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

Podcar 9 – Silicon Valley
November 5, 2015

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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 Green Villages 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 (19th & 20th 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
Imagine Revitalizing Laurens Road and Creating New Developments Along the GCEDC Transport Corridor between Greenville and Mauldin
Possible Mobility Hubs
2014 – Peter Muller

GreenVillages develop around the Laurens Road Corridor’s Mobility Hubs as ideal places to live, work, shop, dine, learn and play.
Green Villages Economic Development

- Green, Attractive, Livable, Sustainable – and Connected (multimodal)
- Intentional – based on Planning Principles
- Innovative Public & Private Partnerships
- Community wide leadership
- Green Villages 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

Greenville Area Sample Routes

Legend
- Attractors
- Greenville Memorial Hospital to Suntrust Route
- Interstate 385
- CU-ICAR to Wellness Arena
- Bon Secours St. Francis to GTA Transfer Center
- Roads
- Greenville Attractor Locations
- Swamp Rabbit Trail
- Railroad
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: ¼ mile radius
  – Walking/ biking/ aTaxi shuttle
• Influence area: ½ 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 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 – 19th Century
    • Buses – 20th 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 that 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*

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Savings</th>
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<tbody>
<tr>
<td>Automated Transport Network System</td>
<td>Low Capital Expenses</td>
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<tr>
<td>• Farebox</td>
<td>Low Operating Expenses</td>
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<tr>
<td>• Sponsorships – stations</td>
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<tr>
<td>• Advertising - vehicles</td>
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<tr>
<td>Employee Commuter Riders</td>
<td>Increase staff productivity</td>
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<td>Retail Customer Riders</td>
<td>Reduce travel time</td>
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<td>Visitor Riders</td>
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<tr>
<td>• Sponsored Tickets</td>
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<td>• Subsidized grant tickets</td>
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<tr>
<td>• Visitor “package” tickets</td>
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<tr>
<td>Property Owners / Developers</td>
<td>No disruption to services</td>
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<tr>
<td>• Increase rents &amp; fees</td>
<td>Minimal footprint</td>
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<tr>
<td>• Public transit access increases property value</td>
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<tr>
<td>Local Governments</td>
<td>Reduction in traffic congestion</td>
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<tr>
<td>• Increased parking fees</td>
<td>Reduction in pollution and emissions</td>
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<tr>
<td>• Increased property taxes from development</td>
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<tr>
<td>• Access/encroachment fees</td>
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<tr>
<td>Other</td>
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<tr>
<td>• 3rd party partnerships</td>
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<tr>
<td>• Grants</td>
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*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

<table>
<thead>
<tr>
<th>Roles</th>
<th>City of Greenville</th>
<th>County of Greenville</th>
<th>ATN System</th>
<th>Master Developer</th>
<th>Vertical Developers</th>
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