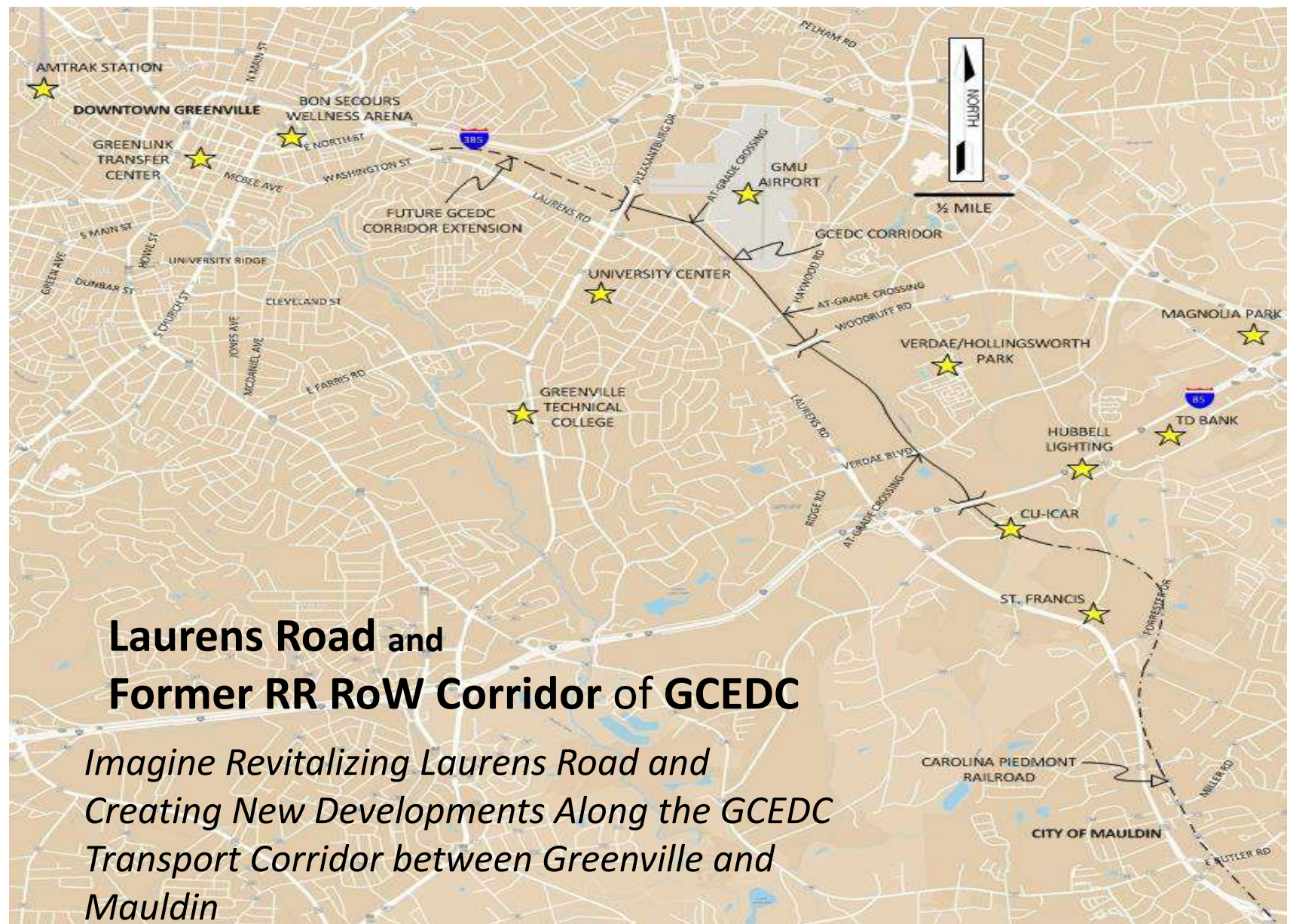
2009 County Landuse Plan

# GCEDC owns a former Railroad corridor that Represents Huge Potential for Development

- Former RR ROW parallel to Laurens Road
- 2010 study analyzed the feasibility of multi-modal Transport options
- 2010 map identifies sites for connectivity and development



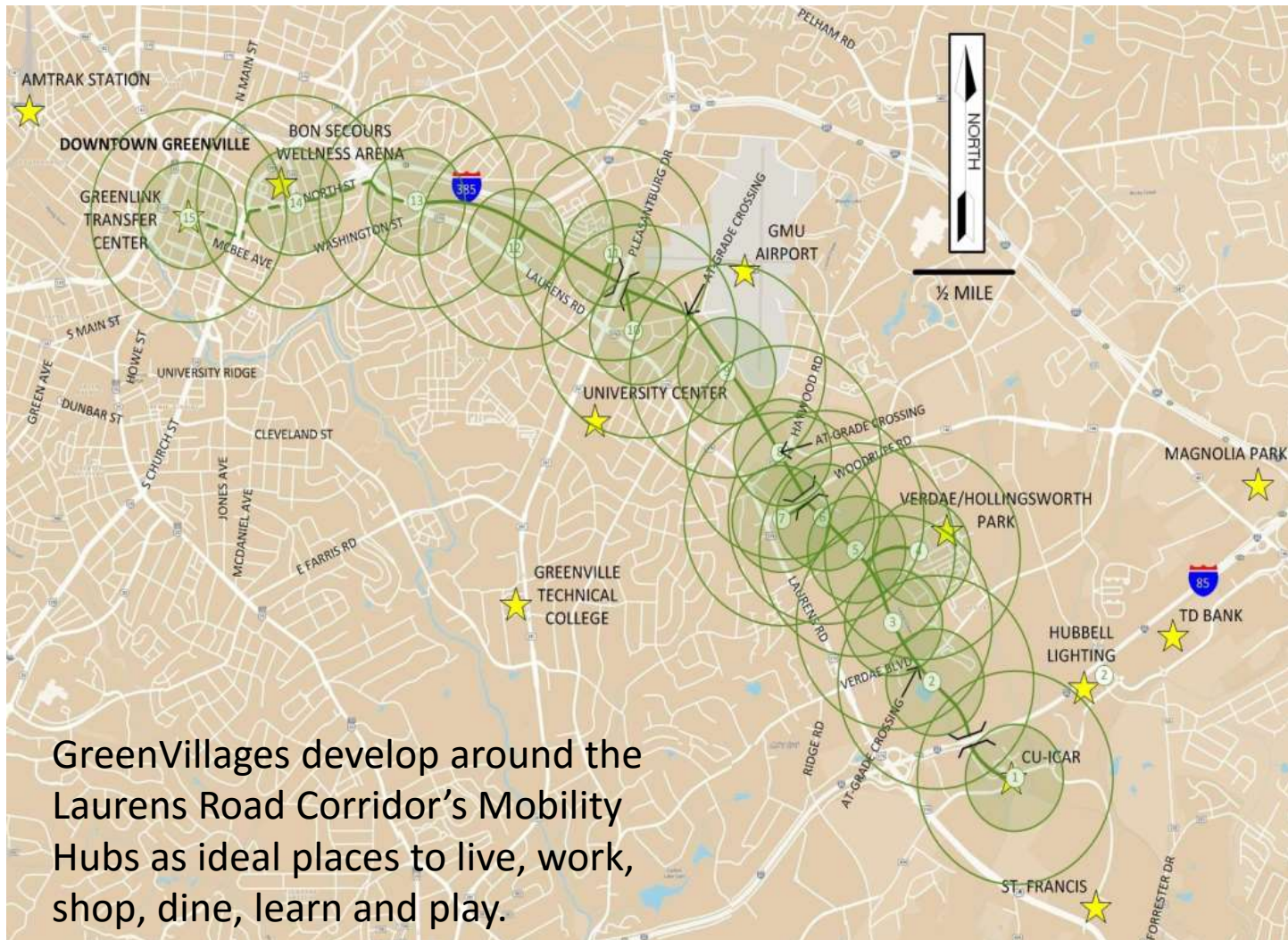






# Possible Mobility Hubs

2014 – Peter Muller



# GreenVillages Economic Development

- Green, Attractive, Livable, Sustainable – and Connected (multimodal)
- Intentional – based on Planning Principles
- Innovative Public & Private Partnerships
- Community wide leadership
- GreenVillages development is more attractive than Transit Oriented Development (TOD) or TOeD

# Innovative Public Private Partnerships

- New Mindset – Weak Federal and State; Strong Counties and Cities
- Public & Private Partnerships
  1. Public right of way and Infrastructure (sewer & transport)
  2. Public Planning regulations support and accommodate
    - Increased Density awards for mixed income options
    - Lower Parking requirements for non-auto transport options
  3. Private investments Design, Build, & Operate
    - Automated transport network (ATN) systems w/ Podcars
    - Automated shuttles w/in GreenVillages
  4. Public TIF-like **Repayment** of Capital Infrastructure
  5. **User Fees** Support Operations & Maintenance

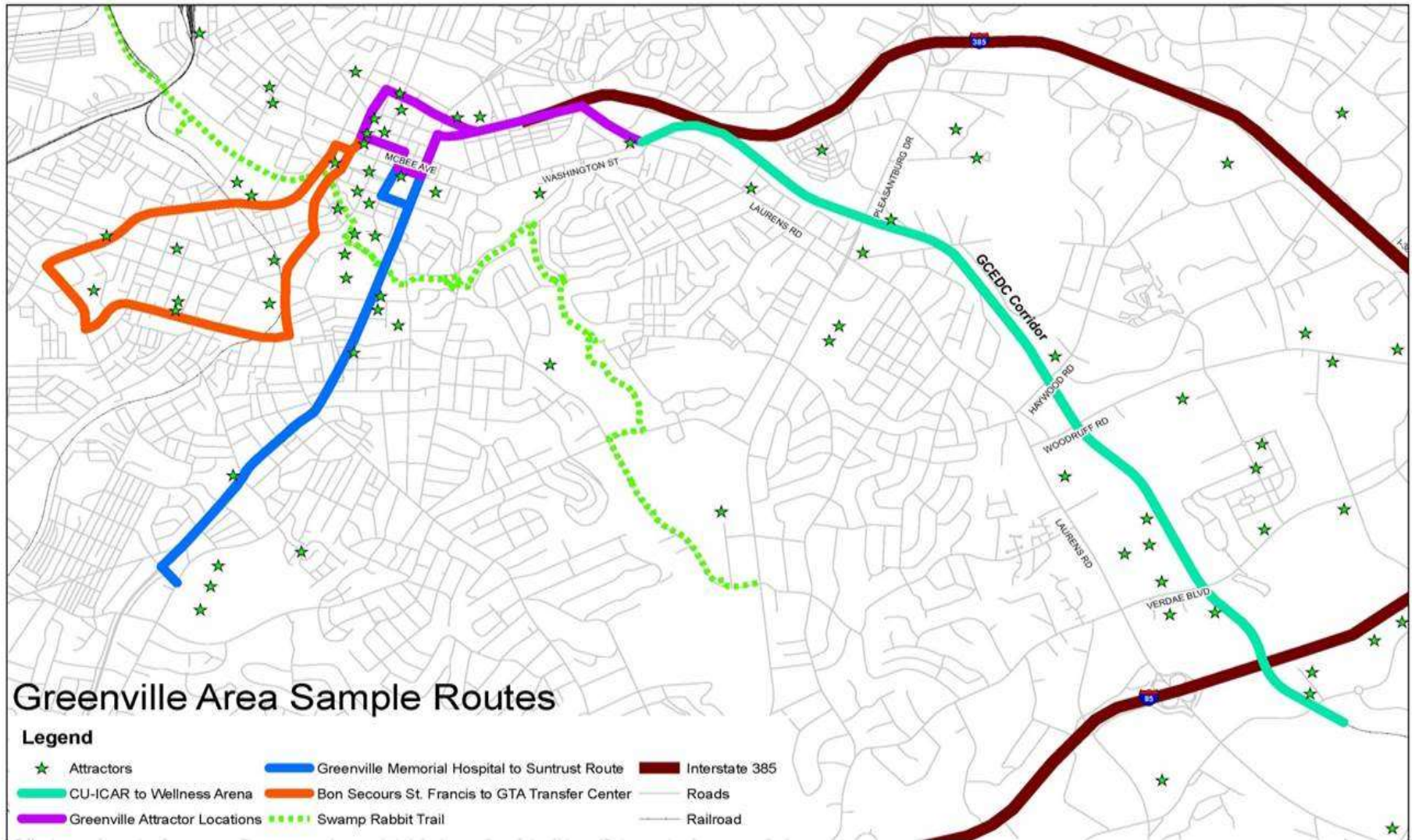




## Revitalization Opportunity: Clemson Student Vision for Laurens & Washington

Clemson Masters in Real Estate Development students presented four unique proposals for a mixed use development at the junction of Laurens Road and Washington Street. In April, 2014, UBJ featured one proposal. Such a development could “anchor” re-vitalization along the GCEDC corridor.

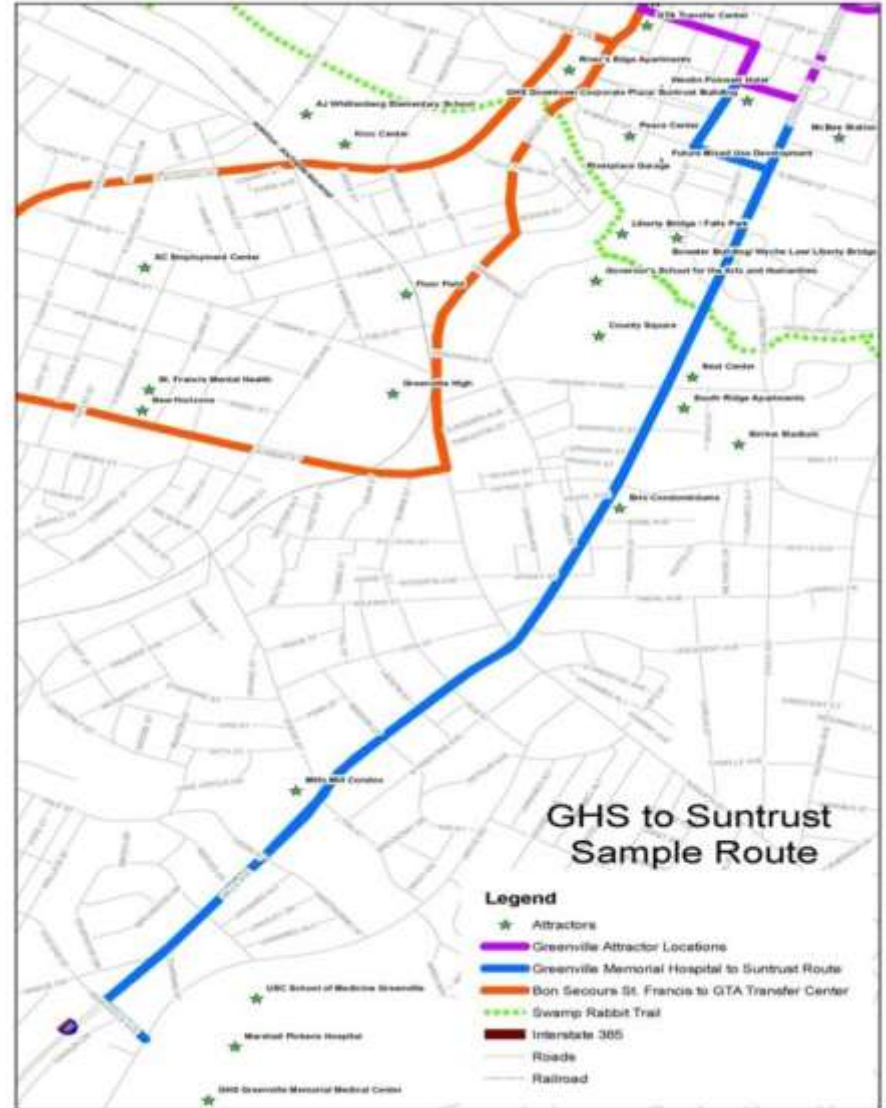
# Potential Greenville ATN Routes





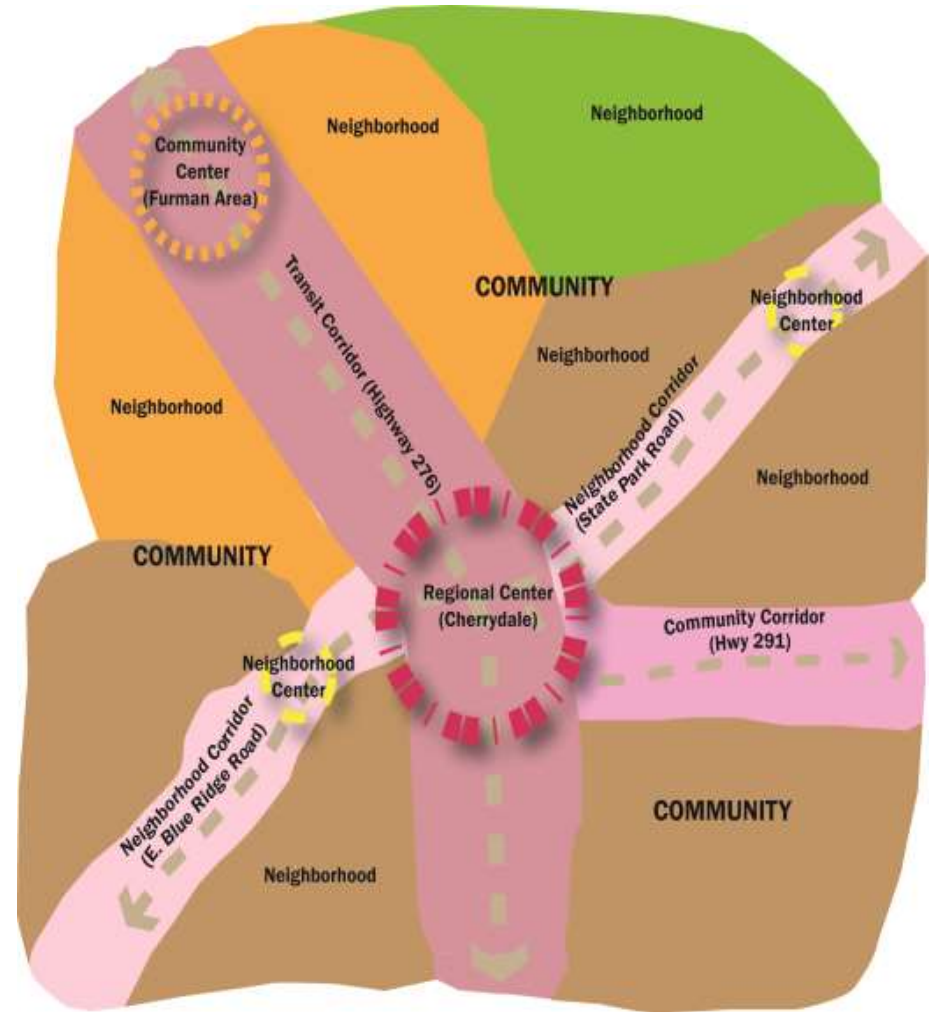
# Imagine ATN loops between Downtown Greenville and GHS Memorial Med Campus

- Win/win/win for GHS, employees & patients
- Automated Transport Network system is like a horizontal elevator or taxi on a monorail
  - Driverless & available 24/7
  - Automated service – short wait times
  - Direct from origin to destination stations
  - Dedicated guideway allows fast & safe rides
- Links 6,000 GHS employees and 600 Medical students between living and work, shop or play
  - Driverless travel time is more productive
  - Saves travel time from GMMC to GHS Admin
- Improves connectivity for patients/visitors
- Reduces need for new parking decks
  - Employees living near ATN route can leave a Personal Owned Vehicle at home and save a GMMC parking space
  - Others can drive a POV to an ATN Park & Ride site, use the ATN and free up a GMMC parking space
- Improves access between GMMC and Innovative Medical Economic Development (IMED) campus



# GreenVillages Are Connected

- Core area:  $\frac{1}{4}$  mile radius
  - Walking/ biking/ aTaxi shuttle
- Influence area:  $\frac{1}{2}$  mile radius
- Mobility Hubs ~ 1 mile apart
- Buildings oriented to street
- Parking locations encourage pedestrian activity
- Attractor locations, streets, and parks are Interconnected
- Roads and ATN Systems connect GreenVillages



*Greenville 2009 Master Plan: Centers, Corridors, and Communities*

# Greenville Examples: Mixed Use Attractors

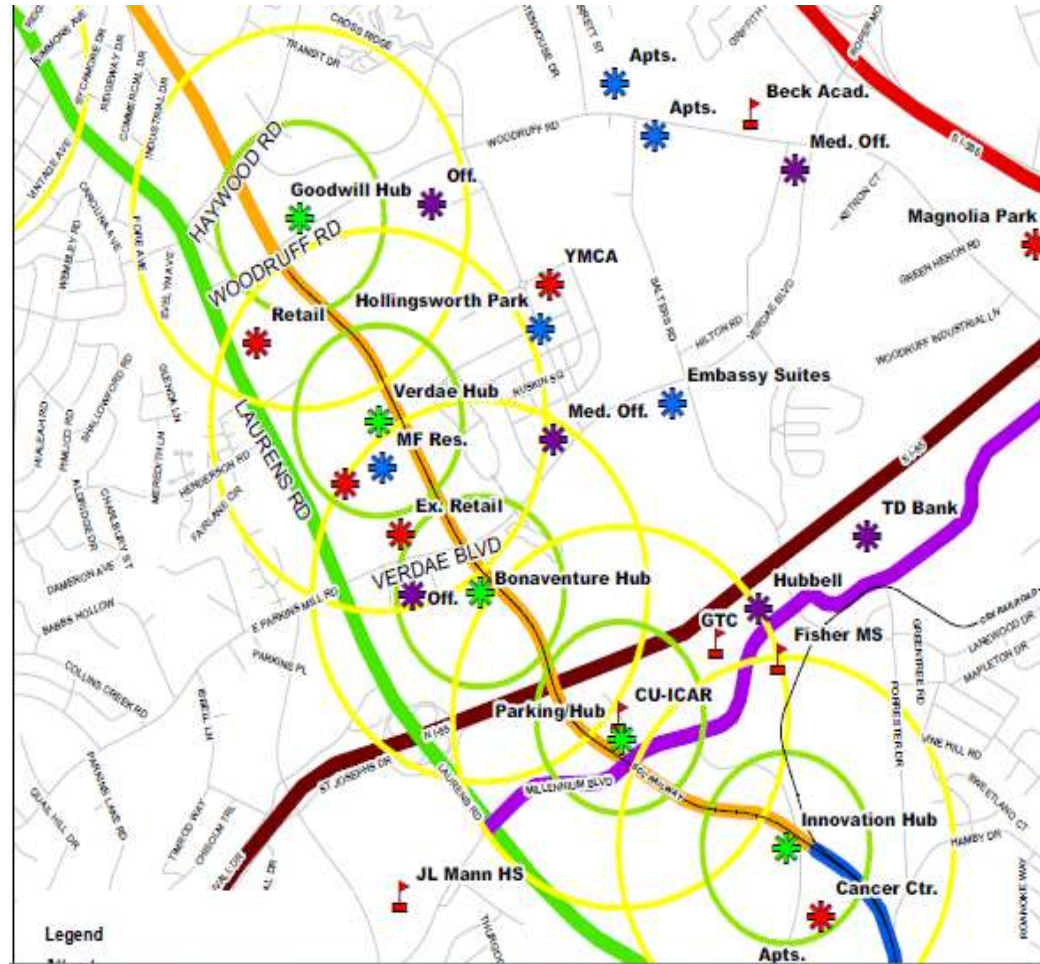
- Downtown Attractors
  - Special Attractor centers
    - Hotels, Restaurants, & Conference Center
    - Wellness Arena & Fluor Field
    - Office & Retail Centers
    - Hospitals: GHS & BSSFHS
    - City Hall & County Square
    - Heritage Green & Peace Center
- Urban neighborhoods
  - Nicholtown and Arcadia
  - Washington & Laurens – Spinks & CRH
  - Midtown: Pleasantburg & Laurens
  - Verdae communities
- Airport & University campuses
  - GSP International Airport
  - GMU Municipal Airport
  - CU-ICAR/ BJU/ UC-Gv University Ctr
- Higher density
  - More mixed use
- Lower density
  - More housing

# Multi-Modal Location and Access

- Multi-modal transport improves accessibility
- Directly parallel to highway interchange improvements

Real estate development potentials affected by:

- Transport Modes
- Level of service
- Regional access





# Plans for Verdae, 2006





# Enclave @ Laurens Village

## Enclave @ Laurens Village Facts:

- 10.2 acres
- 300+ rental units
- 17,000 sq.ft. office space,
- 13,000 sq.ft. retail
- 8,000 sq.ft. anchor restaurant
- Capitalization: \$20-30 million?
- 4-story wood frame
- Amenities
  - 4,000 sq ft clubhouse w/ pool
  - On Swamp Rabbit Trail
  - 1.2 Acres of Pocket Parks
  - Near University Center-Gv



# Technology Solutions

- Automated Shuttles
- Automated Podcars
- Autumn Leaves

# TOD vs MMD

Transit Oriented Development (TOD) vs Multi-Modal Development (MMD)

- Transit Oriented Dev

- Ideas from Past Centuries

- Railroads – 19<sup>th</sup> Century
- Buses – 20<sup>th</sup> Century

- Historically TOD

occurred 10 to 20 years  
after transit

- BART record in Bay Area
- Metro experience in DC
- Linx in Charlotte

## Multi-Modal Development

- Auto dominance (Laurens Rd)

- + Express Proterra Bus

- + Swamp Rabbit Trail

- Bike
- Walk
- aTaxi Shuttles: last mile solutions (Google-type)

- + Automated Transport Network (ATN) systems

- ATN systems w/ shared vehicles link GreenVillages

# Factors in Economic Development

- Urban Density and Mix
- Market Drivers
- GreenVillages Centers
- Location
- Connectivity and Access
- Timing for RE Development
- Planning: Housing & Office
- Financing



# Creating Urban Density

- Planners allow medium to high density compared to surrounding market area
- Market forces drive density, land values, transport & real estate development
- Minimum residential density of **40 units/ acre** net within ¼ mile core
  - Higher Density achieved through reduced surface parking and some parking structures
  - Reduce parking need if multi-modal transportation & live/work/mixed land use reduces need for cars

## Growth Outcomes

Higher densities =  
= Higher land values =  
= Larger Centers =  
= Better Connectivity =  
= Increased development =  
= More attractors =  
= Improved mobility =  
= Higher land values



# Real Estate Development Market Drivers

- Positive climate for real estate development
  - Negative market conditions stall development
- Supportive public policy
  - Urban core Planning & Zoning
  - Multi-Modal Corridor Plan & Zoning
  - Develop Multi-County Park corridor agreement to cover infrastructure costs
  - Urban renewal incentives (NMTC)
  - Promote redevelopment areas
- Policy alters development density, form, and location
  - Increases local area development capture

# Market: Urban Housing

- Target housing groups
  - Young professionals – singles and couples
  - Millennials
  - Empty nesters, Divorcees, Retirees
  - Students and elderly
- Demand for higher density housing products
  - Condos, apartments, lofts, micro units
- Demand for mixed use development with nearby retail, dining, and entertainment
- Consistent with growth of urban infill projects

# Market: Office

- Office destination node needs several major activity center conditions
  - Regional access
  - Visibility
  - Mix of uses
- Multi-modal transport can provide a premium measured by:
  - Higher rents
  - Higher absorption
  - Higher land value

# Laurens Road Corridor Opportunities

## Corridor provides Multi-modal options

- Swamp Rabbit Trail (SRT) provides walking, biking and aTaxi lane options
- Automated Transport Network (ATN) systems link GreenVillages developments
- Serves residents within GreenVillages and commuters between mobility hubs and Downtown
- Residents use POV (autos) for trips outside the corridor across the city & beyond

## Corridor is competitive w/suburban low density housing markets

- Connectivity to daily activities increases acceptance of higher density
- Planners can support higher densities trade-offs
- Competitive rental prices compared to single family homes

## Corridor has lower land costs compared to downtown environments

- Ample land supply, potential high growth market
- Park & Ride remote facilities offer lower costs than downtown parking decks

## Advanced Technology and ROW

- ATN vehicles are rider- and development-friendly attractions and amenities
- County owned ROW facilitates SRT access at multiple locations
- Stations at multi-modal nodes offer many development opportunities
- ATN infrastructure and financing will accelerate development and increase property tax collections – MCIP agreement can repay infrastructure costs

# ATN Revenue Streams and Savings\*

	Revenue	Savings
Automated Transport Network System	<ul style="list-style-type: none"> <li>▪ Farebox</li> <li>▪ Sponsorships – stations</li> <li>▪ Advertising - vehicles</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low Capital Expenses</li> <li>▪ Low Operating Expenses</li> </ul>
Employee Commuter Riders Retail Customer Riders Visitor Riders	<ul style="list-style-type: none"> <li>▪ Sponsored Tickets</li> <li>▪ Subsidized grant tickets</li> <li>▪ Visitor “package” tickets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase staff productivity</li> <li>▪ Reduce travel time</li> </ul>
Property Owners / Developers	<ul style="list-style-type: none"> <li>▪ Increase rents &amp; fees</li> <li>▪ Public transit access increases property value</li> </ul>	<ul style="list-style-type: none"> <li>▪ No disruption to services</li> <li>▪ Minimal footprint</li> </ul>
Local Governments	<ul style="list-style-type: none"> <li>▪ Increased parking fees</li> <li>▪ Increased property taxes from development</li> <li>▪ Access/encroachment fees</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduction in traffic congestion</li> <li>▪ Reduction in pollution and emissions</li> </ul>
Other	<ul style="list-style-type: none"> <li>▪ 3rd party partnerships</li> <li>▪ Grants</li> </ul>	

\*Thanks to ATRA for the graphic summary of revenue and savings ideas.



# Plan Now for Real Estate Development

- Greenville should proactively plan for Development at future station locations
- Developers should look at mobility hub sites as prime locations for higher density development



- Consistent with other economic and demographic demand factors
  - Greater demand for higher density housing products
  - Due to aging population, incomes, transportation costs, and lifestyle preferences

# Multi-Modal Transport Corridor Planning

- Market realistic Multi-Modal Corridor Plan is the most important investment
- Provides developers zoning approval certainty
  - Largely eliminates NIMBYs
  - Phases out incompatible uses
- Public investments add value
  - Public infrastructure (sewer, ATN, etc.) enables and incentivizes redevelopment
  - Improves land values
- Land speculation: Caveat Emptor

# GreenVillages Infrastructure Financing

## Public Infrastructure Financing

- Additional development density needed to pay for infrastructure
  - Automated Transport Network system
  - Structured parking
  - Pedestrian oriented access and amenities
- Probably requires public financing investments
  - Multi-County Park or Tax increment financing
  - Special improvement districts (GIDs, BIDs)
  - Multiple property owner financing plans
- Public investments create value

# Development Responsibilities

## GreenVillages RE and Multi-Modal Transport Corridor Development Responsibilities

Roles	City of Greenville	County of Greenville	ATN System Utility Franchisee	Master Developer	Vertical Developers	Tenants/ Residents
Zoning	1st					
Subdivision	1st					
Corridor ROW		1st-EDC				
Greenway O&M	2nd	1st-PRT				
Multi-Jurisdiction Park	1st	1st				
Public Amenities	1st	2nd				
Public Infrastructure	1st	1st				
Transport Infrastructure	2nd	2nd	1st			
Transport TIF	1st	1st				
Land				1st		
Equity \$				1st		
Construction Finance			1st	1st		
Permanent Finance		2nd	1st			
In-Parcel Infrastructure				1st	1st	
Vertical Construction					1st	
Operations			1st			1st
Maintenance			1st			1st