PUBLIC INVOLVEMENT REPORT APPENDIX

July 2013
APPENDIX A:

POLICY COMMITTEE / TECHNICAL COMMITTEE MEETINGS
APPENDIX A1:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #1

MEETING NOTES
Stan Polanis, City of Winston-Salem, gave the introduction and project background. He explained that a Feasibility Study for a streetcar project was completed in 2002, yet at that time, there was no public-private partnership funding. Since then, funding has changed and we are conducting an Alternatives Analysis to comply with requirements for receiving potential federal funds.

Brett Wallace presented a Power Point presentation, asking the participants whether they felt the study area should still extend from Baptist Hospital to downtown to Piedmont Triad Research Park (PTRP) to WSSU. Karen Simon reviewed the Public Outreach slides, while Claire Brinkley explained the Goals slides. The presentation will be available on the City’s website.

After the presentation, participants were asked to express what they thought the goals of the project should be, as noted below:

GOALS/DISCUSSION:

- Include a Wake Forest University (WFU) connection
  - Have a primary East-West route and a Secondary North-South route
  - Consider a Baptist Hospital to PTRP.

- Enhance development in downtown through an urban circular/streetcar
  - Use streetcar as a catalyst for creating jobs
  - Provide a core connector with spurs to other locations

- Have an institution as an anchor

- Connect communities

- Attract new riders, this is part of a bigger picture
  - Create a diversified rider base; attract more riders than those without cars
  - Make sure it does not duplicate bus routes
  - Need high frequencies
  - Should be part of a larger transportation network; the “last mile” should bring everything together

- Enhance development near walking distance to the line
• Consider Growth Management issues - Control growth in areas capable of sewer/water not in outlying areas. Projections indicate that an additional 120,000 people are expected to be in Winston-Salem and 60,000 more jobs. We have opportunity to bring that growth into the city.

• Integrate with existing regional transportation plan (PART)
  o Look at the future of commuter rail in the region, which includes a stop at Union Station. Need to consider this when developing the streetcar route.
  o Look for that connection; where do we interface with PART?
  o Streetcar is in PART’s regional transportation plan

• Create synergies between existing parking lots and garages and venues (ex: Greensboro Coliseum).

• Think about bus stations as connectors; have 2-way streetcar so you can get on/off at same location, i.e., so it’s a seamless ride (so you don’t have to walk a block to get on streetcar to go the other way)

• “Bang for your buck” - start with a segment that offers the most value capture potential to build momentum for future extensions

There was some discussion about funding on a federal level. Brett explained that the City could receive Small Starts funds under the New Starts program, yet it depends on how the federal government looks at cost-effectiveness of the system (which may not be as accepting). There are also TIGER discretionary grants, which can be used for transit or rail projects.

Next steps include the development of a draft Purpose and Need Statement and initial service alternatives for consideration. An initial open house will be held in March to begin educating the public about the project and to receive input on goals and alternatives.

Contact for project:

Stan Polanis
City of Winston-Salem DOT
stanp@cityofws.org
336.727.2707
## Policy & Technical Committees Kick-off Meeting
**February 8, 2012 / 3:00 PM**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Art Barnes</td>
<td>WSTA</td>
<td>727-2644</td>
<td><a href="mailto:artb@eawstec.com">artb@eawstec.com</a></td>
</tr>
<tr>
<td>Scott Rhine</td>
<td>PAT</td>
<td>662-0002</td>
<td><a href="mailto:scott@forsinc.org">scott@forsinc.org</a></td>
</tr>
<tr>
<td>Brent McKinney</td>
<td>PAT</td>
<td>662-0602</td>
<td><a href="mailto:brent@forsinc.org">brent@forsinc.org</a></td>
</tr>
<tr>
<td>Gabriel Ayers</td>
<td>Greensboro</td>
<td></td>
<td><a href="mailto:andreyin@winston-salem.com">andreyin@winston-salem.com</a></td>
</tr>
<tr>
<td>Cornesius Graves</td>
<td>WSSU</td>
<td>750-2092</td>
<td><a href="mailto:GRAVESCC@wssu.edu">GRAVESCC@wssu.edu</a></td>
</tr>
<tr>
<td>Daniel Johnson</td>
<td>Fairfax City</td>
<td></td>
<td><a href="mailto:daniel.y177@gmail.com">daniel.y177@gmail.com</a></td>
</tr>
<tr>
<td>Micah Myers</td>
<td>City/County</td>
<td>704-0595</td>
<td><a href="mailto:micah.myers@gmail.com">micah.myers@gmail.com</a></td>
</tr>
<tr>
<td>Allan Caldwell</td>
<td>Reynolds</td>
<td></td>
<td><a href="mailto:carlarkaner@yahoo.com">carlarkaner@yahoo.com</a></td>
</tr>
<tr>
<td>Paul Newby</td>
<td>CLAB</td>
<td>741-0841</td>
<td><a href="mailto:paul.wilson@cityofwinston.us.org">paul.wilson@cityofwinston.us.org</a></td>
</tr>
<tr>
<td>Keith Wilson</td>
<td>WSSU</td>
<td>741-0844</td>
<td><a href="mailto:keith.wilson@trivium.com">keith.wilson@trivium.com</a></td>
</tr>
<tr>
<td>Dan Besse</td>
<td>City Council</td>
<td>222-1674</td>
<td><a href="mailto:danbesse@danbesse.org">danbesse@danbesse.org</a></td>
</tr>
<tr>
<td>Phillip Guest</td>
<td>WSSU</td>
<td>741-6882</td>
<td><a href="mailto:phillipg@cityofwinston.us.org">phillipg@cityofwinston.us.org</a></td>
</tr>
<tr>
<td>Libby Huns</td>
<td>MCD</td>
<td></td>
<td><a href="mailto:libby.huns@cityofwinston.us.org">libby.huns@cityofwinston.us.org</a></td>
</tr>
<tr>
<td>Chad Moreau</td>
<td>PCNP</td>
<td>716-0686</td>
<td><a href="mailto:sjmorano@wakvnphiedu.edu">sjmorano@wakvnphiedu.edu</a></td>
</tr>
<tr>
<td>Ken Baskin</td>
<td>WFSU</td>
<td>406-9196</td>
<td><a href="mailto:baschka@wfsu.edu">baschka@wfsu.edu</a></td>
</tr>
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</table>

**Additional Information**

- **Brett Wallace**
  - HDR Engineering
  - (704) 338-6759
  - brett.wallace@hdrinc.com

- **Claire Brinkley**
  - HDR Engineering
  - (704) 248-3632
  - claire.brinkley@hdrinc.com
APPENDIX A2:

POLICY COMMITTEE / TECHNICAL COMMITTEE MEETING #1

PRESENTATION
Policy and Technical Committees

Meeting #1
February 8, 2012

AGENDA
1. Welcome and introductions
2. Project background
3. Work plan and study schedule
4. Project goals
5. Next steps

KEY QUESTIONS
• What are desired project goals?
• What are questions to be answered during the study?

PROJECT BACKGROUND
Winston-Salem Streetcar Feasibility Study

WINSTON-SALEM STREETCAR FEASIBILITY STUDY
• Completed in October 2006
• Established concept for streetcar route through urban core
• Alternatives Analysis provides more detailed planning and initiates federal process

URBAN CIRCULATOR STUDY AREA
Downtown – regional business and arts center, transportation hub, home to special events venues
Winston-Salem State University – large student population
Piedmont Triad Research Park – planned 6.1 million gross square feet of redevelopment space

PROJECT BACKGROUND
Urban Circulators
One of the best things that cities can do to create jobs—especially in the private sector—is to improve the quality of life of their inhabitants.

- Carlos Slim Helú (Mexican business magnate and philanthropist)

“We need to create a city that people want to live in. Talent can move anywhere. Building out places for people to walk… is important for business.”

- Janette Sadik-Khan, the commissioner of the New York City Department of Transportation

THE CASE FOR URBAN INVESTMENT

Transit investments yield significant benefits

PART OF A “BIGGER PICTURE” OF BENEFITS

Mobility and Access

Public Health

Livability

Transit

Environment

Economic Development

URBAN CIRCULATOR PROJECTS ELSEWHERE

- Circulator among existing destinations
- Connector to regional transit system (the “final mile”)
- Catalyst for transit-oriented and pedestrian scale development
- Building the “Green City” of a sustainable future
- In some places… It’s an amenity for tourists

FOUR SIGNIFICANT ECONOMIC EFFECTS:

1. Expanding the customer base and customer access for existing businesses
2. Improving the market value of existing properties
3. Catalyzing “truly urban” transit-oriented new development… greater intensity, less parking
4. Expanding the area which can support this “walkable urbanism”

CONSIDERING ALTERNATIVE MODES

- Uses rails embedded in the street
- Shares traffic lane with automobiles
- Provides connections within a compact urban setting
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Station platforms enable easy boarding for bikes, wheelchairs, and strollers
- Accelerates economic development and creates more livable, desirable places

MODERN STREETCAR OVERVIEW

Portland opened the country’s first modern streetcar in 2001.
Streetcar Systems in Operation

Streetcar Systems in Planning or Design

Some “Hot” Streetcar Projects

Portland, Oregon
- Has generated $3.5 billion in private investment

Little Rock, Arkansas
- $400 million in new development within two blocks

Tacoma, Washington
- Provides important connection to regional rail system

Tampa, Florida
- Tourism focus, but has also generated $1 billion in new development

Seattle, Washington
- 12,500 jobs created along route since streetcar was announced

Kenosha, Wisconsin
- Historic trolley has helped fuel redevelopment

Urban Circulator Alternatives Analysis

Vehicle
- 66 feet long (standard bus is 40 feet)
- 8 feet width (standard bus is 8 ½ feet)
- 12 feet high (standard bus is 9 ½ feet)
- Seated capacity = 29; standee capacity = 127

Overhead Streetcar Power
- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles

MODERN STREETCAR VEHICLE
**Urban Circulator Alternatives Analysis**

**STREETCAR INFRASTRUCTURE**

Station
- Raised platform (10” height) for vehicle boarding without steps
- Typically includes amenities such as shelters, benches, and passenger information
- Stations can be built into the adjacent sidewalk and placed in a parking lane
- Stations located every 1/8 mile on average
- Streetcar stations can be shared with buses

Streetcar Guideway
- Reinforced concrete slab with built-in rails provides smooth ride
- Rails are flush with street; cars also use the lane
- Concrete slab is 8 feet wide and 12 inches deep
- Utilities under the track slab may need to be relocated

**ECONOMIC IMPACT OF STREETCAR**

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
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<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
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<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
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<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
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<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
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<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
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**VIABLE STREETCAR CITIES...**

- Active urban real estate market
- Great, pedestrian-oriented streets
- Strong local leadership
- Support from other project partners
- Private partners willing to invest

**ENHANCED BUS PRINCIPLES**

- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
- Operates with automobiles in shared traffic lane
- Can operate as urban circulator or regional connector
- Oriented more toward enhancing mobility options rather than accelerating economic development
- Has proven successful in attracting riders who would not otherwise use transit

The SWIFT bus rapid transit line in suburban Seattle uses distinct stations, upgraded buses, and traveling to different markets.
### Urban Circulator Alternatives Analysis

#### ENHANCED BUS INFRASTRUCTURE

**Vehicle**
- 40'-60 feet long (standard bus is 40 feet)
- 8 ½ feet wide
- 9 ½ - 10 ½ feet high
- 40' bus capacity:
  - Seated = 42; standees = 43
- 60' bus capacity:
  - Seated = 59; standees = 57

**Power**
- Powered by engine on bus
- Many enhanced buses are hybrid-electric
- No overhead infrastructure

#### ENHANCED BUS INFRASTRUCTURE

**Station**
- Raised platform (10” height) for vehicle boarding without steps
- Typically includes amenities such as shelters, benches, and passenger information
- Stations can be built into the adjacent sidewalk and placed in a parking lane
- Stations located every 1/8 mile on average

**Guideway**
- Uses existing streets

### OTHER CITIES WITH ENHANCED BUS

<table>
<thead>
<tr>
<th>Stylistic vehicles</th>
<th>Enhanced stops</th>
<th>Unique branding</th>
<th>High frequency (10-15 min. or less)</th>
<th>Traffic signal priority</th>
<th>Electronic passenger information</th>
<th>Queue jumpers</th>
<th>Level boarding</th>
<th>Dedicated lanes</th>
<th>Local Bus</th>
<th>Enhanced Bus</th>
<th>Bus Rapid Transit</th>
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### OTHER CITIES WITH ENHANCED BUS

- **Orlando, Florida**
  - Three-mile loop through downtown in dedicated lanes; free service

- **Eugene, Oregon**
  - Enhancements to bus service led to 74% ridership increase

- **Las Vegas, Nevada**
  - Ridership increased 25% on initial BRT line compared to standard bus

- **Baltimore, Maryland**
  - Free downtown circulator includes branding and attractive vehicles

### PROJECT BACKGROUND

**Federal Project Development Process**
Feasibility Study

Urban Circulator Alternatives Analysis (AA)

Environmental Assessment

Future

Future

Future

CONSIDER BUS AND RAIL OPTIONS

Streetcar
Fixed rail technology, operating in mixed traffic

Enhanced Bus
Bus option offering physical and technological enhancements

Standard Bus
Continuation of typical local bus service

WHAT IS THIS STUDY FOR?

• Initial streetcar feasibility assessment in Winston-Salem Streetcar Feasibility Study
• More detailed evaluation of “urban circulator”
• Project definition, impacts, benefits, costs
• Produces Alternatives Analysis (AA) which is a federally-required documentation
• Next step toward potential implementation

WORK PLAN AND STUDY SCHEDULE

SCOPE OF WORK

Define Problem
• Why are we doing this?
• “Purpose and need” – making the case for a project

Develop Options
• Define conceptual options for route and mode
• Select “best” options for more detailed analysis

Evaluate Refined Options
• Conceptual designs
• Ridership projections
• Cost estimates
• Financial plan

Select Preferred Alternative
• Adopt a “Locally Preferred Alternative”
• FTA decides if project should be advanced

Public Involvement

• “Telling the Story” of the project and gaining input
  – Outreach at scheduled events
  – Public workshops and open houses
  – Meeting with small groups of stakeholders (local neighborhoods, chamber, Downtown partnership, universities, churches, etc.)
  – Briefing elected officials
  – Coordination with agencies
Define Problem
Develop Options
Evaluate Refined Options
Select Preferred Alternative

Jan    Feb    Mar    Apr    May    Jun    Jul    Aug    Sep    Oct    Nov    Dec

Hold open house to discuss goals and initial options
Select options for more detailed study
Hold open house to review detailed analysis

Ongoing:
• Project Website, Social Media and YouTube
• Fact Sheets
• Stakeholder Meetings
• Community Action Group
• Technical Working Group

PROJECT GOALS
Why is an Urban Circulator needed?

WHY ARE PROJECT GOALS NEEDED?
• Clear, concise answer to “What’s the Problem?”
• Articulates and justifies reason for the project
• Guides development of options and evaluation measures
• Galvanizes community awareness and support

POTENTIAL PROJECT GOALS

Mobility and Access
• Provide connections for local residents, students, and employees
• Connect to regional transit network

Livability
• Promote housing reinvestment in downtown
• Improve access to arts, cultural, recreational, and other community venues

Transit

Public Health

Environment

Economic Development

Potential Project Goals (Examples)
Urban Circulator Alternatives Analysis

**Economic Development**
- Provide a level and type of investment sufficient to encourage development
- Support continued viability of existing employers
- Encourage development in the Piedmont Triad Research Park

**Financing Opportunities**
- Develop a strategy that enables financing from future development
- Define a route that encourages financial support from existing property owners
- Select a route that enables potential cost sharing with other planned projects

**Environment and Public Health**
- Select a technology that has low emissions
- Consider alternative power sources for vehicles
- Encourage pedestrian and bicycle access to transit stops

**Livability and Sustainability**
Livability means "being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park, all without having to get into your car."

*Secretary Ray LaHood, U.S. Department of Transportation*

**OPPORTUNITIES**

- Special Events Venues
  - M.C. Benton, Jr. Convention Center
  - Reynolds Auditorium
  - Affirmations Cinema
  - Hanesbrands Theater
  - Piedmont Opera

- Sporting Venues / Parks & Recreation
  - BB&T Ballpark
  - Hanes Park
  - Joe White Tennis Center

- Transportation Hub
  - Winston-Salem Transit Authority / AMTRAK Connector
  - Piedmont Authority for Regional Transportation

- Major Employers
  - Wake Forest University
  - Baptist Medical Center
  - R & J Reynolds Tobacco Co
  - SAS
  - BB&T
  - GMAC

- Universities
  - Winston-Salem State University
  - Wake Forest University School of Medicine

**NEXT STEPS**
NEXT STEPS

• Prepare for open house
• Develop Purpose and Need statement and initial alternatives
• Next committee meetings - agenda items:
  – Review Purpose and Need statement
  – Share input from open house
  – Present potential routes
  – Develop evaluation criteria
APPENDIX A3:

TECHNICAL COMMITTEE
MEETING #2

MEETING NOTES
MEETING NOTES

Meeting Date: April 25, 2012, 3:30 – 5:30pm

Location: Bryce A. Stuart Municipal Building
3rd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Keith Wilson, DWSP
Daniel Yohannes, Targacept
Ken Basch, WFU
Stan Polanis, City of Winston-Salem
Paul Norby, City of Winston-Salem
Phillip Vereen, City of Winston-Salem
Karen Simon, Simon Resources
Brett Wallace, HDR
Claire Brinkley, HDR

Summary of Discussion:

- Claire Brinkley and Brett Wallace gave a PowerPoint presentation discussing the following:
  - Recap of the Open House;
  - The big picture - discuss goals / purpose & need for project;
  - Proposed transit options and screening process;
  - Defining route and vehicle options; and
  - Evaluating against the goals.

- Keith Wilson asked whether the 86 participants who attended the Open House on March 28 was a good turn out. Karen Simon responded that yes, it was a very good turnout given that this was our first workshop and word is just getting out that the project is underway. She added that that there are many more opportunities during the study process for the team to reach out to community groups and the general public at various local events.

- Daniel Yohannes, who was unable to attend the Open House but read the Winston-Salem Journal newspaper article, asked if the project cost was an issue at the Open House. Stan Polanis replied that concerns about cost were eased during the presentation. The material presented focused on the proposed return on investment and the benefits of having such a system. However, cost will continue to be a discussion point throughout the study.

- Brett provided an overview of the project goals, using the goals from the City’s Legacy planning process as a frame of reference. When discussing potential project goals, Daniel added that he would like for the selected alternative to “appeal to people of all ages (and abilities)” Other than this comment, the Committee concurred with the proposed project goals as presented.

- Karen asked Ken Basch about the primary purpose of the WFU shuttle. He explained that the shuttle is primarily for students who want to go between Wake Forest’s campus and downtown during the weekends. The shuttle is not really used for faculty who travel back & forth to the hospital or PTRP during the daytime hours, not sure there is a need yet.

- Brett explained the proposed “long list” of route alternatives, including the general concepts of either a 1st St/2nd St corridor or a 4th St/5th St corridor through downtown. An initial screening process will narrow down the general concepts to a certain corridor, and more detailed analysis
Committee members discussed the merits of a “north/south” route as compared to an “east/west” route. Stan Polanis and Paul Norby discussed the findings of the earlier Streetcar Feasibility Study and noted that an east/west route was identified as a starter line because of the significant destinations connected within a short distance, providing the best chance for immediate success. However, the north/south route is viewed as a subsequent phase connecting additional destinations.

The team was asked to show the following on future project maps:
- Potential north-south extensions, to the north keep service off of University Boulevard;
- A list of the key destinations that are served by each route alternative.

The team asked the Technical Committee to continue to review the proposed project goals and provide feedback to Stan Polanis.

Information presented at this meeting is considered draft until approved by the Policy Committee. The Policy Committee will meet within the next month. Upon review by the Policy Committee, the project goals and long list of alternatives will be considered complete. This information will be compiled in a “Project Initiation Package”.

The next Technical Committee meeting will focus on the initial screening of the long list of route alternatives and will be held at a time and date to be determined.
APPENDIX A4:

TECHNICAL COMMITTEE
MEETING #2

PRESENTATION
TECHNICAL COMMITTEE

Meeting #2
April 25, 2012

AGENDA
1. Welcome and introductions
2. Recap of open houses
3. Proposed project goals
4. Proposed transit options and screening process
5. Study schedule and next steps

KEY QUESTIONS
- Do you concur with the proposed goals?
- Do the alternatives cover the reasonable options?

RECAP OF OPEN HOUSES

OPEN HOUSE
- Held at Central Library Auditorium on March 28, 2012
- More than 80 people attended

The objective was to introduce the study and obtain input on goals and options to consider.

Overall vision for Winston-Salem
Help identify project goals
What is the best route for new service?
What might new service look like?

OPEN HOUSE
- Attendees were asked to rate project goals and identify preferred streetscape options, vehicle technologies and routes.
- Potential vehicle technologies include WSTA trolley, longer “accordion style” buses, low-floor boarding vehicles, modern streetcar, and “heritage” streetcar.
WHAT IS IMPORTANT TO YOU?

Top choices for goals (number of responses):
• Circulate among key destinations (23)
• Make transit easy to use (17)
• Support arts and cultural activities (17)
• Encourage economic development (15)
• Create vibrant, attractive place (15)
• Connect to other transit services (14)

WHAT WE HEARD

• Streetcar is the best option. It’s the only one that produces substantial economic return.
• The improvements needed to be effective would be great and costly, and in the current economic state I am not sure it would be a good idea.
• Those who benefit should help pay for it.
• No ‘olde time’ look, please; make it look cool!
• Glad to see people who are actually considering making our city a better place, seeing advancement to a city like W-S is a big deal.

WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

WHAT CONNECTIONS ARE IMPORTANT?

• WFU Baptist Hospital
• Piedmont Triad Research Park (PTRP)
• BB&T Ballpark (W-S Dash)
• UNC School of the Arts
• WFU
• WSSU
• Airport
• Union Station
• Convention Center
• Downtown to LJVMC, YMCA-Hanes Park, PTI Airport
• Forsyth Hospital
• Transportation Center to WSSU
• Salem College to UNCSA/Washington Park
• PTIP to WFU/WF Baptist Hospital
• Burke Street to Convention Center to Arts District
• Transportation Center
• Park n' Ride
• Library, Government buildings
• Use 5th Street instead of 6th Street
• Circulator rather than single, 2-way tracks
PROPOSED PROJECT GOALS

THE BIG PICTURE – BUILDING UPON THE LEGACY PLAN

Legacy 2001 Accomplishments

Growing Smarter and Better by Managing Future Development

Fiscal Responsibility

Livable Design

Sustainable Growth

GROWING SMARTER

Story of the Asheville JCPenney

• The old JCPenney sat vacant for 40 years before it was remodeled
• Taxable value in 1991 (vacant) = $300K
• Taxable value today = $11M

Comparison

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<th>Tax Value</th>
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<th>Revenue / Acre</th>
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<td>Old JCPenney</td>
<td>$11M</td>
<td>1/5</td>
<td>$634,000</td>
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<td>Super Wal-mart</td>
<td>$20M</td>
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<td>$6,500</td>
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GROWING SMARTER

Raleigh, NC

It would take 600 single-family home to equal the tax base of the 30-story Wells Fargo Capital Center downtown.
GROWING SMARTER
Sarasota, FL

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<tr>
<th>Time to pays off infrastructure cost</th>
<th>357-unit multi-family complex</th>
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<tr>
<td></td>
<td>30-acre subdivision</td>
<td>42 years</td>
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Winston-Salem’s Story

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<th>Acres</th>
<th>Tax Value</th>
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<td>Magnolia Building</td>
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<td>Wal-Mart on Peters Creek Parkway</td>
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Transit helps to focus growth in a sustainable, fiscally-responsible manner

PROPOSED TRANSIT OPTIONS AND SCREENING PROCESS

EVALUATION PROCESS

<table>
<thead>
<tr>
<th>April 2012</th>
<th>Summer 2012</th>
<th>Fall 2012</th>
<th>Winter 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Screening</td>
<td>Stakeholder Input</td>
<td>Conceptual Engineering</td>
<td>Ridership Estimates</td>
</tr>
</tbody>
</table>

ROUTE AND VEHICLE OPTIONS

ROUTE SELECTION

TECHNOLOGY SELECTION / ROUTE REFINEMENT

LOCALLY PREFERRED ALTERNATIVE

DEFINING ROUTE OPTIONS

- Assumed no change in street traffic flow
- Variations in routes in downtown
- Range of routes shown to compare benefits and impacts; other combinations are possible

DEFINING ROUTE OPTIONS

- Access Wake Forest Baptist Hospital using 1st St. and Hawthorne Rd.
- Two-way urban circulator traffic on 1st and Hawthorne
- End of line design options to be determined
### DEFINING ROUTE OPTIONS

- 1st St. and 2nd St. could operate as a two-way couplet
- 4th St. and 5th St. could operate as a couplet or independently
- Multiple connections are possible between 4th St. and 5th St.

- Access Winston-Salem State University using Rams Dr.; and
- Access Union Station using Martin Luther King Jr. Dr.

### DEFINING TECHNOLOGY OPTIONS

- **Streetcar**
  - Fixed rail technology operating in mixed traffic
- **Enhanced Bus**
  - Bus option offering enhancements to vehicles, stations, and other elements
- **Standard Bus**
  - Continuation of typical local bus service like the WSTA trolley

### PERFORMANCE MEASURES

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<thead>
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<th>Goals</th>
<th>Performance Measures</th>
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<tr>
<td>Circulate among key destinations in urban core</td>
<td>- Service to key existing activity centers and development sites - Ridership potential - System capacity - Travel time - Traffic impacts</td>
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<td>- Minimization of conflict with existing utility &amp; street infrastructure</td>
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NEXT STEPS

- Develop Purpose and Need statement and initial alternatives
- “Telling the Story” of the project and gaining input for route evaluation
- Publish Project Initiation Package
- Initial screening of route options
- [http://www.cityofws.org/Home/Departments/Transportation/Articles/UrbanCirculator](http://www.cityofws.org/Home/Departments/Transportation/Articles/UrbanCirculator)

QUESTIONS

Not Used

PROJECT DEVELOPMENT PROCESS

A VISION FOR WILMINGTON

- Strategic Planning
- Urban Circulator Plan
- Urban Circulator
- Public Engagement
- Route Development
- Regional Transit
- Operations
- Maintenance
- Financial Analysis
- Project Timeline
- Implementation Plan
- Evaluation Plan
- Media Plan
Economic Development

- Streetcar is the best option. It’s the only one that produces substantial economic return.

Costs

- Not sure that the actuality of this project will be effective, just based on the failures of multiple transportation systems in other cities. The improvements needed to be effective would be great and costly, and in the current economic state I am not sure it would be a good idea.
- Those who benefit should help pay for it.
### SIMPLE MATH THAT CAN SAVE CITIES

#### Story of the Asheville Hotel
In the 1990s, local real-estate developer Public Interest Projects set its sights on the building for a mixed-use retail and residential property. Local bankers and businessmen said they were foolish. No one wants to live downtown, they said. Public Interest Projects went ahead with its own money.

- *The Atlantic*

#### Asheville’s old JCPenney
Asheville has a Super Wal-mart about two-and-half miles east of downtown. Its tax value is a whopping $20 million. But it sits on 34 acres of land. This means that the Super Walmart yields about $6,500 an acre in property taxes, while the remodeled JCPenney downtown is worth $634,000 in tax revenue per acre. (Add sales tax revenue, and the downtown property is still worth more than six times as much as the Walmart per acre.)

- *The Atlantic*

### GROWING SMARTER

#### Story of the Asheville Hotel
- The once-vacant building is was redeveloped in the 1990s to mixed-use retail and residential property.
- The property is responsible for exponentially more property tax revenue that helps pay for police, parks and city streets.

#### Asheville’s old JCPenney
The old JCPenney sat vacant for 40 years before it was remodeled. It is now home to a beauty salon in the basement, retail on the ground floor, office on the second floor and 19 condos above. In 1991, the taxable value of the vacant building was just $300,000. Now, this property that sits on one-fifth of an acre is worth $11 million.

- *The Atlantic*

### ILLUSTRATING TRANSIT NEEDS IN DOWNTOWN
- Connect people and places
- Provide more transportation choices for local and regional connectivity

#### USING TRANSIT AS A TOOL TO MEET OTHER NEEDS
- Support local and regional economic development goals
- Build sustainable neighborhoods through transit investment
GROWING SMARTER

**Winston-Salem’s Story**

<table>
<thead>
<tr>
<th>Acres</th>
<th>Tax Value</th>
<th>Proportionately Valued</th>
</tr>
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<tbody>
<tr>
<td>Magnolia Building 2.28</td>
<td>$75.7M</td>
<td>$33.2M per acre</td>
</tr>
<tr>
<td>Wal-Mart on Peters Creek Parkway 28</td>
<td>$21.1M</td>
<td>$754,000 per acre</td>
</tr>
</tbody>
</table>

**THE CASE FOR URBAN INVESTMENT**

One of the best things that cities can do to create jobs—especially in the private sector—is to improve the quality of life of their inhabitants.

- Carlos Slim Neú (Mexican business magnate and philanthropist)

“We need to create a city that people want to live in. Talent can move anywhere. Building out places for people to walk...is important for business.”

- Janette Sadik-Khan, the commissioner of the New York City Department of Transportation

MODERN STREETCAR OVERVIEW

- Uses rails embedded in the street
- Shares traffic lane with automobiles
- Provides connections within a compact urban setting
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Station platforms enable easy boarding for bikes, wheelchairs, and strollers
- Accelerates economic development and creates more livable, desirable places

**MODERN STREETCAR VEHICLE**

**Vehicle**

- 66 feet long (standard bus is 40 feet)
- 8 feet width (standard bus is 8 1/2 feet)
- 12 feet high (standard bus is 9 1/2 feet)
- Seated capacity = 29; standee capacity = 127

**Overhead Streetcar Power**

- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles

ENHANCED BUS OVERVIEW

- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
- Operates with automobiles in shared traffic lane
- Can operate as urban circulator or regional connector
- Oriented more toward enhancing mobility options rather than accelerating economic development
- Has proven successful in attracting riders who would not otherwise use transit

ENHANCED BUS VEHICLE

**Vehicle**

- 40’-60 feet long (standard bus is 40 feet)
- 8 1/2 feet wide
- 9 1/2 - 10 1/2 feet high
- 40’ bus capacity:
  - Seated = 42; standees = 43
- 60’ bus capacity:
  - Seated = 59; standees = 57

**Power**

- Powered by engine on bus
- Many enhanced buses are hybrid-electric
- No overhead infrastructure
APPENDIX A5:

POLICY COMMITTEE
MEETING #2

MEETING NOTES
MEETING NOTES

Date: May 29, 2012
3:30 – 5:00 p.m.

Location: Bryce A. Stuart Municipal Building
2nd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Gayle Anderson, Winston-Salem Chamber of Commerce
Dan Besse, Winston-Salem City Council
Alan Caldwell, Reynolds American Tobacco
Brent McKinney, PART
Graydon Pleasants, Piedmont Triad Research Park
Michael Suggs, Downtown Winston-Salem Partnership
Ralph Womble, NCDOT
Kirk Ericson, City of Winston-Salem
Phillip Vereen, City of Winston-Salem
Greg Errett, City of Winston-Salem
Paul Norby, City of Winston-Salem
Brett Wallace, HDR
Claire Brinkley, HDR

Summary of Discussion:

- Claire Brinkley and Brett Wallace gave a PowerPoint presentation discussing the following:
  - Recap of the Open House;
  - The big picture - discuss goals / purpose & need for project;
  - Proposed transit options and screening process;
  - Defining route and vehicle options; and
  - Evaluating against the goals.

- The study team asked the Policy Committee to review the proposed project goals and provide feedback.

- Committee members discussed the perception that parking is not available in downtown. The goal for parking strategies and the “park once” concept may not be a good fit for Winston-Salem.

- Gayle Anderson and Ralph Womble felt that tying the goals to the Legacy Plan may a hard connection for the general public to grasp as a primary description of the overall “vision”. Ms. Brinkley added that Legacy was a good way to frame the project and achieve some of EPA-HUD-DOT’s sustainability principles. The study team will continue to reference Legacy but will place primary emphasis on the need for economic development.

- Committee members would like to see more emphasis on economic development as a project goal. Brent McKinney shared his experience touring Charlotte’s South End and the economic development that resulted from transit infrastructure.

- The Policy Committee agreed with the Technical Committee’s suggestion to show potential future north/south extensions to Wake Forest University and School of the Arts on the project maps.
• Greg Errett added that a route alternative should extend east via Martin Luther King Jr. Dr to serve East Winston. Michael Suggs agreed that this would be a valuable connection. The study team will add 5th St (between US 52 and Martin Luther King Jr. Dr) and Martin Luther King Jr. Dr (between 5th St and Union Station) to the list of corridors that will be studied.

• Mr. McKinney thinks that a 1/2 cent sales tax for Forsyth and Guilford Counties should be on a future referendum ballot. This could be one potential funding source for an urban circulator. Mr. Wallace added that the project could be funded through various federal, state and local sources, including FTA New Starts/Small Starts funding or other programs such as USDOT TIGER grants. Local funding options could be collected through a variety of mechanisms, including dedicated tax revenues and “value capture” strategies. Dan Besse shared that a TIF mechanism in downtown Winston-Salem is available to City Council without a referendum.

• Information presented at this meeting will be compiled in a “Project Initiation Package” and modified based on comments received from the Policy Committee.
<table>
<thead>
<tr>
<th>CHECK IF ATTENDED</th>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>E-MAIL</th>
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<tr>
<td></td>
<td>Gayle Anderson</td>
<td>Winston-Salem Chamber of Commerce</td>
<td><a href="mailto:anderson@winstonsalem.com">anderson@winstonsalem.com</a></td>
</tr>
<tr>
<td></td>
<td>Dan Besse</td>
<td>Winston-Salem City Council</td>
<td><a href="mailto:danbesse@clear.net">danbesse@clear.net</a></td>
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<tr>
<td></td>
<td>Allan Caldwell</td>
<td>Reynolds American Tobacco</td>
<td><a href="mailto:caldwea1@rjt.com">caldwea1@rjt.com</a></td>
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<td>Cornelius Graves</td>
<td>Winston-Salem State University</td>
<td><a href="mailto:gravescc@wssu.edu">gravescc@wssu.edu</a></td>
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<td></td>
<td>Brent McKinney</td>
<td>PART</td>
<td><a href="mailto:brentm@partnc.org">brentm@partnc.org</a></td>
</tr>
<tr>
<td></td>
<td>Chad Nolan</td>
<td>Wake Forest University Baptist Medical Center</td>
<td><a href="mailto:cdnolan@wfebmc.edu">cdnolan@wfebmc.edu</a></td>
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<td><a href="mailto:pauln@cityofws.org">pauln@cityofws.org</a></td>
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<td><a href="mailto:gleasan@wakehealth.edu">gleasan@wakehealth.edu</a></td>
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<tr>
<td></td>
<td>Michael Suggs</td>
<td>Downtown Winston-Salem Partnership</td>
<td><a href="mailto:msuggs@golercdc.org">msuggs@golercdc.org</a></td>
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<tr>
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<td>Ralph Womble</td>
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<td>Brett Wallace</td>
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<td><a href="mailto:brett.wallace@hdrinc.com">brett.wallace@hdrinc.com</a></td>
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<tr>
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<td>Simon Resources</td>
<td><a href="mailto:simonresrc@aol.com">simonresrc@aol.com</a></td>
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APPENDIX A6:

POLICY COMMITTEE
MEETING #2

PRESENTATION
POLICY COMMITTEE

Meeting #2
May 29, 2012

AGENDA
1. Welcome and introductions
2. Recap of open houses
3. Proposed project goals
4. Proposed transit options and screening process
5. Study schedule and next steps

KEY QUESTIONS
• Do you concur with the proposed goals?
• Do the alternatives cover the reasonable options?
RECAP OF OPEN HOUSES

OPEN HOUSE

• Held at Central Library Auditorium on March 28, 2012
• More than 80 people attended
The objective was to introduce the study and obtain input on goals and options to consider.

- Overall vision for Winston-Salem
- Help identify project goals
- What is the best route for new service?
- What might new service look like?

OPEN HOUSE

- Attendees were asked to rate project goals and identify preferred streetscape options, vehicle technologies and routes.
- Potential vehicle technologies include WSTA trolley, longer “accordion style” buses, low-floor boarding vehicles, modern streetcar, and “heritage” streetcar.
WHAT IS IMPORTANT TO YOU?

Top choices for goals (number of responses):
• Circulate among key destinations (23)
• Make transit easy to use (17)
• Support arts and cultural activities (17)
• Encourage economic development (15)
• Create vibrant, attractive place (15)
• Connect to other transit services (14)

PROPOSED PROJECT GOALS
THE BIG PICTURE – BUILDING UPON THE LEGACY PLAN

Legacy 2001 Accomplishments

- Growth management Policies
- Implementation of Transportation Alternatives
- Development of PTRP and other economic growth
- New environmental regulations
- Greenway construction and open space preservation
- Neighborhood revitalization and enhancements
- Downtown investment

Urban Circulator directly fulfills this objective
Urban Circulator supports this objective
Other objectives

THE BIG PICTURE – BUILDING UPON THE LEGACY PLAN

Legacy Update Themes

- Sustainable Growth
- Growing Smarter and Better by Managing Future Development
- Fiscal Responsibility
- Livable Design
PROPOSED GOALS

The Vision: Growing Smarter and Better by Managing Future Development

- **Sustainable Growth**
  - Encourage transit-supportive development including a mixture of uses
  - Promote a transit-supportive parking strategy and enhance pedestrian connectivity

- **Livable Design**
  - Circulate among key destinations in urban core
  - Connect to local and regional transit to provide the “last mile of service”
  - Protect and enhance the City’s distinct character

- **Fiscal Responsibility**
  - Focus development to maximize return on investment
  - Support efficiency of public infrastructure and services

GROWING SMARTER

**Story of the Asheville JCPenney**

- The old JCPenney sat vacant for 40 years before it was remodeled
- Taxable value in 1991 (vacant) = $300K
- Taxable value today = $11M

**Comparison**

<table>
<thead>
<tr>
<th></th>
<th>Tax Value</th>
<th>Acres</th>
<th>Revenue / Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old JCPenney</td>
<td>$11M</td>
<td>1/5</td>
<td>$634,000</td>
</tr>
<tr>
<td>Super Wal-mart</td>
<td>$20M</td>
<td>34</td>
<td>$6,500</td>
</tr>
</tbody>
</table>
GROWING SMARTER

Raleigh, NC

It would take 600 single-family home to equal the tax base of the 30-story Wells Fargo Capital Center downtown.

requires 150-acres

sits on 1.2 acres

GROWING SMARTER

Sarasota, FL

<table>
<thead>
<tr>
<th>Time to pays off infrastructure cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>357-unit multi-family complex</td>
</tr>
<tr>
<td>30-acre subdivision</td>
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GROWING SMARTER

Winston-Salem’s Story

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Transit helps to focus growth in a sustainable, fiscally-responsible manner

PROPOSED TRANSIT OPTIONS AND SCREENING PROCESS
EVALUATION PROCESS

- Initial Screening
- Stakeholder Input
- Conceptual Engineering
- Ridership Estimates
- Public Input

ROUTE AND VEHICLE OPTIONS
ROUTE SELECTION
TECHNOLOGY SELECTION / ROUTE REFINEMENT
LOCALLY PREFERRED ALTERNATIVE

April 2012
Summer 2012
Fall 2012
Winter 2012

Select a Route
Select a Technology
Refine Route
Review and Adoption

DEFINING ROUTE OPTIONS

- Assumed no change in street traffic flow
- Variations in routes in downtown
- Range of routes shown to compare benefits and impacts; other combinations are possible
DEFINING ROUTE OPTIONS

• Access Wake Forest Baptist Hospital using 1st St. and Hawthorne Rd.
• Two-way urban circulator traffic on 1st and Hawthorne
• End of line design options to be determined

DEFINING ROUTE OPTIONS

• 1st St. and 2nd St. could operate as a two-way couplet
• 4th St. and 5th St. could operate as a couplet or independently
• Multiple connections are possible between 4th St. and 5th St.
DEFINING ROUTE OPTIONS

- Access PTRP via 5th St. railroad underpass
- Access PTRP via 4th St. or 3rd St. at-grade railroad crossings (problematic);
- Access Rams Dr. using future Research Pkwy, potential connection adjacent to rail right-of-way, or Salem Avenue

DEFINING ROUTE OPTIONS

- Access Winston-Salem State University using Rams Dr.; and
- Access Union Station using Martin Luther King Jr. Dr.
DEFINING TECHNOLOGY OPTIONS

Streetcar
- Fixed rail technology operating in mixed traffic

Enhanced Bus
- Bus option offering enhancements to vehicles, stations, and other elements

Standard Bus
- Continuation of typical local bus service like the WSTA trolley

PERFORMANCE MEASURES

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• Traffic impacts  
• Design constraints |
| Connect to local and regional transit to provide the “last mile of service” | • Integration with other transit service:  
  — Access to Transportation Center  
  — Link to future commuter rail  
  — Connectivity to potential extensions |
| Protect and enhance the City’s distinct character | • Enhancement of the traditional downtown form and walkable grid  
• Consistency with adopted plans  
• Positive passenger experience  
• Minimize potential historical and environmental impacts |
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<td></td>
<td>• Minimization of conflict with existing utility &amp; street infrastructure</td>
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KEY ACTIVITIES IN UPCOMING MONTHS

- Develop Purpose and Need statement and initial alternatives
- “Telling the Story” of the project and gaining input for route evaluation
- Publish Project Initiation Package
- Initial screening of route options

QUESTIONS
Streetcar is the best option. It’s the only one that produces substantial economic return.

The improvements needed to be effective would be great and costly, and in the current economic state I am not sure it would be a good idea.

Those who benefit should help pay for it.

No ‘olde time’ look, please; make it look cool!

Glad to see people who are actually considering making our city a better place, seeing advancement to a city like W-S is a big deal.
WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

Vehicle Types

Modern Streetcar

20

Streetcar Market Place

14

Enhanced Bus Service

5

Rubber Tread Trolley

12

WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

Streetscapes

Dedicated Right-of-Way (Tramway)

7

Streetcar Crossing in Mixed Traffic

16

MetroLink Exits in Mixed Traffic with Obstructed Pedestrian Crossing

4

Enhanced Bus Lane Dedicated Lanes

12
WHAT SHOULD THE SERVICE LOOK LIKE?

(number of responses below pictures)

Station Stop Types

| 1 | 4 | 20 | 13 |

WHAT CONNECTIONS ARE IMPORTANT?

- WFU Baptist Hospital
- Piedmont Triad Research Park (PTRP)
- BB&T Ballpark (W-S Dash)
- UNC School of the Arts
- WFU
- WSSU
- Airport
- Union Station
- Convention Center
- Downtown to LVMC, YMCA-Hanes Park, PTI Airport
- Forsyth Hospital
- Transportation Center to WSSU
- Salem College to UNCSA/Washington Park
- PTRP to WFU/WF Baptist Hospital
- Burke Street to Convention Center to Arts District
- Transportation Center
- Park n Ride
- Library, Government buildings
- Use 5th Street instead of 6th Street
- Circulator rather than single, 2-way tracks
7/1/2013

WHAT IS IMPORTANT TO YOU?

Example Goals
Place Data in Bus Nest to Important Goal(s)

- Reduce latency by developing
  - Improved transit
  - Diverse travel modes

- Increase passenger satisfaction
  - More frequent service
  - Improved reliability

- Reduce congestion
  - Less idling
  - Reduced stops

- Increase accessibility
  -更好的可达性
  - Reduced waiting times

- Improve safety
  - Lower accident rates
  - Improved pedestrian facilities

MORALITY

- Improve economic development
  - Enhanced business environment
  - Attract new businesses

- Enhance community cohesion
  - Foster social interaction
  - Promote community events

COMMUNITY

- Improve public health
  - Reduced air pollution
  - Improved physical activity

- Increase property values
  - Attractive neighborhoods
  - Improved safety

- Support arts and cultural activities
  - Enhanced cultural diversity
  - Improved quality of life

TRANSIT TECHNOLOGY OPTIONS

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Heavy Rail</th>
<th>Commuter Rail</th>
<th>Modern Light Rail</th>
<th>Modern Transit</th>
<th>Enhanced Bus</th>
<th>Rapid Transit</th>
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<td>Example Cities</td>
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19
WHAT WE HEARD

Economic Development
• Streetcar is the best option. It’s the only one that produces substantial economic return.

Costs
• Not sure that the actuality of this project will be effective, just based on the failures of multiple transportation systems in other cities. The improvements needed to be effective would be great and costly, and in the current economic state I am not sure it would be a good idea.
• Those who benefit should help pay for it.

WHAT WE HEARD

General
• No ‘olde time’ look, please; make it look cool!
• Thank you for consideration, implementation and execution of this splendid idea and presentation.
• Glad to see people who are actually considering making our city a better place, seeing advancement to a city like W-S is a big deal.
SIMPLE MATH THAT CAN SAVE CITIES

Story of the Asheville Hotel

In the 1990s, local real-estate developer Public Interest Projects set its sights on the building for a mixed-use retail and residential property. Local bankers and businessmen said they were foolish. No one wants to live downtown, they said. Public Interest Projects went ahead with its own money.

-The Atlantic

GROWING SMARTER

Story of the Asheville Hotel

• The once-vacant building is was redeveloped in the 1990s to mixed-use retail and residential property.
• The property is responsible for exponentially more property tax revenue that helps pay for police, parks and city streets.
SIMPLE MATH THAT CAN SAVE CITIES

Story of the Asheville Hotel
In the 1970s, the building sat vacant and didn’t contribute much to the public coffers. Today through, that same parcel of land is responsible for exponentially more property tax revenue that helps pay for police, parks and city streets.

- The Atlantic

SIMPLE MATH THAT CAN SAVE CITIES

Asheville’s old JCPenney
The old JCPenney sat vacant for 40 years before it was remodeled. It is now home to a beauty salon in the basement, retail on the ground floor, office on the second floor and 19 condos above. In 1991, the taxable value of the vacant building was just $300,000. Now, this property that sits on one-fifth of an acre is worth $11 million.

- The Atlantic
SIMPLE MATH THAT CAN SAVE CITIES

Asheville’s old JCPenney
Asheville has a Super Wal-mart about two-and-half miles east of downtown. Its tax value is a whopping $20 million. But it sits on 34 acres of land. This means that the Super Walmart yields about $6,500 an acre in property taxes, while the remodeled JCPenney downtown is worth $634,000 in tax revenue per acre. (Add sales tax revenue, and the downtown property is still worth more than six times as much as the Walmart per acre.)

- The Atlantic

ILLUSTRATING TRANSIT NEEDS IN DOWNTOWN

- Connect people and places
- Provide more transportation choices for local and regional connectivity

USING TRANSIT AS A TOOL TO MEET OTHER NEEDS

- Support local and regional economic development goals
- Build sustainable neighborhoods through transit investment
GROWING SMARTER

Winston-Salem’s Story

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Net Tax Value per Acre, 2011

THE CASE FOR URBAN INVESTMENT

One of the best things that cities can do to create jobs—especially in the private sector—is to improve the quality of life of their inhabitants.

- Carlos Slim Helú (Mexican business magnate and philanthropist)

“We need to create a city that people want to live in. Talent can move anywhere. Building out places for people to walk...is important for business.”

- Janette Sadik-Khan, the commissioner of the New York City Department of Transportation
MODERN STREETCAR OVERVIEW

- Uses rails embedded in the street
- Shares traffic lane with automobiles
- Provides connections within a compact urban setting
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Station platforms enable easy boarding for bikes, wheelchairs, and strollers
- Accelerates economic development and creates more livable, desirable places


MODERN STREETCAR VEHICLE

Vehicle
- 66 feet long (standard bus is 40 feet)
- 8 feet width (standard bus is 8 ½ feet)
- 12 feet high (standard bus is 9 ½ feet)
- Seated capacity = 29;
  standee capacity = 127

Overhead Streetcar Power
- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles
ENHANCED BUS OVERVIEW

• Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
• Operates with automobiles in shared traffic lane
• Can operate as urban circulator or regional connector
• Oriented more toward enhancing mobility options rather than accelerating economic development
• Has proven successful in attracting riders who would not otherwise use transit

The SWIFT bus rapid transit line in suburban Seattle uses distinct stations, upgraded buses, and branding to attract customers.

ENHANCED BUS VEHICLE

Vehicle
• 40’-60 feet long (standard bus is 40 feet)
• 8 ½ feet wide
• 9 ½ - 10 ½ feet high
• 40’ bus capacity:
  Seated = 42; standees = 43
• 60’ bus capacity:
  Seated = 59; standees = 57

Power
• Powered by engine on bus
• Many enhanced buses are hybrid-electric
• No overhead infrastructure
APPENDIX A7:
POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #3
MEETING NOTES
MEETING NOTES

Meeting Date: September 26, 2012, 9:30 – 11:00am

Location: Bryce A. Stuart Municipal Building
5th Floor IS Conference Room
100 E 1st St, Winston-Salem, NC

Attendees:
Gayle Anderson, Winston-Salem Chamber of Commerce
Art Barnes, Winston-Salem Transit Authority
Ken Basch, WFU
Dan Besse, Winston-Salem City Council
Cornelius Graves, Winston-Salem State University
Toneq’ McCullough, City of Winston-Salem
Brent McKinney, PART
Paul Norby, City of Winston-Salem
Graydon Pleasants, Piedmont Triad Research Park
Keith Wilson, DWSP
Ralph Womble, NCDOT Division 9
Claire Brinkley, HDR
Brett Wallace, HDR
Eric Rouse, Sharon Greene & Associates

Summary of Discussion:

- Brett Wallace provided a recap of the planning workshop held on August 26th. The route options from the “spaghetti map” were refined based on stakeholder feedback and the ribbon exercise. Mr. Wallace walked the group through how the map was refined.

- Mr. Wallace established that a connection would be made to the Transportation Center. Art Barnes expressed concern about the capacity of the Transportation Center to handle additional service, because the center is already functioning near capacity with bus service. Mr. Wallace explained the circulator would not go into the center itself but would likely stay on Fifth Street in front of the center. Further discussion included the potential realignment of PART bus lines and possibly reconfiguring some of the WSTA routes to complement the urban circulator and relieve some of the congestion in and around the center. Brent McKinney mentioned that the Transportation Center was designed to expand to the parcel to the south in the future.

- Mr. Barnes explained that an urban circulator could potentially replace portions of WSTA Routes 18 and 20.

- Mr. Wallace discussed the elimination of at-grade railroad crossings at 3rd St. and 4th St. as possible routing options.

- Graydon Pleasants questioned why the circulator could not travel from 4th St. to Main St. to 5th St. Mr. Wallace explained that this alignment would bypass the Transportation Center and there are geometric concerns at Main St & 5th St.

- Mr. Wallace presented the six route alternatives along 4th St./5th St. that will be further considered. The group discussed the concerns regarding a streetcar on 4th St., including the aesthetics and impact on sidewalk dining.

- Ralph Womble asked about the impact of overhead wires and Mr. Wallace discussed emerging vehicle technologies that allow the vehicle to go off-wire for short distances.
• The group was concerned about how an urban circulator would impact the annual festivals held in downtown Winston-Salem. Mr. Wallace described the various ways to accommodate street closures for special events.

• Ken Basch made a general comment that the sidewalks on 4th St. are too narrow to accommodate both dining and pedestrian activity. He asked if there had ever been a study to close 4th St. to automobiles to create a pedestrian mall. Mr. Norby informed him that Trade St. was originally designed as a pedestrian-only street but it was reversed due to lack of activity. The group also discussed that many cities across the country, including nearby Raleigh, have reversed their approach to pedestrian malls in order to reintroduce activity to the streets.

• Ms. Gayle Anderson suggested convening a group of local stakeholders to discuss the 4th St./5th St. route alternatives.

• Mr. Wallace presented the route options in PTRP. Mr. Pleasants added that there will be more development along 4th St. and 3rd St. in the near-term. He prefers the route alternative along 4th St. to encourage development at the Bailey Power Plant.

• Mr. Wallace presented the initial potential station locations. Stations will be located near pedestrian activity centers and the spacing between them is typically around 1,000 feet.

• Claire Brinkley discussed the need for a vehicle maintenance facility for the streetcar alternative. She presented sites along the route that are under consideration, including the site under Business 40 near the Medical Center (this site was suggested during the earlier feasibility study and still appears to be viable). Mr. McKinney suggested that the study team consider a site behind WSSU near Union Station. Mr. Pleasants said that a different option for a maintenance facility in PTRP would be better than the option shown, because the particular site that has been identified as an initial candidate is on prime real estate. He suggests looking closer to Rams Dr. on the east side of Research Park Blvd.

• Eric Rouse described that this study will develop a funding strategy for capital and operating costs. To receive FTA funding for the project, all matching funds must be committed and the local project sponsor must document their ability to maintain the project and existing system in a state of good repair.

• Mr. Rouse presented the funding strategies for other streetcar and enhanced bus projects across the country for comparative purposes.

• Mr. Rouse outlined the federal funding sources that could be used to cover capital expenses. Mr. Barnes informed the group that all available Federal Section 5307 dollars are currently used by WSTA for operating existing service.

• Mr. Wallace reviewed the next steps for the project. In the coming months, the study team will be conducting a transit ridership survey, performing a development analysis, developing a transit operations plan, and producing the conceptual engineering for the route alternatives.

Action Items:

• The study team will distribute the comparison of funding strategies used by other streetcar projects across the country (see Page 3).

• The study team plans to work with the Downtown Partnership and Chamber of Commerce to organize a meeting with 4th St. and 5th St. stakeholders.
## FUNDING STRATEGIES – STREETCARS:

<p>|                      | Portland Phase 1-4 (1.4 mi. opens 2007) | Portland Eastside Loop (3.3 mi. opens 2012) | Seattle South Lake Union (1.3 mi. 2007) | Seattle First Hill Line (2.2 mi. opens 2014) | Tucson Modern Streetcar (2.9 mi. opens 2013) | Cincinnati Streetcar (1.5 mi. opens 2014) | Charlotte Streetcar (1.5 mi. opens 2015) | Atlanta's Streetcar (1.5 mi. opens 2013) | Sugar Hill &amp; City Stander | St. Louis Loop Trolley (2.2 mi. opens 2013) | Ft. Lauderdale 20th Ave. (1.4 mi. opens 2015) | Dallas-Oak Cliff Streetcar (0.6 mi. opens 2014) |
|----------------------|-----------------------------------------|-------------------------------------------|----------------------------------------|---------------------------------------------|--------------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------------|-----------------------------------------|---------------------------------------------|---------------------------------------------|
| <strong>Total Costs</strong>      | $103.2                                  | $148.3                                    | $52.1                                  | $140.0                                      | $187.8                                    | $110.4                                  | $37.0                                    | $69.2                            | $37.2                                    | $39.5                                      | $83.0                                      | $61.8                                      |
| <strong>Federal</strong>          | $7.0                                     | $75.4                                     | $14.9                                  | $0.0                                         | $69.0                                      | $35.9                                    | $25.0                                    | $47.6                            | $26.0                                    | $25.0                                      | $18.0                                      | $26.0                                      |
| Federal Funds        | $5.0                                     | $14.3                                     | $0.0                                   | $0.0                                         | $35.9                                      | $25.0                                    | $47.6                                    | $26.0                            | $25.0                                    | $18.0                                      | $26.0                                      | $26.0                                      |
| HUD Grant            | $2.0                                     | $63.0                                     | $10.9                                  | $47.6                                        | $26.0                                      | $18.0                                    | $26.0                                    | $25.0                            | $25.0                                    | $18.0                                      | $26.0                                      | $26.0                                      |
| TIGER                | $2.0                                     | $63.0                                     | $10.9                                  | $47.6                                        | $26.0                                      | $18.0                                    | $26.0                                    | $25.0                            | $25.0                                    | $18.0                                      | $26.0                                      | $26.0                                      |
| Urban Circulator Grant| $2.0                                     | $63.0                                     | $10.9                                  | $47.6                                        | $26.0                                      | $18.0                                    | $26.0                                    | $25.0                            | $25.0                                    | $18.0                                      | $26.0                                      | $26.0                                      |
| Small Starts         | $75.5                                    | $75.5                                     | $75.5                                  | $75.5                                        | $75.5                                      | $75.5                                    | $75.5                                    | $75.5                            | $75.5                                    | $75.5                                      | $75.5                                      | $75.5                                      |
| Small Starts Exempt  | $6.0                                     | $6.0                                      | $6.0                                   | $6.0                                         | $6.0                                       | $6.0                                     | $6.0                                     | $6.0                             | $6.0                                     | $6.0                                       | $6.0                                       | $6.0                                       |
| Stimulus Funds       | $0.4                                     | $0.4                                      | $0.4                                   | $0.4                                         | $0.4                                       | $0.4                                     | $0.4                                     | $0.4                             | $0.4                                     | $0.4                                       | $0.4                                       | $0.4                                       |
| <strong>State</strong>            | $2.1                                     | $2.1                                      | $2.1                                   | $2.1                                         | $2.1                                       | $2.1                                     | $2.1                                     | $2.1                             | $2.1                                     | $2.1                                       | $2.1                                       | $2.1                                       |
| Connect Oregon       | $2.1                                     | $2.1                                      | $2.1                                   | $2.1                                         | $2.1                                       | $2.1                                     | $2.1                                     | $2.1                             | $2.1                                     | $2.1                                       | $2.1                                       | $2.1                                       |
| State lottery funds  | $20.0                                    | $20.0                                     | $20.0                                  | $20.0                                        | $20.0                                      | $20.0                                    | $20.0                                    | $20.0                            | $20.0                                    | $20.0                                      | $20.0                                      | $20.0                                      |
| Florida DOT          |                                          |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| <strong>State General Funds</strong>| $3.0                                     | $3.0                                      | $3.0                                   | $3.0                                         | $3.0                                       | $3.0                                     | $3.0                                     | $3.0                             | $3.0                                     | $3.0                                       | $3.0                                       | $3.0                                       |
| <strong>Regional</strong>         | $10.0                                    | $3.6                                      | $0.0                                   | $140.0                                       | $89.0                                      | $4.0                                     | $0.0                                     | $0.0                             | $6.0                                     | $0.0                                       | $0.0                                       | $35.8                                      |
| Local Sales Tax      | $140.0                                   | $75.5                                     | $75.5                                  | $75.5                                        | $75.5                                      | $75.5                                    | $75.5                                    | $75.5                            | $75.5                                    | $75.5                                      | $75.5                                      | $75.5                                      |
| Regional Transportation Funds | $10.0                                    | $3.6                                      | $0.0                                   | $140.0                                       | $89.0                                      | $4.0                                     | $0.0                                     | $0.0                             | $6.0                                     | $0.0                                       | $0.0                                       | $35.8                                      |
| Toll Road Revenue    | $140.0                                   | $75.5                                     | $75.5                                  | $75.5                                        | $75.5                                      | $75.5                                    | $75.5                                    | $75.5                            | $75.5                                    | $75.5                                      | $75.5                                      | $75.5                                      |
| MPO (CMAQ/STP)       |                                           |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| UTA Vehicle &amp; ROW Donation | $14.0                                    | $4.0                                      | $4.0                                   | $4.0                                         | $4.0                                       | $4.0                                     | $4.0                                     | $4.0                             | $4.0                                     | $4.0                                       | $4.0                                       | $4.0                                       |
| <strong>Local</strong>            | $64.7                                    | $33.8                                     | $8.5                                   | $0.0                                         | $26.6                                      | $64.0                                    | $12.0                                    | $15.6                            | $11.2                                    | $3.5                                       | $29.3                                      | $0.0                                       |
| General Funds        | $1.8                                     | $6.1                                      | $6.1                                   | $6.1                                         | $6.1                                       | $6.1                                     | $6.1                                     | $6.1                             | $6.1                                     | $6.1                                       | $6.1                                       | $6.1                                       |
| Parking Bond         | $28.6                                    | $28.6                                     | $28.6                                  | $28.6                                        | $28.6                                      | $28.6                                    | $28.6                                    | $28.6                            | $28.6                                    | $28.6                                      | $28.6                                      | $28.6                                      |
| Parking Fund         | $2.0                                     | $2.0                                      | $2.0                                   | $2.0                                         | $2.0                                       | $2.0                                     | $2.0                                     | $2.0                             | $2.0                                     | $2.0                                       | $2.0                                       | $2.0                                       |
| Transportation Fund  | $2.3                                     | $2.3                                      | $2.3                                   | $2.3                                         | $2.3                                       | $2.3                                     | $2.3                                     | $2.3                             | $2.3                                     | $2.3                                       | $2.3                                       | $2.3                                       |
| Tax Increment Finance District | $21.5                                    |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| Portland Development Commission | $27.7                                    |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| Sale of Property     | $3.1                                     | $3.1                                      | $3.1                                   | $3.1                                         | $3.1                                       | $3.1                                     | $3.1                                     | $3.1                             | $3.1                                     | $3.1                                       | $3.1                                       | $3.1                                       |
| Land Donation        |                                           |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            | $10.5                                      |
| Savings from other capital projects | $6.7                                     |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| Tram Transfer        | $0.2                                     |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| Transportation Systems Development | $2.5                                     |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| Misc.                | $2.1                                     |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            |                                            |
| <strong>Private</strong>          | $19.4                                    | $15.5                                     | $25.7                                  | $0.0                                         | $3.2                                       | $6.5                                     | $0.0                                     | $0.0                             | $5.0                                     | $0.0                                       | $0.0                                       | $0.0                                       |
| Improvement/Assessment District | $19.4                                    | $15.5                                     | $25.7                                  | $0.0                                         | $3.2                                       | $6.5                                     | $0.0                                     | $0.0                             | $5.0                                     | $0.0                                       | $0.0                                       | $0.0                                       |
| Duke Energy          |                                           |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            | $5.0                                       |
| Gadsden Company      |                                           |                                           |                                       |                                              |                                            |                                          |                                          |                                  |                                            |                                            |                                            | $3.2                                       |</p>
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<td>Targacept</td>
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<td><a href="mailto:baschka@wfu.edu">baschka@wfu.edu</a></td>
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<td>✓</td>
<td>Paul Norby</td>
<td>City of Winston-Salem</td>
<td>747-7061</td>
<td><a href="mailto:pauln@mcityofws.org">pauln@mcityofws.org</a></td>
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<td>Michael Suggs</td>
<td>Goler CDC</td>
<td>761-0595</td>
<td><a href="mailto:msuggs@golercdc.org">msuggs@golercdc.org</a></td>
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<td>Scott Rhine</td>
<td>PART</td>
<td>662-0002</td>
<td><a href="mailto:scottr@partnc.org">scottr@partnc.org</a></td>
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<td>Ralph Womble</td>
<td>NCDOT Division 9</td>
<td></td>
<td><a href="mailto:rhw@triadbiz.rr.com">rhw@triadbiz.rr.com</a></td>
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<td>Brett Wallace</td>
<td>HDR Engineering</td>
<td>(704) 338-6759</td>
<td><a href="mailto:brett.wallace@hdrinc.com">brett.wallace@hdrinc.com</a></td>
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<tr>
<td>✓</td>
<td>Claire Brinkley</td>
<td>HDR Engineering</td>
<td>(704) 248-3632</td>
<td><a href="mailto:claire.brinkley@hdrinc.com">claire.brinkley@hdrinc.com</a></td>
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<td>Eric Rouse</td>
<td>Sharon Greene &amp; Associates</td>
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<td><a href="mailto:e.rouse@sharongreene.org">e.rouse@sharongreene.org</a></td>
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<td>Karen Simon</td>
<td>Simon Resources, Inc.</td>
<td>749-1411</td>
<td><a href="mailto:simonresrc@aol.com">simonresrc@aol.com</a></td>
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APPENDIX A8:

POLICY COMMITTEE / TECHNICAL COMMITTEE MEETING #3

PRESENTATION
POLICY & TECHNICAL COMMITTEES

September 26, 2012

AGENDA
1. Welcome and introductions
2. Recap of planning workshop
3. Proposed refined set of route options
4. Station characteristics and potential locations
5. Maintenance facility site options
6. Introduction to financing strategy
7. Study schedule and next steps

KEY QUESTIONS
- Do you concur with the refined set of route options?
- What funding options should be explored?
RECAP OF PLANNING WORKSHOP

PLANNING WORKSHOP

• Held at Wake Forest Biotech Place on August 29, 2012
• Many members of Technical and Policy Committees attended, along with other local stakeholders
• Included walking tour, discussion of route and mode options, and group route planning exercise
PLANNING WORKSHOP

Group Scenarios:
• Each group used the hospital as an end point
• Streetcar was selected by all groups, with one group selecting a combination of both streetcar and enhanced bus
• Through West End, each group selected Burke St. or a couplet using Burke/1st/2nd/Broad
• 1st St., 5th St. east of US 52, and MLK Dr. north of Union Station were not selected by any group
• Two groups designed routes that terminated at PTRP

PROPOSED REFINED SET OF ROUTE OPTIONS
INITIAL ROUTE OPTIONS

SUMMARY OF INITIAL SCREENING

<table>
<thead>
<tr>
<th>Goals</th>
<th>Performance Measures</th>
<th>Findings</th>
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</table>
| Focus development and coordinate investments to maximize economic return | - Development and revenue generation potential along route  
- Development and revenue generation potential with transit technology | - Largest opportunity is PTRP  
- Significant opportunities for new development near ballpark, intensification on 4th/5th west of Spruce, and re-use of existing space east of Spruce  
- Little opportunity on 1st/2nd |
| Encourage a mixture of uses including equitable and affordable housing | - Amount of land conducive to transit-supportive development  
- Consistency with land use goals for housing | - 1st / 2nd east of Broad not suitable for mixed use / higher density  
- Zoning in PTRP is conducive to transit-oriented development |
| Protect and enhance the City’s distinct character | - Enhancement of the traditional downtown form and walkable grid  
- Consistency with adopted plans  
- Positive passenger experience  
- Minimize potential environmental impacts | - 1st / 2nd has historic residential development  
- Urban character of 4th and 5th changes at Spruce  
- PTRP development patterns encourage walkability |
### SUMMARY OF INITIAL SCREENING

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<thead>
<tr>
<th>Goals</th>
<th>Performance Measures</th>
<th>Findings</th>
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<tr>
<td><strong>Connect key destinations in urban core</strong></td>
<td>- Service to key activity centers and development sites&lt;br&gt;- Ridership potential&lt;br&gt;- System capacity&lt;br&gt;- Travel time&lt;br&gt;- Design constraints</td>
<td>- Most downtown activity centers are in 4th/5th corridor&lt;br&gt;- Burke provides the most direct connection to the hospital</td>
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<tr>
<td><strong>Connect to local and regional transit to provide the “last mile” of service</strong></td>
<td>- Integration with other transit service:  — Access to Transportation Center  — Link to future commuter rail&lt;br&gt;- Connectivity to potential extensions</td>
<td>- Routes on 5th in front of Transportation Center provide best connection</td>
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<tr>
<td><strong>Increase mobility options</strong></td>
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<tr>
<td><strong>Support existing communities and infrastructure</strong></td>
<td>- Minimization of conflict with existing utility &amp; street infrastructure&lt;br&gt;- Traffic and on-street parking impacts</td>
<td>- Significant underground utilities are present on 4th/5th&lt;br&gt;- Infrastructure issues (clearances, grade, roundabout) are present in PTRP</td>
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<td><strong>Extend pedestrian connectivity</strong></td>
<td>- Ability to support enhanced pedestrian connectivity and infrastructure</td>
<td>- 1st/2nd is a designated bike route through downtown</td>
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### INITIAL SCREENING

- No support for 1st St / 2nd St couplet in workshop; streetcar not conducive with existing and future land use
Connections to 1st St / 2nd St couplet can also be removed.

No support for 5th St / Martin Luther King Jr Dr connection in workshop; would miss large development opportunity at PTRP.
INITIAL SCREENING

Little support for Salem Ave connection in workshop; also misses heart of PTRP

INITIAL SCREENING

Connections to Salem Ave can also be removed
INITIAL SCREENING

3rd/4th crossings are farther from north district of PTRP, and connection to Transportation Center is more difficult. At-grade connections are inferior to grade-separation for bus and rail.

INITIAL SCREENING

No support for Spring St in workshop; not as much activity as Broad St.
Spruce St is wider than Poplar St; Poplar St has conflicts due to garage access.

Marshall St has tight geometry.
INITIAL SCREENING

Cherry St has tight geometry

INITIAL SCREENING

Liberty St has tight geometry
INITIAL SCREENING

No support for Main St / Church St in workshop; no direct access to Transportation Center

INITIAL SCREENING

Connections to Main St / Church St can also be removed
INITIAL SCREENING
INITIAL SCREENING

ROUTE OPTIONS: WEST END

Two-way on Burke St.
Couplet using Burke St. and 1st / Peters Creek / Broad
Two-way on 1st / Peters Creek / Broad
ROUTE OPTIONS: DOWNTOWN

EB via Broad
WB via Broad

EB via Trade
WB via Broad

EB via Spruce
WB via Spruce

EB via Spruce
WB via Spruce

ROUTE OPTIONS: PTRP

5th St / Research Park Blvd

Patterson / 4th St / Research Park Blvd

Patterson / 3rd St / Research Park Blvd

5th St / Patterson / 4th St / Research Park Blvd

5th St / Patterson / 3rd St / Research Park Blvd
STATION CHARACTERISTICS AND POTENTIAL LOCATIONS

WHAT DOES A STATION LOOK LIKE?

• Fits into streetscape
  – Can use bulb out into parking lane (approximately 3 spaces)
  – Integrated into sidewalk
  – 40–60’ long; 8-10’ wide

• Slightly raised curb to allow level boarding

• Typical amenities:
  – Shelter
  – Benches
  – Fare collection machine
  – “Next vehicle” signage
  – System map / schedule
  – Trash receptacle
WHAT DOES A STATION LOOK LIKE?
WHAT DOES A STATION LOOK LIKE?

WHAT DOES A STATION LOOK LIKE?
WHERE ARE STATIONS LOCATED?

- Locate where the pedestrians **will be**
  - Focus on activity centers (current and future)
- Typical spacing between stations approximately **1000’ (4-5 minute walk)**
  - Relatively close spacing reinforces function as a “pedestrian extender”

**Other considerations:**
- Surrounding land uses
- Pedestrian / bicycle access
- Sidewalk width
- Traffic impacts
- Visibility

UNIQUE STATION OPPORTUNITIES

- Integration into pedestrian plazas / park areas
- Center platforms
- End of line features
- Unique design / public art integration
INITIAL POTENTIAL STATION LOCATIONS

• Hospital end-of line (Hawthorne Road)
• Center platform on 5th St. at Transportation Center
• PTRP
• WSSU end-of-line

UNIQUE OPPORTUNITIES IN W-S
STREETCAR MAINTENANCE FACILITY SITE OPTIONS

MAINTENANCE FACILITY SITE ANALYSIS

• Maintenance facility needed for streetcar “build” option
  – Maintenance activities for “bus” options accommodated at existing garage

• Needed for vehicle storage and maintenance services:
  – Vehicle inspection
  – Exterior washing
  – Interior cleaning
  – Repair activities
  – Spare parts storage
MAINTENANCE FACILITY EXAMPLES

Portland, Oregon

Seattle, Washington
MAINTENANCE FACILITY EXAMPLES

Seattle, Washington (Possible facility with joint development)

MAINTENANCE FACILITY EXAMPLES

Tampa, Florida
MAINTENANCE FACILITY SITE ANALYSIS

- Site selection criteria
  - Property size
  - Site configuration
  - Land use compatibility
  - Environmental impacts
  - Property ownership / potential acquisition costs
  - Constructability
  - Topography and drainage
  - Property easements / restrictions
  - Joint use potential
  - System connectivity
SITE UNDER I-40 BUSINESS
- Owned by WFU Health Services
- Approximately 1.9 acres
- Zoned Pedestrian Business (PB) and Campus (C and C-S)
- One small structure exists
- Adjacent to potential streetcar alignment

1ST STREET SITES
- Owned by Brookstown Development Partners
- Northern site is approximately 1.5 acres and southern site is 7.4 acres
- Irregular sites
- Zoned Pedestrian Business (PB-S)
- Could be adjacent to rail alignment if 2nd Street route option is selected
MAINTENANCE FACILITY SITE OPTIONS

3RD STREET SITE
- Owned by Forsyth Co.
- County maintenance housed under parking deck
- Approximately 2.64 acres (parking deck is 0.7 acres)
- Zoned Central Industrial
- Over 1,350 feet from proposed streetcar alignment

RESEARCH PARK BOULEVARD SITES
- Multiple parcels north of Rams Drive
- Owned by PTRP Holdings LLC and State of NC
- More than 4 acres
- Zoned Limited Industrial (LI) and Central Industrial (CI)
- Adjacent to proposed streetcar alignment
FINANCING STRATEGY
INTRODUCTION

DISCUSSION OVERVIEW

• Overview of FTA financial planning process
  – What is the impact of MAP 21?
  – When does funding need to be committed?
• Funding strategy examples
• Preliminary potential capital sources
• Preliminary potential operating sources
• Next steps
FTA FINANCIAL PLANNING OVERVIEW

- Evolves as project moves through the New Starts process
  - Planning stage: reasonable funding assumptions
  - Receipt of FTA grant: all funds committed and documented ability to maintain project and existing system in state of good repair (20-year cash flow)

IMPACT OF MAP-21

- Transit programs and funding for FY 2013 and FY 2014
- Eliminates most Discretionary Programs
  - Only New Starts Program and Low/Zero Emission Vehicles remain
- Does not include competitive grant programs:
  - TIGER, Urban Circulator, Bus Livability, State of Good Repair
  - $500 M included for Projects of Regional and National Significance (FHWA)
- Capital programs are formula based
  - Section 5307 Urbanized Area (W-S: $3.6 M - FY 2013)
  - Section 5339 Bus and Bus Facilities (W-S: $0.4 M – FY 2013)
- Waiting on MAP 21 Small Starts Financial Planning Guidance
  - FY 2014 (Sept 2012) submittals told to follow SAFETEA-LU Guidance
### LOCAL FINANCIAL COMMITMENT

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<th>Objective</th>
<th>Level of commitment</th>
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<td>AA (MAP 21 – Project Development)</td>
<td>Financial Feasibility</td>
<td>Identification of realistic funding sources</td>
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<tr>
<td>Request to Enter PE (MAP 21 – Engineering)</td>
<td>Minimum FTA rating: Medium</td>
<td>Funding sources identified and reasonable plan to secure all needed funding; Good non-federal funding history</td>
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<td>Request to Enter Final Design (MAP 21 – Engineering)</td>
<td>Minimum FTA rating: Medium</td>
<td>At least 50% of non-5309 New Starts funding committed; Firm cost estimates; Ability to address funding shortfalls</td>
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<td>FFGA</td>
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<td>100% non-New Starts funding committed; Funding shortfalls covered</td>
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Note: Project must be in fiscally constrained Long Range Plan

Definitions
- “Committed sources” are programmed capital funds that have all the necessary approvals (legislative or referendum) to be used to fund the proposed project without any additional action. These capital funds have been formally programmed in the MPO’s TIP and/or any related local, regional, or state CIP or appropriation.
- “Budgeted sources” are programmed for use on the proposed project but remain uncommitted, i.e., the funds have not yet received statutory approval.

### FINANCIAL PLAN EVALUATION

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| Share of Non-Section 5309 New Starts Funds (20%) | • Share of other Federal funds, including formula and flexible funds;  
• Required local match; and  
• Additional capital funding. |
| Strength of Capital Funding Plan (50%) | • Capital financial condition of the sponsoring agency and funding partners;  
• Commitment and availability of Non-Section 5309 New Starts funds for construction of the project; and  
• Reasonability of capital planning assumptions (including rehabilitation and replacement costs for the existing system) and capital cost estimates and financial capacity to cover capital cost increases or funding shortfalls. |
| Strength of Operating Funding Plan (30%) | • Current operating financial condition;  
• Commitment of O&M funds needed to fund the transit system’s subsidy; and  
• Reasonability of operating planning assumptions and O&M cost estimates, as well as financial capacity to operate and maintain all proposed, existing and planned transit services. |
### FUNDING STRATEGIES – STREETCARS

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<th>FTA New Starts / Small Starts</th>
<th>FTA Research, Development, Demonstration and Deployment Program</th>
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#### FUNDING STRATEGIES

- **Federal (up to 80% of total project costs)**
  - FTA New Starts / Small Starts
  - FTA Section 5307 Urbanized Area Formula Funds
  - FTA Section 5312 Research, Development, Demonstration and Deployment Program (Low/Zero Emission Vehicles)
  - FHWA Flexible Funds
    - CMAQ
    - STP
    - Transportation Alternatives
POTENTIAL CAPITAL FUNDING SOURCES

- **State**
  - Transit Trust Funds (provided 25% funding for CATS - Blue Line)
- **Regional**
  - ½¢ sales tax
- **Local**
  - Potential future voter-approved local dedicated funding source
  - Benefit Assessment Districts/TIF Districts
  - Property / ROW donations
  - Naming rights
  - Cost sharing with major activity centers / employment centers, universities, other institutions served

POTENTIAL OPERATING FUNDING SOURCES

- Fares
- CMAQ (first 3-years of operations)
- Reallocation of existing fixed route bus service
- Cost sharing with major activity centers / employment centers, universities, other institutions served
- General fund
- Advertising
- Parking fee
- Hotel motel tax
- Admission fees
NEXT STEPS – FINANCIAL STRATEGY

- Define reasonable capital and O&M funding sources
- Conduct financial evaluation of alternatives
KEY ACTIVITIES IN UPCOMING MONTHS

- Transit ridership survey
- Development analysis
- Transit operations plan
- Traffic analysis and parking impacts
- Conceptual engineering
- Environmental screening
- Vehicles and systems
- Finance plan update
- Stakeholder briefings and presentations
APPENDIX A9:

POLICY COMMITTEE / TECHNICAL COMMITTEE MEETING #4

MEETING NOTES
MEETING NOTES

Meeting Date: December 10, 2012, 3:00 – 4:30pm

Location: Bryce A. Stuart Municipal Building
2nd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Art Barnes, WSTA
Brent McKinney, Former Director of PART
Cornelius Graves, WSSU
Dan Besse, Winston-Salem City Council
Daniel Yohannes, West End Neighborhood
Graydon Pleasants, Wake Forest BioTech Place
Greg Turner, Assistant City Manager, City of Winston-Salem
Kenneth Basch, WFU
Michael Suggs, Goler CDC
Scott Rhine, PART
Gayle Anderson, Winston-Salem Chamber of Commerce
Paul Norby, City of Winston-Salem
David Taylor, HDR
Taiwo Jaiyeoba, HDR
Claire Brinkley, HDR

Summary of Discussion:

- Taiwo Jaiyeoba went through a PowerPoint presentation covering the following:
  - Reminder of the study goals;
  - Recap of the study team’s public outreach efforts, including the online survey and focus group meetings with representatives from Downtown Partnership, Creative Corridor Coalition, 4th St. Stakeholders, WFBMC, BB&T Ballpark, and Convention Center;
  - Outcome of conceptual engineering efforts; and
  - Presentation of how the route alternatives have been further refined based on conceptual engineering and input from the focus group meetings.

- David Taylor explained the “start small and start smart” concept and encouraged the group to build on the initial success of a small starter line with future extensions to WFU, School of the Arts, East Winston or Thruway.

- Claire Brinkley distributed General Route Handouts for review and discussion.

- Brent McKinney asked why the 5th St./MLKJ Dr. connection was no longer being considered. Paul Norby stated that route alternative bypassed development opportunities in the heart of PTRP and it was eliminated due to lack of support during the Routing Workshop.

- West End Route Alternatives:
  - Dan Besse prefers the couplet alternative because of the interaction with the ballpark.
  - Scott Rhine asked if there were opportunities for Public-Private Partnership with the streetcar in the vicinity of the ballpark. Mr. Taylor stated that those discussions had not occurred at this conceptual level.
  - The group agreed to advance the Couplet using Burke St. and 1st St./2nd St./Broad St. alternative.
• Downtown Route Alternatives:
  o Ms. Brinkley stated that it may be confusing to have back to back couplets;
  o Mr. Norby feels that the development impacts are greater for the 4th St./Spruce St./5th St. alternative;
  o Mr. Taylor added that there is marginal development potential on 5th St. west of Spruce St.; and
  o The group agreed to advance the 4th St./Spruce St./5th St. alternative.

• PRTP Route Alternatives:
  o Gayle Anderson wants to serve near-term activities that will be built north of 5th St.;
  o Graydon Pleasants added that a park is planned in the southeast corner of 5th St. and Patterson Ave. This park will be an activity center that is activated prior to the buildings;
  o Ms. Anderson asked if more people ride to the employment centers or to the park;
  o Mr. Pleasants explained that the stop near 5th St. and Patterson Ave. will serve those employment centers and for this reason he feels that Patterson Ave./4th St./Research Park Blvd “may be the best of both worlds”;
  o Ms. Brinkley added that there are technical challenges with the roundabout;
  o The group agreed to advance 5th St./Patterson Ave./4th St./Research Park Blvd alternative.

• Ms. Anderson added that there are at most 20 events per year that close 4th St.

• Mr. McKinney asked about the potential extension on 5th to MLK down to Union Station. The alternative that accesses 4th St. will not prohibit a future extension to East Winston.

• Potential future extensions will be added to future maps. The study team will show arrows with general directions since the extension specifics are not being studied in detail. Mr. McKinney added that a commuter rail station will be located at Thruway.

• Mr. Jaiyeoba presented the next steps. The study team would like to meet with this group in January to show the outcome of the technical analysis. A public forum and City Council briefings will be held early next year as well.

• Mr. Taylor provided an overview of potential funding strategies, including TIGER and Urban Circulator Grants. He added that funding strategies are all different and all complex.
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<td>Alan Caldwell</td>
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<td>741-0106</td>
<td><a href="mailto:caldwell1@jrt.com">caldwell1@jrt.com</a></td>
</tr>
<tr>
<td>Art Barnes</td>
<td>Winston-Salem Transit Authority</td>
<td>727-3633</td>
<td><a href="mailto:abarnes@wstransit.com">abarnes@wstransit.com</a></td>
</tr>
<tr>
<td>Brent McKinney</td>
<td>PART</td>
<td>652-0002</td>
<td><a href="mailto:brentm@parttransit.com">brentm@parttransit.com</a></td>
</tr>
<tr>
<td>Chad Nolan</td>
<td>WFIU Baptist Medical Center</td>
<td>716-8822</td>
<td><a href="mailto:cnelson@wfiu.org">cnelson@wfiu.org</a></td>
</tr>
<tr>
<td>Cornelius Graves</td>
<td>Winston-Salem State University</td>
<td>752-2002</td>
<td><a href="mailto:cgraves@wssu.edu">cgraves@wssu.edu</a></td>
</tr>
<tr>
<td>Dan Basse</td>
<td>Taragoept</td>
<td>727-1674</td>
<td><a href="mailto:dan@taragoept.com">dan@taragoept.com</a></td>
</tr>
<tr>
<td>Daniel Yohannes</td>
<td>F&amp;G Baptist Medical Center</td>
<td>728-7224</td>
<td><a href="mailto:daniel.yohannes@taragoept.com">daniel.yohannes@taragoept.com</a></td>
</tr>
<tr>
<td>Gayle Anderson</td>
<td>Winston-Salem Chamber of Commerce</td>
<td>716-9696</td>
<td><a href="mailto:galassen@taragoept.com">galassen@taragoept.com</a></td>
</tr>
<tr>
<td>Graydon Pleasants</td>
<td>City of Winston-Salem</td>
<td>408-0615</td>
<td><a href="mailto:gpleasen@taragoept.com">gpleasen@taragoept.com</a></td>
</tr>
<tr>
<td>Greg Errett</td>
<td>City of Winston-Salem</td>
<td>408-0615</td>
<td><a href="mailto:greg@cityofwvs.org">greg@cityofwvs.org</a></td>
</tr>
<tr>
<td>Greg Turner</td>
<td>F&amp;G Baptist Medical Center</td>
<td>716-0615</td>
<td><a href="mailto:gturner@cityofwvs.org">gturner@cityofwvs.org</a></td>
</tr>
<tr>
<td>Keith Wilson</td>
<td>City of Winston-Salem</td>
<td>716-9696</td>
<td><a href="mailto:keithwilson@cityofwvs.org">keithwilson@cityofwvs.org</a></td>
</tr>
<tr>
<td>Kenneth Basch</td>
<td>Wake Forest University</td>
<td>747-7001</td>
<td><a href="mailto:baschka@wfiu.edu">baschka@wfiu.edu</a></td>
</tr>
<tr>
<td>Paul Norby</td>
<td>City of Winston-Salem</td>
<td>752-1589</td>
<td><a href="mailto:paul@cityofwvs.org">paul@cityofwvs.org</a></td>
</tr>
<tr>
<td>Michael Sturgis</td>
<td>Goler CDC</td>
<td>762-0002</td>
<td><a href="mailto:michael@goler.org">michael@goler.org</a></td>
</tr>
<tr>
<td>Scott Rhine</td>
<td>PART</td>
<td>762-0002</td>
<td><a href="mailto:scott@partinc.org">scott@partinc.org</a></td>
</tr>
<tr>
<td>Ralph Womble</td>
<td>NCDOT Division 9</td>
<td>762-0002</td>
<td><a href="mailto:rhlw@nchelp.org">rhlw@nchelp.org</a></td>
</tr>
<tr>
<td>Toney McCullough</td>
<td>City of Winston-Salem</td>
<td>762-0002</td>
<td><a href="mailto:toney@cityofwvs.org">toney@cityofwvs.org</a></td>
</tr>
<tr>
<td>Taiwo Jaiyeoba</td>
<td>HDR Engineering</td>
<td>(404) 601-3607</td>
<td><a href="mailto:taiwo.jaiyeoba@hdrinc.com">taiwo.jaiyeoba@hdrinc.com</a></td>
</tr>
<tr>
<td>Claire Brinkley</td>
<td>HDR Engineering</td>
<td>(704) 248-3622</td>
<td><a href="mailto:claire.brinkley@hdrinc.com">claire.brinkley@hdrinc.com</a></td>
</tr>
<tr>
<td>David Taylor</td>
<td>HDR Engineering</td>
<td>(831) 202-2321</td>
<td><a href="mailto:david.taylor@hdrinc.com">david.taylor@hdrinc.com</a></td>
</tr>
<tr>
<td>Karen Simon</td>
<td>Simon Resources, Inc.</td>
<td>749-1411</td>
<td><a href="mailto:karen.simon@simonresources.com">karen.simon@simonresources.com</a></td>
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APPENDIX A10:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #4

PRESENTATION
POLICY & TECHNICAL COMMITTEES

December 10, 2012

AGENDA

1. Welcome and introductions
2. Review of study goals
3. Recap of Public Outreach
4. Technical Analysis update
5. Route Alternatives and street considerations
6. Study schedule and next steps
**STUDY GOALS**

**Enhance Economic Competitiveness**
- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

**Increase Mobility Options**
- Connect key destinations in urban core
- Connect to local and regional transit to provide the “last mile” of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity

---

**RECAP OF PUBLIC OUTREACH**
RECAP OF PUBLIC OUTREACH

Online Survey:
• Over 200 people participated
• When asked “Where would you like to go?”
  • Restaurants or bars – 87% desirable or very desirable
  • Arts or entertainment – 85% desirable or very desirable
  • BB&T Ballpark - 76% desirable or very desirable
• 54% would be more likely to use a streetcar rather than an enhanced bus
• 75% responded that they never use WSTA or PART

RECAP OF PUBLIC OUTREACH

Online Survey:
• 85% responded that they never use the trolley
  • “I am not sure where the trolley goes”
  • “I do not know where to get on the trolley”
• Additional Comments:
  • “There have been plenty of studies that show little if any development boost along the routes of enhanced bus service. For this reason, I oppose a bus option. If we're going to invest in a circulator, let's pick the option that might actually earn back its capital costs through growth in the tax base.”
  • “I think this project is a mistake.”
**RECAP OF PUBLIC OUTREACH**

**Downtown Partnership:**
- Met with Downtown Partnership on Oct. 11th to learn about existing conditions and new initiatives to use in development forecast

**Creative Corridor Coalition:**
- Study team presented to CCC on Nov. 20th and provided overview of the study

**4th Street Stakeholders:**
- Invited property owners, managers and businesses along 4th Street in downtown to a meeting on Nov. 8th.
- Generally heard positive comments about the project.
  - “I am 150% behind the concept of Urban Circulator” said Rence Callahan.
- Most prefer routes that avoid 4th St between Spruce St and Trade St.
Can we use one or two quotes from the meeting minutes like we did for the others?

Also, change "Collission" to "Coalition"

Aljyeob, 11/29/2012

c1

the downtown partners basically gave us a history of downtown, printed off material for Peter Bass to analyze, and advised us who to ask to the 4th St Stakeholders Meeting

The CCC meeting was just to provide them an overview of the study. There were differing opinions in the room but they made the decision to postpone any recommendations to their next meeting

Cbrinkle, 11/30/2012
RECAP OF PUBLIC OUTREACH

Wake Forest University Baptist Hospital/PTRP:
• ??

Baseball Stadium:
• ??

Convention Center:
• ??

TECHNICAL ANALYSIS
Conceptual Engineering

- Conceptual engineering plans were prepared for streetcar alternative.
- The route that uses Broad southbound to 4th St westbound would result in building impacts due to tight intersection geometry.
- Using a lowered single-track under the railroad bridge is preferred alternative to access PTRP.
- Streetcar could operate along a short segment of single track along Rams Dr.
- The site near the hospital is the preferred location for a maintenance facility.

Development Forecast

- Insert info from Peter Bass...
Can we mount a couple of those aerials on boards so the audience can better follow the discussion?

tjaiyeob, 11/29/2012
PROPOSED Refined Set of Route Options

INITIAL SCREENING
ROUTE OPTIONS: WEST END

Two-way on Burke St.
Couplet using Burke St. and 1st / Peters Creek / Broad
Two-way on 1st / Peters Creek / Broad

Fast moving one-way traffic on 2nd St
Complicated intersection at 1st St / Peters Creek Parkway
ROUTE OPTIONS: WEST END

Two-way on Burke St.
Couplet using Burke St. and 1st / Peters Creek / Broad

ROUTE OPTIONS: DOWNTOWN

EB via Broad
WB via Broad
EB via Spruce
WB via Broad
EB via Trade
WB via Broad
EB via Broad
WB via Spruce
EB via Spruce
WB via Spruce
EB via Trade
WB via Spruce
ROUTE OPTIONS: DOWNTOWN

4th St between Spruce St and Trade St deemed unfavorable by stakeholders

Tight geometry turning right from Broad St to 4th St

EB via Broad
WB via Broad

EB via Spruce
WB via Broad

EB via Trade
WB via Broad

EB via Broad
WB via Spruce

EB via Spruce
WB via Spruce
APPENDIX A11:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #5

MEETING NOTES
MEETING NOTES

Meeting Date: January 7, 2012, 2:00 – 3:30pm

Location: Bryce A. Stuart Municipal Building
2nd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Gayle Anderson, Winston-Salem Chamber of Commerce
Art Barnes, Winston-Salem Transit Authority
Ken Basch, WFU
Dan Besse, Winston-Salem City Council
Cornelius Graves, Winston-Salem State University
Daniel Yohannes, West End Neighborhood
Keith Wilson, DWSP
Ralph Womble, NCDOT Division 9
Scott Rhine, PART Toneq’ McCullough, City of Winston-Salem
Paul Norby, City of Winston-Salem
Karen Simon, Simon Resources
Claire Brinkley, HDR
Taiwo Jaiyeoba, HDR

Summary of Discussion:

- Paul Norby welcomed the group and turned it over to the study team to begin their presentation.
- Taiwo Jaiyeoba provided a recap of the public involvement that led to the “Selected Route”, which was considered in the technical analysis.
- Claire Brinkley discussed the assumptions we used for the hours of operations and vehicle requirements. These assumptions will be used to refine the operating cost estimate and capital cost estimate, respectively. She shared the preliminary findings of environmental impacts and traffic analyses.
- Mr. Jaiyeoba presented the development forecast and showed the areas where growth is anticipated. Daniel Yohannes asked about the comparison of streetcar verses bus. The group discussed the capacity for growth and the capacity to carry passengers. Ms. Brinkley added that rail can only catalyze growth where there are factors in place to support that type of growth.
- Mr. Jaiyeoba presented the FTA requirements for ridership. He showed the preliminary ridership projection, which currently fall short of the minimum ridership threshold. He discussed the areas where current service could be improved and other possible funding sources that will continue to be considered.
- Art Barnes feels that the WSTA ridership numbers are low. Ken Basch added that the ridership numbers currently do not include the WFU shuttle that operates between the campus and downtown Wednesday-Saturday evening 8pm-3am.
- Ms. Brinkley provided an update on the conceptual engineering key points and photo examples.
- Mr. Jaiyeoba showed the key upcoming activities. The group agreed to forward along the initiation to the upcoming Open House to their constituents.
Action Items:

- Our next Policy/Technical Committee meeting will be on February 1st at 8:30AM.
- Art Barnes will send updated ridership numbers for WSTA.
- Ken Basch will send ridership numbers for the shuttles operating from WFU to downtown.
- HDR will update the ridership numbers based on updated information.
## Policy & Technical Committees Meeting #5
### January 7, 2013 / 2:00 PM

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</tr>
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<td>Art Barnes</td>
<td>Winston-Salem Transit Authority</td>
<td>727-2648</td>
<td><a href="mailto:abarnes@wstransit.com">abarnes@wstransit.com</a></td>
</tr>
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<td>✓</td>
<td>Brent McKinney</td>
<td>PART</td>
<td>662-0002</td>
<td><a href="mailto:brentm@partnc.org">brentm@partnc.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Chad Nolan</td>
<td>WFU Baptist Medical Center</td>
<td>716-6882</td>
<td><a href="mailto:cdnolan@wfubmc.edu">cdnolan@wfubmc.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Cornelius Graves</td>
<td>Winston-Salem State University</td>
<td>750-2082</td>
<td><a href="mailto:gravescc@wssu.edu">gravescc@wssu.edu</a></td>
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<tr>
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<td>Dan Besse</td>
<td>Winston-Salem City Council</td>
<td>722-1674</td>
<td><a href="mailto:danbesse@clear.net">danbesse@clear.net</a></td>
</tr>
<tr>
<td>✓</td>
<td>Daniel Yohannes</td>
<td>West End Neighborhood</td>
<td>(860) 857-5987</td>
<td><a href="mailto:daniely1977@gmail.com">daniely1977@gmail.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Gayle Anderson</td>
<td>Winston-Salem Chamber of Commerce</td>
<td>728-9214</td>
<td><a href="mailto:anderson@winstonsalem.com">anderson@winstonsalem.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Graydon Pleasants</td>
<td>Wake Forest BioTech Place</td>
<td>716-8686</td>
<td><a href="mailto:gpleasan@wakehealth.edu">gpleasan@wakehealth.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Greg Errett</td>
<td>City of Winston-Salem</td>
<td></td>
<td><a href="mailto:grege@cityofws.org">grege@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Greg Turner</td>
<td>City of Winston-Salem</td>
<td></td>
<td><a href="mailto:gregt@cityofws.org">gregt@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Keith Wilson</td>
<td>DWSP</td>
<td>408-0504</td>
<td><a href="mailto:keithwilson@triad.rr.com">keithwilson@triad.rr.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Kenneth Basch</td>
<td>Wake Forest University</td>
<td>406-9196</td>
<td><a href="mailto:baschka@wfu.edu">baschka@wfu.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Paul Norby</td>
<td>City of Winston-Salem</td>
<td>747-7061</td>
<td><a href="mailto:pauln@cityofws.org">pauln@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Michael Suggs</td>
<td>Goler CDC</td>
<td>761-0595</td>
<td><a href="mailto:msuggs@golercdc.org">msuggs@golercdc.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Scott Rhine</td>
<td>PART</td>
<td>662-0002</td>
<td><a href="mailto:scottr@partnc.org">scottr@partnc.org</a></td>
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<td>NCDOT Division 9</td>
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<td>City of Winston-Salem</td>
<td></td>
<td><a href="mailto:toneqm@cityofws.org">toneqm@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Taiwo Jaiyeoba</td>
<td>HDR Engineering</td>
<td>(404) 601-8607</td>
<td><a href="mailto:taiwo.jaiyeoba@hdrinc.com">taiwo.jaiyeoba@hdrinc.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Claire Brinkley</td>
<td>HDR Engineering</td>
<td>(704) 248-3632</td>
<td><a href="mailto:claire.brinkley@hdrinc.com">claire.brinkley@hdrinc.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>David Taylor</td>
<td>HDR Engineering</td>
<td>(813) 282-2321</td>
<td><a href="mailto:david.taylor@hdrinc.com">david.taylor@hdrinc.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Karen Simon</td>
<td>Simon Resources, Inc.</td>
<td>749-1411</td>
<td><a href="mailto:simonresrc@aol.com">simonresrc@aol.com</a></td>
</tr>
</tbody>
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APPENDIX A12:

POLICY COMMITTEE / TECHNICAL COMMITTEE MEETING #5

PRESENTATION
POLICY & TECHNICAL COMMITTEES

January 7, 2013

AGENDA

1. Welcome and introductions
2. Recap of Study Process
3. Selected Circulator Route
4. Technical Analysis update
   • Proposed Hours of Operations
   • Vehicle Requirements
   • Environmental Screening
   • Traffic Analysis
   • Development Impacts
   • Ridership Analysis
   • Financial Analysis
   • Conceptual Engineering
5. Study schedule and Next steps
RECAP OF STUDY PROCESS

STUDY PROCESS

- Initial Screening
- Stakeholder Input
- Conceptual Engineering
- Ridership Estimates
- Public Input

Spring 2012  Summer 2012  Fall 2012  Winter 2012/2013

Select a Route  Select a Technology/Refine Route  Review and Adoption

ROUTE AND VEHICLE OPTIONS  ROUTE SELECTION  TECHNOLOGY SELECTION / ROUTE REFINEMENT  LOCALLY PREFERRED ALTERNATIVE
PUBLIC OUTREACH

• 4TH/5TH Street Stakeholders
• Downtown Partnership
• Creative Corridor Coalition
• Wake Forest University Baptist Medical Center
• PTRP
• DASH (BB&T Baseball Park Owners)
• Convention Center
• Online Survey

PUBLIC OUTREACH

Online Survey:
• Over 200 people participated
• When asked “Where would you like to go?”
  • Restaurants or bars – 87% desirable or very desirable
  • Arts or entertainment – 85% desirable or very desirable
  • BB&T Ballpark - 76% desirable or very desirable
• 54% would be more likely to use a streetcar rather than an enhanced bus
• 75% responded that they never use WSTA or PART
• 85% responded that they never use the trolley
PROCESS OF SELECTING CIRCULATOR ROUTE

INITIAL SCREENING
"SELECTED" ROUTE

TECHNICAL ANALYSIS
**PROPOSED HOURS OF OPERATIONS**

- Key assumptions:
  - Federal Transit Administration (FTA) funding requires minimum of 14 hours of operations on weekdays
  - Context of current bus service operations: 5:30am-11:30pm (Monday to Friday) and 6:30am-6:30pm (Saturday)
  - Impact on operating and maintenance costs
  - Maintain CBD activities and connectivity with key destinations (ballpark, colleges, shops, restaurant/entertainment centers)
  - No Sunday/Holiday services

**VEHICLE REQUIREMENTS**

- Enhanced Bus Vehicle
  - 40'-60 feet long (standard bus is 40 feet)
  - 8 ½ feet wide
  - 9 ½ - 10 ½ feet high
  - 40’ bus capacity: Seated = 42; standees = 43
  - 60’ bus capacity: Seated = 59; standees = 57

- Modern Streetcar
  - 66 feet long (standard bus is 40 feet)
  - 8 feet width (standard bus is 8 ½ feet)
  - 12 feet high (standard bus is 9 ½ feet)
  - Seated capacity = 29; standee capacity = 127
ENVIRONMENTAL SCREENING

- Environmental screening included the selected route as well as the five potential maintenance sites.
- Route screening focused on readily-ascertainable environmental concerns (wetlands, protected species, historic resources, etc.) that are reviewed by FTA during the NEPA process.
- Maintenance sites focused on environmental constructability as well as past-use concerns (hazmat spills, past uses).
- No major previously-unknown concerns have been noted to date.

TRAFFIC ANALYSIS

- The Urban Circulator will largely operate within normal traffic flow and will cause a minor increase in delay in the downtown roadway network due to the frequency of stops to load and unload passengers.

- Future congestion at Hawthorne Rd. and 1st St. may be reduced by removing the split phase.

- Burke St. and 4th St. will need to be signalized if a streetcar is selected as the preferred mode.
DEVELOPMENT FORECAST

• Long-term additional buildout in the Influence Zone (depending on future market conditions and economics):
  – 4,700 to 9,700 additional dwelling units;
  – 10.9 to 11.8 million sf. of additional commercial space (6.2 million sf. of the commercial space is in the PTRP and 4.7 to 5.6 million sf. of the additional capacity in the Downtown and West areas);
  – Increase of 25% may be plausible for office development (or an additional 500,000 sf.) over 25 years.
• The Influence Zone has enough capacity for at least 40 and maybe 50 years of development with a streetcar line.

DEVELOPMENT FORECAST

Development Impact: Enhanced Bus versus Streetcar

• Enhanced bus has not been demonstrated to significantly alter development pace in US cities.
• Streetcar experience in other US cities shows residential development pace may accelerate significantly – possibly, at the outside, by a factor of 3 times current average pace, raising it to 150 units/year. This would raise the 25 year residential development to as much as 3,750 units or 2,500 units more than current projections.
Enhanced bus can include a variety of infrastructure elements; development impacts increase as the level of investment increases.
RIDERSHIP ANALYSIS/ASSUMPTIONS

• Key drivers for ridership projections:
  • Current transit/base year ridership (2012)
  • FTA Small/Very Small Starts minimum ridership requirements
  • Travel patterns
  • Operating year projections (2017)
  • Horizon year forecast (2035)
  • Surveys were conducted for Winston Salem Transit Authority (WSTA), the Piedmont Authority for Regional Transportation (PART), the Wake Forest University Baptist Medical Center Shuttle and Winston Salem State University Shuttle Express

RIDERSHIP ANALYSIS/ASSUMPTIONS

• Current/Base year transit ridership:
  • System wide - Less than 10,000 weekday riders
  • Within study area (1/4 mile along corridor) – Less than FTA minimum requirement of existing 3,000 riders/weekday
• Still modeling ridership numbers for:
  • Opening year (2017)
  • Horizon year (2035)
• Strategies for increasing ridership numbers:
  • Improvements to existing transit system: frequency of service, span of service, route patterns, etc
  • Improvements to transit infrastructure: stop locations, signage, etc.
FINANCIAL ANALYSIS

- Capital costs assumptions & comparisons (*see next slide*)
- Conceptual operating cost ($3.5 million annually, 2012)
- Existing sources of funding
  - FTA, State and Local
- FTA funding requirements (Small/Very Starts)
  - $3 million/mile; existing 3000 riders/weekday; Minimum 14 hours of service on weekday
- Other potential sources of funding
  - Public Private Partnership
  - Special assessment district
  - Other FTA grants: Urban circulator grant, Livability grant

CAPITAL COSTS ASSUMPTIONS

- Construction
- Utilities
- Permitting
- Roadway treatment/modifications
- Vehicles/Training
- Project delivery method
- Traffic signals, signs, stripping
- Traction power sub-stations
- Maintenance facility
- Platforms/ Stops
- Professional services
- Inflation
STREETCAR CAPITAL COSTS COMPARISONS

- Portland Phase 1 – 4: $103.2M (4.0 mi)
- Portland Eastside Loop: $148.3M (3.3 mi)
- Seattle First Hill Line: $140M (2.2 mi)
- Tucson Modern: $187.8M (3.9 mi)
- Cincinnati: $110.4M (1.5 mi)
- Charlotte: $37M (1.5 mi)
- Sugar Hill Salt Lake City: $37.2M (2.0 mi)
- St. Louis Loop: $39.5 (2.2 mi)
- Ft. Lauderdale Wave: $83M (1.4 mi)
- Dallas: $61.8M (1.6 mi)

CONCEPTUAL ENGINEERING

- Using a lowered single-track under the railroad bridge is preferred alternative to access PTRP.
- Streetcar could operate along a short segment of single track along Rams Dr.
- The site near the hospital is the preferred location for a maintenance facility.
- It is possible to have streetcars operate in roundabouts.
CONCEPTUAL ENGINEERING

Center Platform (potentially at Hospital and Trans. Center)

Roundabouts and Rail

CONCEPTUAL ENGINEERING

Streetcar-Only Lanes (5th St. and possibly Rams Dr.)
STUDY SCHEDULE AND NEXT STEPS

KEY UPCOMING ACTIVITIES

• January 31 Open House
• February 1 Policy/Technical Committee meeting

http://www.WinstonSalemCirculator.com
REFINEMENT OF ROUTE OPTIONS

Wake Forest Baptist Medical Center

Two-Way on Burke St

Couplet using Burke St. and 1st / Peters Creek / Broad

EB via Spruce
WB via Spruce

EB via Broad
WB via Spruce

5th St / Research Park Blvd

Patterson / 4th St / Research Park Blvd

Patterson / 3rd St / Research Park Blvd

5th St / Patterson / 4th St / Research Park Blvd

5th St / Patterson / 3rd St / Research Park Blvd

WSSU / Union Station
POTENTIAL CAPITAL FUNDING SOURCES

• Federal (up to 80% of total project costs)
  – FTA New Starts / Small Starts
  – FTA Section 5307 Urbanized Area Formula Funds
  – FTA Section 5312 Research, Development, Demonstration and Deployment Program (Low/Zero Emission Vehicles)
  – FHWA Flexible Funds
    • CMAQ
    • STP
    • Transportation Alternatives

POTENTIAL CAPITAL FUNDING SOURCES

• State
  – Transit Trust Funds (provided 25% funding for CATS - Blue Line)

• Regional
  – ½¢ sales tax

• Local
  – Potential future voter-approved local dedicated funding source
  – Benefit Assessment Districts/TIF Districts
  – Property / ROW donations
  – Naming rights
  – Cost sharing with major activity centers / employment centers, universities, other institutions served
### POTENTIAL OPERATING FUNDING SOURCES

- Fares
- CMAQ (first 3 years of operations)
- Reallocation of existing fixed route bus service
- Cost sharing with major activity centers / employment centers, universities, other institutions served
- General fund
- Advertising
- Parking fee
- Hotel motel tax
- Admission fees

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APPENDIX A13:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #6

MEETING NOTES
MEETING NOTES

Meeting Date: February 1, 2013, 8:30 – 10:00am

Location: Bryce A. Stuart Municipal Building
2nd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Art Barnes, WSTA
Dan Besse, Winston-Salem City Council
Daniel Yohannes, West End Neighborhood
Graydon Pleasants, Wake Forest BioTech Place
Scott Rhine, PART
Gayle Anderson, Winston-Salem Chamber of Commerce
Keith Wilson, DWSP
Ralph Womble, NCDOT Division 9
Paul Norby, City of Winston-Salem
Toneq’ McCullough, City of Winston-Salem
Karen Simon, Simon Resources, Inc.
Taiwo Jaiyeoba, HDR Engineering, Inc.
Claire Brinkley, HDR Engineering, Inc.

Summary of Discussion:

- Mr. Norby started the meeting by asking the committee members what they heard from the Open House, held on January 31st.
- Ms. Anderson attended the Open House and shared that she heard people express interest in a Circulator route that goes to Thruway, Hanes Mall, and Forsyth Hospital. Mr. Yohannes has heard the same, but feels that the first phase needs to be short to be successful.
- Taiwo Jaiyeoba mentioned that we (Consultant team, Paul Norby and Toneq’ McCullough) have briefed separate City Council Members. He also identified the members of the Council already briefed.
- Mr. Womble talked to Rence Callahan at the Open House. Mr. Callahan asked about the frequency of service. During the Open House Mr. Jaiyeoba explained the proposed service plan with ten minute frequencies during peak times and fifteen minute frequencies during off-peak times. Mr. Wilson believes that a ten minute frequency is a reasonable wait time.
- Ms. Simon presented what she heard at the Open House. The overwhelming feedback that she received was to extend the “selected route” to Salem College students and NC School of the Arts, or Thruway, Hanes Mall and Forsyth Hospital. She believes that at the Open House there was overwhelming support for Streetcar over Enhanced Bus as a Circulator option.
- Ms. Anderson recognized that the study team’s presentation material included potential funding sources, but she requested that the hotel/motel tax be removed from future material. She worries that it may be off-putting to some. The team agreed.
- It was also mentioned that an increase in frequency would impact the cost of operating the Circulator.
Mr. Norby added that City staff and the study team (HDR Engineering Inc.) attended Councilmember Montgomery’s Town Hall meeting on January 31st. Councilmember Montgomery strongly believes that Union Station should be included in the first phase. Union Station could be used as a secondary transportation hub.

Further, Mr. Scott Rhine stated that PART has FTA earmarked funds for intermodal facilities which may be used for the rehabilitation of Union Station.

Mr. Besse said that the Streetcar mode is superior to Enhanced Bus because it is an economic development tool. He believes that the biggest benefit is spurring development along the route.

The Policy Advisory and Technical Committee members agreed that Streetcar is the “selected mode” over Enhanced Bus. Further, the group suggested that an Enhanced Bus service could be used to provide mobility benefits for route extensions.

At this point in the meeting, Ms. McCullough received a phone call from the City Manager’s office. She provided additional feedback following the Councilmember Montgomery’s Town Hall meeting. Ms. McCullough relayed that there are strong emotions regarding the “selected route” and that some believe the route as is does not benefit residents of East Winston. Since local support will be needed to fund the project, it was important to consider route options that will extend to East Winston.

Mr. Besse asked if it would be possible to look at the merits of a route that provided access to East Winston. Mr. Norby and Ms. McCullough asked if the study team could conceptually evaluate the costs and benefits of a loop that extends along 4th St., turns right and continues south along Martin Luther King Jr Dr. to WSSU and makes a right on Rams Dr. to join the “selected route”.

The consultant team agreed to provide planning level analysis of an “Option C” that connects East Winston beyond Union Station.

Prior to ending the meeting, Mr. Norby stated that we would be meeting as a group one more time after the draft report is written. He also indicated that himself, Ms. McCullough and the study team plan to go to Atlanta to meet with FTA to discuss the project in the near future.
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APPENDIX A14:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #7

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<td><a href="mailto:msuggs@goler-cdc.org">msuggs@goler-cdc.org</a></td>
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<tr>
<td>Ralph Womble</td>
<td>City of Winston-Salem</td>
<td>718-7860</td>
<td><a href="mailto:scott@partnc.org">scott@partnc.org</a></td>
</tr>
<tr>
<td>Toney McCullough</td>
<td>City of Winston-Salem</td>
<td>718-7860</td>
<td><a href="mailto:rwh@tripartnc.org">rwh@tripartnc.org</a></td>
</tr>
<tr>
<td>Taiwo Jajaoba</td>
<td>HDR Engineering</td>
<td>(404) 601-8607</td>
<td><a href="mailto:taiwo.jajaoba@hdrinc.com">taiwo.jajaoba@hdrinc.com</a></td>
</tr>
<tr>
<td>Claire Birkley</td>
<td>HDR Engineering</td>
<td>(704) 248-3632</td>
<td><a href="mailto:claire.birkley@hdrinc.com">claire.birkley@hdrinc.com</a></td>
</tr>
<tr>
<td>Karen Simon</td>
<td>Simon Resources, Inc.</td>
<td>718-1411</td>
<td><a href="mailto:ksimon@simonres.com">ksimon@simonres.com</a></td>
</tr>
</tbody>
</table>
APPENDIX A15:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #8

MEETING NOTES
MEETING NOTES

Meeting Date: June 27, 2013, 10:30 – 11:30am

Location: Bryce A. Stuart Municipal Building
2nd Floor Conference Room
100 E 1st St, Winston-Salem, NC

Attendees: Art Barnes, WSTA
Daniel Yohannes, West End Neighborhood
Graydon Pleasants, Wake Forest BioTech Place
Cornelius Graves, WSSU
Mark Kushner, PART
Gayle Anderson, Winston-Salem Chamber of Commerce
Keith Wilson, DWSP
Kenneth Basch, WFU
Paul Norby, City of Winston-Salem
Toneq’ McCullough, City of Winston-Salem
David Taylor, HDR Engineering, Inc.
Taiwo Jaiyeoba, HDR Engineering, Inc.
Claire Brinkley, HDR Engineering, Inc.

Summary of Discussion:

- Mr. Norby started by explaining that the study is wrapping up the study and reminded them about the Open House that evening.
- Mr. Jaiyeoba presented the proposed route. The Public Works Committee advanced Route Option D and the study team has been worked to refine the technical analysis.
- Mr. Yohannes expressed surprise about the cost of the project. The study team explained that route has continued to increase in length throughout the study process.
- Mr. Jaiyeoba presented the concept of starter-lines. Four options for starter-line segments were presented. Mr. Jaiyeoba asked the group if a portion of the funds become available where they would want to start.
- Comparing Starter-Line Option 1 and Option 2, Ms. Anderson did not understand why the ridership projections do not show more of an increase with a connection to WFBMC. Mr. Barnes stated that it would not make sense to start without a connection to WFBMC.
- Ms. Brinkley described some of the aspects of the FTA modeling process that was followed during this study. Ms. Brinkley and Mr. Jaiyeoba agree that the projections are limited.
- Mr. Basch asked for clarification about the development potential. The development potential that was reported for the starter-lines show what is expected in addition to PTRP. Mr. Basch said, “Option 2 gives you the biggest bang for the buck” and that connecting WFBMC to PTRP provides the best initial impact.
- Ms. Anderson asked for clarification on what the City Council will vote on. Paul clarified that Council will vote on the Locally Preferred Alternative, a route and mode, to be built when funds are available.
• Mr. Yohannes asked if the ridership was competitive. Mr. Jaiyeoba said that compared to other cities the ridership for this project is low. Mr. Jaiyeoba added that the study team has talked to the Federal Transit Administration (FTA) about MAP-21 guidance and he was told that they currently do not know.

• Mr. Kushner asked for more information about travel time. An urban circulator is expected to travel from WFBMC to 4th St. / Linden St. in less than 15 minutes.

• The group discussed whether to show the starter-line options to the public. Ms. Anderson felt that it could create conflict and confusion to show that the route has expanded since the Open House in January, and then show consideration is being given to shorter route options.

• The study team agreed not to mention starter-line options at Open House #3. However, Mr. Jaiyeoba added that FTA will likely look at the entire scope of this project and ask the City “where to do you want to start?”

• The group agreed the starter-line must provide access to WFBMC.

• Ms. Anderson asked if the City would look at a bond referendum in 2014. Mr. Norby said that a referendum would be part of the potential funding conversation.

• Mr. Jaiyeoba presented scenarios for potential federal funding participation.

• Mr. Wilson said that there will be sticker shock from the public but the cost will be higher if the project waits 10 years.

• Mr. Norby explained that there is a board at the Open House that compares this project to local highway projects. Mr. Norby talked about the options for location sources, including referendum dollars and half-cent sales tax.

• The Draft Alternatives Analysis Report was emailed to PC/TC Committee Members. Mr. Jaiyeoba asked the PC/TC Committee Members provide comments to the study team by July 8th. Members provided two initial comments:
  o Mr. Basch asked that the report state that the capital cost projections of $179 Million reflects 2017 dollars.
  o Graydon mentioned that PTRP will know be referred to as Innovation Quarter.

• The next steps for this study will be to meet with the FTA and present the selected route and mode to the City Council.

• Mr. Norby and Mr. Jaiyeoba thanked PC/TC Committee Members for their engagement and input throughout the study.
<table>
<thead>
<tr>
<th>CHECK IF ATTENDING</th>
<th>NAME</th>
<th>ORGANIZATION</th>
<th>TELEPHONE</th>
<th>E-MAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alan Caldwell</td>
<td>Reynolds American Tobacco</td>
<td>741-0106</td>
<td><a href="mailto:caldwea1@jrj.com">caldwea1@jrj.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Art Barnes</td>
<td>Winston-Salem Transit Authority</td>
<td>727-2648</td>
<td><a href="mailto:abarnes@wstransit.com">abarnes@wstransit.com</a></td>
</tr>
<tr>
<td></td>
<td>Brent McKinney</td>
<td>PART</td>
<td>662-0002</td>
<td><a href="mailto:brentm@partnc.org">brentm@partnc.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Chad Nolan</td>
<td>WFU Baptist Medical Center</td>
<td>716-6882</td>
<td><a href="mailto:cdnolan@wfubmc.edu">cdnolan@wfubmc.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Cornelius Graves</td>
<td>Winston-Salem State University</td>
<td>750-2082</td>
<td><a href="mailto:gravescc@wssu.edu">gravescc@wssu.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Dan Besse</td>
<td>Winston-Salem City Council</td>
<td>722-1674</td>
<td><a href="mailto:danbesse@clear.net">danbesse@clear.net</a></td>
</tr>
<tr>
<td>✓</td>
<td>Daniel Yohannes</td>
<td>West End Neighborhood</td>
<td>(860) 857-5987</td>
<td><a href="mailto:daniely1977@gmail.com">daniely1977@gmail.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Gayle Anderson</td>
<td>Winston-Salem Chamber of Commerce</td>
<td>728-9214</td>
<td><a href="mailto:anderson@winstonsealem.com">anderson@winstonsealem.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Graydon Pleasants</td>
<td>Wake Forest BioTech Place</td>
<td>716-8686</td>
<td><a href="mailto:gpleasan@wakehealth.edu">gpleasan@wakehealth.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Greg Errett</td>
<td>City of Winston-Salem</td>
<td></td>
<td><a href="mailto:grege@cityofws.org">grege@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Greg Turner</td>
<td>City of Winston-Salem</td>
<td></td>
<td><a href="mailto:gregt@cityofws.org">gregt@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Keith Wilson</td>
<td>DWSP</td>
<td>408-0504</td>
<td><a href="mailto:keithwilson@triadrr.com">keithwilson@triadrr.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Kenneth Basch</td>
<td>Wake Forest University</td>
<td>406-9196</td>
<td><a href="mailto:baschka@wf.edu">baschka@wf.edu</a></td>
</tr>
<tr>
<td>✓</td>
<td>Paul Norby</td>
<td>City of Winston-Salem</td>
<td>747-7061</td>
<td><a href="mailto:pauln@cityofws.org">pauln@cityofws.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Michael Suggs</td>
<td>Goler CDC</td>
<td>761-0595</td>
<td><a href="mailto:msuggs@golercdc.org">msuggs@golercdc.org</a></td>
</tr>
<tr>
<td>✓</td>
<td>Mark Kushner</td>
<td>PART</td>
<td></td>
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<tr>
<td>✓</td>
<td>Ralph Womble</td>
<td>NCDOT Division 9</td>
<td></td>
<td><a href="mailto:rhw@triadbiz.rr.com">rhw@triadbiz.rr.com</a></td>
</tr>
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<td>Toneq McCullough</td>
<td>City of Winston-Salem</td>
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<td><a href="mailto:toneqm@cityofws.org">toneqm@cityofws.org</a></td>
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<td>Taiwo Jaiyeoba</td>
<td>HDR Engineering</td>
<td>(404) 601-8607</td>
<td><a href="mailto:taiwo.jaiyeoba@hdrinc.com">taiwo.jaiyeoba@hdrinc.com</a></td>
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<td>(704) 248-3632</td>
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</tr>
<tr>
<td>✓</td>
<td>David Taylor</td>
<td>HDR Engineering</td>
<td>(813) 282-2321</td>
<td><a href="mailto:david.taylor@hdrinc.com">david.taylor@hdrinc.com</a></td>
</tr>
<tr>
<td>✓</td>
<td>Karen Simon</td>
<td>Simon Resources, Inc.</td>
<td>749-1411</td>
<td><a href="mailto:simonresrc@aol.com">simonresrc@aol.com</a></td>
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</tbody>
</table>
APPENDIX A16:

POLICY COMMITTEE / TECHNICAL COMMITTEE
MEETING #8

HANDOUTS
STUDY VISION AND GOALS

The vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development was established by the Legacy Comprehensive Plan. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

Winston-Salem is now comparing the merits of streetcars and enhanced buses to identify the best way to shape the community by enhancing economic competitiveness and increasing mobility options as part of the overall effort to grow smarter and better by managing future development.

PROPOSED ROUTE

STREETCAR CHARACTERISTICS

- A 4.0-mile route would connect our major activity centers, improve transit and mobility, encourage development, and support future growth.
- One-time cost: $179 million (at full build-out)
- Annual operating costs: $4.3 million
- Expected to serve nearly 2,250 riders per weekday in operating year 2017.
- Anticipated to create 1,300 new jobs, and spur 4,000 housing units and an additional 600,000 square feet of commercial space (above the 2 million square foot baseline).
WHAT HAS BEEN THE ECONOMIC IMPACT OF STREETCAR IN OTHER CITIES?

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
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<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
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<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
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<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
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<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
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<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
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POTENTIAL FEDERAL FUNDING PARTICIPATION

Streetcar route stretching from WFBMC to 5th St. / Martin Luther King Jr. Dr. estimated to have a one-time cost of $179 million at full build-out.

<table>
<thead>
<tr>
<th>Potential Sources</th>
<th>Funding Scenarios</th>
<th>Revenue levels may not match total costs due to rounding*</th>
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<td></td>
<td>Minimum Federal Participation</td>
<td>Moderate Federal Participation*</td>
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<tr>
<td>FHWA Funds</td>
<td>$20</td>
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<td>Future Competitive Grant</td>
<td>$25</td>
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<td>State Match – FHWA Funds</td>
<td>$4</td>
<td>-</td>
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<td>FTA Small Starts</td>
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<td>$88</td>
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<tr>
<td>FTA New Starts</td>
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<tr>
<td>Other Federal Funding</td>
<td>-</td>
<td>-</td>
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<tr>
<td>NCDOT SFFGA</td>
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<td>$46</td>
</tr>
<tr>
<td>Local Sources</td>
<td>$130</td>
<td>$46</td>
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<tr>
<td>Total</td>
<td>$179</td>
<td>$179</td>
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STARTER LINE / MINIMAL OPERATING SEGMENTS (MOS)

- FTA urges consideration of one or more minimum operable segments (MOS).
- A MOS is a subset of an entire proposed project build option that can be built prior to construction of the full project.
- The MOS represents reduced-scope initial service implementation that would address the project’s vision of enhancing economic competitiveness and providing more mobility options.
- The project could begin with a starter-line. At a future time the entire proposed route could be built out in one or more phases after the construction of the starter-line.
- Four potential starter-line options were identified:

**Option I**
- 1.6 mile segment that extends from the Burke St. / BB&T Ballpark area east connecting the core of downtown and the Transportation Center to northern PTRP.

**Option II**
- 2.2 mile segment that extends from WFBMC east connecting the Burke St. / BB&T Ballpark area, the core of downtown, and the Transportation Center to northern PTRP.

**Option III**
- 2.7 mile segment that extends from 4th St. / Broad St. east connecting downtown, the Transportation Center, PTRP and WSSU to Union Station.

**Option IV**
- 3.3 mile segment that extends from WFBMC east connecting the Burke St. / BB&T Ballpark area, the core of downtown, the Transportation Center, PTRP and WSSU to Union Station.
**Option I**
Burke St. / Westdale Ave. to northern PTRP
1.6 Mile Route
10 Stops
1,400 Daily Riders
$87.9 Million Capital Cost
$2.14 Million Annual Operating Cost
15 Million Square Feet of Development

**Option II**
WFBMC to northern PTRP
2.2 Mile Route
12 Stops
1,660 Daily Riders
$109.8 Million Capital Cost
$2.96 Million Annual Operating Cost
15.9 Million Square Feet of Development

**Option III**
Broad St. to Martin Luther King Jr. Dr. / 5th St.
2.7 Mile Route
13 Stops
1,940 Daily Riders
$131.9 Million Capital Cost
$3.45 Million Annual Operating Cost
12.2 Million Square Feet of Development

**Option IV**
WFBMC to Union Station
3.3 Mile Route
17 Stops
1,960 Daily Riders
$146.4 Million Capital Cost
$4.27 Million Annual Operating Cost
16.9 Million Square Feet of Development
## STARTER LINE / MINIMAL OPERATING SEGMENTS (MOS)

<table>
<thead>
<tr>
<th></th>
<th>Option I</th>
<th>Option II</th>
<th>Option III</th>
<th>Option IV</th>
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<tr>
<td><strong>Starter Line (MOS)</strong></td>
<td>Burke St. / Westdale Ave. to northern PTRP</td>
<td>WFBMC to northern PTRP</td>
<td>Broad St. to Martin Luther King Jr. Dr. / 5th St.</td>
<td>WFBMC to Union Station</td>
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<tr>
<td><strong>Length (Route Mile)</strong></td>
<td>1.6</td>
<td>2.2</td>
<td>2.7</td>
<td>3.3</td>
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<tr>
<td><strong>Number of Stops</strong></td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>17</td>
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<tr>
<td><strong>Daily Ridership in Opening Year (2017)</strong></td>
<td>1,400</td>
<td>1,660</td>
<td>1,940</td>
<td>1,960</td>
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<tr>
<td><strong>Capital Cost</strong></td>
<td>$87.9 Million</td>
<td>$109.8 Million</td>
<td>$131.9 Million</td>
<td>$146.4 Million</td>
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<td><strong>Operating Cost</strong></td>
<td>$2.14 Million</td>
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<td>$3.45 Million</td>
<td>$4.27 Million</td>
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<td><strong>Potential Development</strong></td>
<td>15 Million Square Feet</td>
<td>15.9 Million Square Feet</td>
<td>12.2 Million Square Feet</td>
<td>16.9 Million Square Feet</td>
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<tr>
<td><strong>Challenges</strong></td>
<td>No connection to WFBMC, southern PTRP, WSSU and East Winston</td>
<td>No connection to southern PTRP, WSSU and East Winston</td>
<td>Design constraints</td>
<td>No connection to WFBMC</td>
</tr>
<tr>
<td><strong>Key destinations</strong></td>
<td>Ball park, Library, Convention Center, Transportation Center, Downtown, Northern PTRP</td>
<td>Med Center, Ball park, Library, Convention Center, Transportation Center, Downtown, Northern PTRP</td>
<td>Downtown, Transportation Center, PTPR, WSSU, Union Station, East Winston</td>
<td>With the exception of East Winston, captures every key destination along corridor</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>No major design challenges</td>
<td>No major design challenges</td>
<td>Connects to Transportation Center and regional transit system, Connectivity to northern PTRP</td>
<td>With the exception of East Winston, captures every key destination along corridor</td>
</tr>
<tr>
<td><strong>Capital Cost per Route Mile</strong></td>
<td>$54.9 Million</td>
<td>$49.9 Million</td>
<td>$48.8 Million</td>
<td>$44.4 Million</td>
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<tr>
<td><strong>Operating Cost per Rider</strong></td>
<td>$1,500</td>
<td>$1,800</td>
<td>$1,800</td>
<td>$2,200</td>
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</tbody>
</table>

### NEXT STEPS
- Open House – June 27, 2013 5pm – 7pm
- FTA Briefing
- City Council Presentation
- City Council Decision on Locally Preferred Alternative
APPENDIX B:
ROUTING WORKSHOP
APPENDIX B1:
ROUTING WORKSHOP
AGENDA
Objectives
Recognizing the extent and diversity of opinions on the potential service design for the Urban Circulator, a workshop / mini-charrette provides the opportunity to engage the Technical and Policy Committees and interested stakeholders in a focused environment to discuss and reach general concurrence on key service aspects. Concurrence means there is agreement-in-principle, even though there may be details to be finalized. Objectives for the workshop are to:

- Provide information on the initial screening process (for route and mode);
- Allow participants to confer and discuss their ideas for service options, given design and financial constraints; and
- Concur on the general route that should be advanced.

Further analysis after the workshop will be needed to fine-tune the service design, but the intent of the workshop is to reach general concurrence. The workshop is intended to discuss routing options in detail, and also introduce discussion on the merits of various transit technologies (i.e. bus vs. streetcar). Many of the routing considerations to be discussed will apply to all modes; however, distinctions will be made for design constraints that are applicable only to a particular transit technology.

Logistics
Attendees: Technical and Policy Committees and other invited stakeholders (downtown business owners, developers, residents, etc.)
Venue: Wake Forest Biotech Place, 575 N. Patterson Avenue, Winston-Salem, NC 27101
Date: Wednesday, August 29, 2012
Time: 8:30 am to 3:00 pm, including working breakfast and lunch (other invited stakeholders participate during 12:00 pm to 3:00 pm session)

Agenda

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<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 – 9:30 am</td>
<td>Coffee / Doughnuts&lt;br&gt;(consultant provides overview of workshop / brief presentation about what makes a good urban circulator street)</td>
</tr>
<tr>
<td>9:30 – 10:30 am</td>
<td>“Walkshop” focused on 4th St / 5th St; other areas as determined by interest&lt;br&gt;(purpose is to discuss some of the initial screening findings in the context of the existing streetscape and landscape)</td>
</tr>
<tr>
<td>10:30 – 11:45 am</td>
<td>Initial Screening Presentation&lt;br&gt;(consultant provides results of initial screening technical analysis)</td>
</tr>
<tr>
<td>11:45 – 12:00 pm</td>
<td>Break</td>
</tr>
<tr>
<td>12:00 – 1:00 pm</td>
<td>Boxed Lunch / Introduction to Transit Technologies</td>
</tr>
<tr>
<td>1:00 – 1:15 pm</td>
<td>Design Constraints / Overview of Planning Exercise&lt;br&gt;(review key findings of initial screening process and introduce participatory exercise)</td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
</tr>
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<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
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</tbody>
</table>
| 1:15 – 2:00 pm | Routing Exercise  
(participants work in small groups to “design their own route” given design and financial constraints and initial screening summary results; strings of different lengths provided to illustrate general project lengths for general costs) |
| 2:00 – 2:45 pm | Table Report-Outs  
(each group reports on their discussion and preferred routes; general discussion follows to identify commonalities) |
| 2:45 – 3:00 pm | Wrap-up  
(consultant explains what we heard; review results of routing exercise; highlights remaining questions; reach general consensus on preferred route; and discuss next steps) |
APPENDIX B2:
ROUTING WORKSHOP
PRESENTATION #1
Urban Circulator Planning Workshop

Overview of Workshop
August 29, 2012

AGENDA

- Study Introduction
- Routing and Street Design Considerations
- “Walkshop”
- Initial Screening of Routing Options
- Keys to Successful Urban Circulator
- Routing Exercise

TODAY’S GOAL: SELECT A ROUTE
STUDY PROCESS

- Initial Screening
- Stakeholder Input

- Conceptual Engineering
- Ridership Estimates
- Public Input

TODAY’S GOAL: SELECT A ROUTE

ROUTE AND VEHICLE OPTIONS

ROUTE SELECTION

TECHNOLOGY SELECTION / ROUTE REFINEMENT

LOCALLY PREFERRED ALTERNATIVE

STUDY GOALS

Enhance Economic Competitiveness

- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

Increase Mobility Options

- Connect key destinations in urban core
- Connect to local and regional transit to provide the "last mile" of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity
ROUTE OPTIONS

MODE OPTIONS

Streetcar
Fixed rail technology, operating in mixed traffic

Enhanced Bus
Bus option offering physical and technological enhancements

Standard Bus
Continuation of typical local bus service
STUDY RESULTS

Selection of “Locally Preferred Alternative”

WHAT MAKES A GOOD URBAN CIRCULATOR ROUTE?
ROUTE DESIGN CONSIDERATIONS

Put the circulator where the pedestrians will be
Circulators should support walkability, not vice versa

Connect the maximum number of existing destinations
Tie together key existing destinations to encourage ridership from the outset

Uncork the most development potential
Serve areas that are primed for redevelopment, not just areas that are already developed

Remember “service” does not have to be at the front door
Create visual connections and an overall sense of place to increase walkability

ROUTE DESIGN CONSIDERATIONS

Follow an easy-to-understand, "readable" route
The circulator route should be clear and direct, particularly for non-regular riders

Consider use of couplets
Couplets offer an opportunity to expand the economic impact area

Position the route for future expansions
Opportunities for connections to future extensions should be considered
WHAT MAKES A GOOD URBAN CIRCULATOR STREET?

STREET DESIGN CONSIDERATIONS

Street width
Streetcars and buses are generally 8-9 feet wide, enabling them to fit in narrow streets. However, interaction with motor vehicles needs to be considered.

Utilities
Consideration of impacts on underground utilities is paramount. Protection from stray current from the streetcar’s traction power system is required, and access to utilities from maintenance must be maintained. Bus-based systems do not have these constraints.

Bridges and structures
Bridges, tunnels, and other structures may need to be structurally modified to accommodate the additional loading related to streetcar infrastructure. A particular concern on bridges is the added weight from any concrete track slab that may need to be constructed.

Vertical clearance
The streetcar and the overhead contact system must fit underneath any overhead bridges or other structures crossing the alignment. A clearance of 18’ is typically desired, though special design techniques can decrease this minimum height.
STREET DESIGN CONSIDERATIONS

Grade
Streetcars and buses can typically operate on a grade up to 7% to 9%.

Turning Radius
Typical streetcars require a 66-foot turning radius, whereas typical buses have a minimum turning radius of approximately 45 feet.

On-street parking
Depending on the location of the track within the street and the associated stop locations, existing on-street parking spaces may be impacted. Sidewalk bulb-outs are desirable for bus/streetcar stops.

Pedestrian/bicycle environment
Bus/streetcar stops should be incorporated into the surrounding pedestrian environment; areas with narrow sidewalks and no room for sidewalk expansion should be avoided. Also, streetcar track design should consider interactions with bicyclists.

CORRIDOR CONSIDERATIONS

1st STREET

- Low-density uses with large setbacks
- Traffic calming elements through the Historic Holly Avenue neighborhood
- Wide streets abutted by large single-use parcels
CORRIDOR CONSIDERATIONS

2nd STREET

- Lower-density uses through the Historic Holly Avenue neighborhood
- Wide streets abutted by large single-use parcels in downtown

CORRIDOR CONSIDERATIONS

4th STREET

- Wider and more auto-oriented street cross-section
- Pedestrian-oriented streetscape with small parcels, no setbacks, wider sidewalks, and a single travel lane in each direction
CORRIDOR CONSIDERATIONS

5th STREET

- Sizable parcels with larger setbacks
- Multi-family residential area with large setbacks
- Smaller parcels and no setbacks
APPENDIX B3:
ROUTING WORKSHOP
PRESENTATION #2
Urban Circulator Planning Workshop

“Walkshop”
August 29, 2012

AGENDA

• 1st Street
• 2nd Street
• 4th Street
• 5th Street
• Broad Street
• Burke Street

KEY QUESTIONS

• What elements should be considered when designing a urban circulator route?
• What streets are better suited for an urban circulator?
1ST STREET
4TH STREET

Burke St.        Spruce St.        Church St.
W               E
5TH STREET

Broad St.  Spruce St.  Church St.  MLK Jr. Dr.

W  E

5TH STREET

Broad St.  Spruce St.  Church St.  MLK Jr. Dr.

W  E
BROAD STREET

BURKE STREET
APPENDIX B4: ROUTING WORKSHOP PRESENTATION #3
Urban Circulator Planning Workshop

Initial Screening of Route Options
August 29, 2012

ROUTE OPTIONS

A route will be identified by selecting specific streets within each of the color-coded segments.
ROUTE OPTIONS

Possible combinations of streets that could be linked together to form a route

ROUTE OPTIONS

- Hospital
- Hawthorne / 1st
- Burke / 4th / 5th
- 1st / 2nd / Broad / 4th / 5th
- 1st / 2nd / Spruce / 4th / 5th
- 1st / 2nd / Town Run / 4th / 5th
- 1st / 2nd / Liberty / Main
- Downtown
- 3rd / 4th / 5th
- 5th
- Rail Corridor
- PTRP / E. Winston
  - 5th / Patterson / 3rd or 4th / Research Pk. Blvd. / Rams
  - 5th / Research Pk. Blvd. / Rams
  - 5th / MLK
- WSSU / Union Station

PERFORMANCE MEASURES

<table>
<thead>
<tr>
<th>Goals</th>
<th>Performance Measures</th>
<th>Distinguishing Characteristic for…</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Route</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technology</td>
</tr>
<tr>
<td>Enhance Economic Competitiveness</td>
<td>• Development and revenue generation potential along route</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Development and revenue generation potential with transit technology</td>
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<tr>
<td>Encourage a mixture of uses including equitable and affordable housing</td>
<td>• Amount of land conducive to transit-supportive development</td>
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</tr>
<tr>
<td></td>
<td>• Consistency with land use goals for housing</td>
<td>✔</td>
</tr>
<tr>
<td>Protect and enhance the City’s distinct character</td>
<td>• Enhancement of the traditional downtown form and walkable grid</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Consistency with adopted plans</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Positive passenger experience</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Minimize potential environmental impacts</td>
<td>✔</td>
</tr>
</tbody>
</table>
## PERFORMANCE MEASURES

<table>
<thead>
<tr>
<th>Goals</th>
<th>Performance Measures</th>
<th>Distinguishing Characteristic for…</th>
<th>Route</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect key destinations in urban core</td>
<td>• Service to key activity centers and development sites</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Ridership potential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• System capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Travel time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Design constraints</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase Mobility Options</td>
<td>Connect to local and regional transit to provide the “last mile” of service</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Integration with other transit service:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Access to Transportation Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Link to future commuter rail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Connectivity to potential extensions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support existing communities and infrastructure</td>
<td>• Minimization of conflict with existing utility &amp; street infrastructure</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>• Traffic and on-street parking impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend pedestrian connectivity</td>
<td>• Ability to support enhanced pedestrian connectivity and infrastructure</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## VACANT AND UNDERUTILIZED PROPERTY

[Map showing vacant and underutilized property]

Legend:
- **Vacant or UnderutilizedLand**: Surface parking lots and parcels identified as vacant in an owner's landuse.
- **Parks**: Parks

Goal:
- Focus development and coordinate investments to maximize economic return.
ZONING

Legend

- Campus
- Institutional
- Business
- Residential
- Office
- Central Industrial
- Central Business
- Central Business district
- Zoning control for TOD
- Zoning neutral for TOD
- Zoning negative for TOD

Comments

- "Central Business" area is intended to accommodate office, retail, service, institutional, and high-density residential uses. Building heights are restricted to a maximum of 60 feet.
- "Limited office" areas have a maximum building height of 40 feet. Retail, restaurant, and business services uses are severely restricted. Multifamily housing is limited to 12 units.

GOAL

- Encourage a mixture of uses including market-rate and affordable housing.

URBAN CHARACTER

- Protect and enhance the City district character.
WALK DISTANCE

CONSTRANTS AND CONCERNS
PEDESTRIAN AND BICYCLE FACILITIES

INITIAL SCREENING

1st Street / 2nd Street
- Redevelopment opportunities around ballpark
- Potential community impacts in Holly Avenue neighborhood
- Provides direct access to BB&T / Wells Fargo

4th Street / 5th Street
- Conducive to development intensification
- Pedestrian-oriented streetscape
- Provides greater access to larger number of activity centers
## INITIAL SCREENING

<table>
<thead>
<tr>
<th>Research Park Blvd.</th>
<th>5th Street / MLK</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Directly serves largest development area</td>
<td>• Development intensification is unlikely</td>
</tr>
<tr>
<td>• Serves little existing housing</td>
<td>• Serves E. Winston housing area</td>
</tr>
<tr>
<td>• Infrastructure challenges due to low clearances, grades, and a roundabout</td>
<td>• Infrastructure challenges due to low clearances and interchanges</td>
</tr>
</tbody>
</table>
APPENDIX B5:
ROUTING WORKSHOP
PRESENTATION #4
Urban Circulator Planning Workshop

Keys to a Successful Urban Circulator

August 29, 2012

PROJECT BACKGROUND
STREETCAR FEASIBILITY STUDY

- Completed in October 2006
- Established concept for streetcar route through urban core
- Alternatives Analysis provides more detailed planning and initiates federal process

THE CASE FOR URBAN INVESTMENT

One of the best things that cities can do to create jobs—especially in the private sector—is to improve the quality of life of their inhabitants.

- Carlos Slim Helú (Mexican business magnate and philanthropist)

“We need to create a city that people want to live in. Talent can move anywhere. Building out places for people to walk...is important for business.”

- Janette Sadik-Khan, the commissioner of the New York City Department of Transportation
Transit investments yield significant benefits

PART OF A “BIGGER PICTURE” OF BENEFITS

Transit

Mobility and Access
Livability
Public Health
Environment
Economic Development

URBAN CIRCULATOR PROJECTS ELSEWHERE

• Circulator among existing destinations
• Connector to regional transit system (the “final mile”)
• Catalyst for transit–oriented and pedestrian scale development
• Building the “Green City” of a sustainable future
• In some places…. It’s an amenity for tourists
FOUR SIGNIFICANT ECONOMIC EFFECTS:

1. Expanding the customer base and customer access for existing businesses
2. Improving the market value of existing properties
3. Catalyzing “truly urban” transit-oriented new development...greater intensity, less parking
4. Expanding the area which can support this “walkable urbanism”

STUDY PROCESS

- Initial Screening
- Stakeholder Input
- Conceptual Engineering
- Ridership Estimates
- Public Input

TODAY’S GOAL: SELECT A ROUTE
STUDY GOALS

Enhance Economic Competitiveness
- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

Increase Mobility Options
- Connect key destinations in urban core
- Connect to local and regional transit to provide the “last mile” of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity

ROUTE OPTIONS
**MODE OPTIONS**

**Streetcar**
Fixed rail technology, operating in mixed traffic

**Enhanced Bus**
Bus option offering physical and technological enhancements

**Standard Bus**
Continuation of typical local bus service

---

**STUDY RESULTS**

Selection of “Locally Preferred Alternative”
KEYS TO A SUCCESSFUL URBAN CIRCULATOR

WHAT MAKES FOR A SUCCESSFUL URBAN CIRCULATOR?

- Economic Development (amount / value / type of development)
- Mobility (high ridership)
**KEYS TO SUCCESS**

**WHAT ENABLES A CIRCULATOR TO MAKE A POSITIVE IMPACT ON DEVELOPMENT?**

**Demand**
- A real estate market that is ready for growth
- A development community that will embrace the project

**Supply**
- Service to areas conducive to development/redevelopment opportunities
- A significant, permanent investment in infrastructure

**KEYS TO SUCCESS**

**WHAT MAKES FOR A HIGH-RIDERSHIP CIRCULATOR?**

**Demand**
- People
  - Need to serve existing and future activity centers

**Supply**
- Effective and attractive service design
  - Simple route
  - Frequent service
  - High visibility (vehicles, stations, other design features)
  - Sufficient capacity
  - Simple and low-cost fare structure
INTRODUCTION TO TECHNOLOGY OPTIONS

CONSIDERING ALTERNATIVE MODES
MODERN STREETCAR OVERVIEW

- Uses rails embedded in the street
- Shares traffic lane with automobiles
- Provides connections within a compact urban setting
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Station platforms enable easy boarding for bikes, wheelchairs, and strollers
- Accelerates economic development and creates more livable, desirable places

PORTLAND opened the country’s first modern streetcar in 2001.

STREETCAR SYSTEMS IN OPERATION

Streetcar Systems in Operation
Modern Streetcar Systems
PLANNING UNDERWAY FOR STREETCAR SYSTEMS

Streetcar Systems
- in Planning or Design
- Some “Hot” Streetcar Projects

OTHER CITIES WITH STREETCAR

Portland, Oregon
- Has generated $3.5 billion in private investment

Little Rock, Arkansas
- $400 million in new development within two blocks
OTHER CITIES WITH STREETCAR

Tacoma, Washington
• Provides important connection to regional rail system

Tampa, Florida
• Tourism focus, but has also generated $1 billion in new development

Seattle, Washington
• 12,500 jobs created along route since streetcar was announced

Kenosha, Wisconsin
• Historic trolley has helped fuel redevelopment

OTHER CITIES WITH STREETCAR

Other cities advancing streetcar design include Cincinnati, Tucson, Salt Lake City, Dallas, and Washington, DC.
MODERN STREETCAR VEHICLE

**Vehicle**
- 66 feet long (standard bus is 40 feet)
- 8 feet width (standard bus is 8 ½ feet)
- 12 feet high (standard bus is 9 ½ feet)
- Seated capacity = 29; standee capacity = 127

**Overhead Streetcar Power**
- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles

STREETCAR INFRASTRUCTURE

**Station**
- Raised platform (10” height) for vehicle boarding without steps
- Typically includes amenities such as shelters, benches, and passenger information
- Stations can be built into the adjacent sidewalk and placed in a parking lane
- Stations located every 1/8 mile on average
- Streetcar stations can be shared with buses
STREETCAR INFRASTRUCTURE

Streetcar Guideway
• Reinforced concrete slab with built-in rails provides smooth ride
• Rails are flush with street; cars also use the lane
• Concrete slab is 8 feet wide and 12 inches deep
• Utilities under the track slab may need to be relocated

ECONOMIC IMPACT OF STREETCAR

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
</tr>
<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
</tr>
<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
</tr>
<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
</tr>
</tbody>
</table>
STREETCAR IMPACT: POWELL’S BOOKS

2000 (Before Streetcar):
2 pedestrians / hour
2005 (After Streetcar):
783 pedestrians / hour

2000 (Before Streetcar):
3 pedestrians / hour
2005 (After Streetcar):
933 pedestrians / hour

Streetcar stop
Streetcar line

STREETCAR IMPACT:

Powell’s Books

VIABLE STREETCAR CITIES...

• Active urban real estate market
• Great, pedestrian-oriented streets
• Strong local leadership
• Support from other project partners
• Private partners willing to invest
STREETCARS

• Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
• Operates with automobiles in shared traffic lane
• Can operate as urban circulator or regional connector
• Oriented more toward enhancing mobility options rather than accelerating economic development
• Has proven successful in attracting riders who would not otherwise use transit

ENHANCED BUS OVERVIEW

The SWIFT bus rapid transit line in suburban Seattle uses distinct stations, upgraded buses, and branding to attract customers.
ENHANCED BUS INFRASTRUCTURE

Vehicle
- 40'-60 feet long
  (standard bus is 40 feet)
- 8 ½ feet wide
- 9 ½ - 10 ½ feet high
- 40’ bus capacity:
  Seated = 42; standees = 43
- 60’ bus capacity:
  Seated = 59; standees = 57

Power
- Powered by engine on bus
- Many enhanced buses are hybrid-electric
- No overhead infrastructure

Station
- Raised platform (10” height) for vehicle boarding without steps
- Typically includes amenities such as shelters, benches, and passenger information
- Stations can be built into the adjacent sidewalk and placed in a parking lane
- Stations located every 1/8 mile on average

Guideway
- Uses existing streets
OTHER CITIES WITH ENHANCED BUS

<table>
<thead>
<tr>
<th>Feature</th>
<th>WSTA Local Bus</th>
<th>WSTA Trolley</th>
<th>Charlotte Gold Rush</th>
<th>Baltimore Charm City</th>
<th>Everett SWIFT BRT</th>
<th>Las Vegas MAX</th>
<th>Orlando LYMMO</th>
<th>Eugene, OR</th>
<th>Everett, WA</th>
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<tbody>
<tr>
<td>Stylized vehicles</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Enhanced stops</td>
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<td>✓</td>
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<tr>
<td>Unique branding</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<td>Queue jumpers</td>
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<td>Level boarding</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>Dedicated lanes</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
</tbody>
</table>

Local Bus | Enhanced Bus | Bus Rapid Transit

OTHER CITIES WITH ENHANCED BUS

**Orlando, Florida**
- Three-mile loop through downtown in dedicated lanes; free service

**Eugene, Oregon**
- Enhancements to bus service led to 74% ridership increase
Las Vegas, Nevada
- Ridership increased 25% on initial BRT line compared to standard bus

Baltimore, Maryland
- Free downtown circulator includes branding and attractive vehicles
WHAT MAKES FOR A GOOD ROUTE?

ROUTE DESIGN CONSIDERATIONS

- Put the circulator where the pedestrians will be
- Circulators should support walkability, not vice versa
- Connect the maximum number of existing destinations
- Tie together key existing destinations to encourage ridership from the outset
- Uncork the most development potential
- Serve areas that are primed for redevelopment, not just areas that are already developed
- Remember "service" does not have to be at the front door
- Create visual connections and an overall sense of place to increase walkability
ROUTE DESIGN CONSIDERATIONS

- Follow an easy-to-understand, "readable" route
  The circulator route should be clear and direct, particularly for non-regular riders

- Consider use of couplets
  Couplets offer an opportunity to expand the economic impact area

- Position the route for future expansions
  Opportunities for connections to future extensions should be considered

DESIGN CONSTRAINTS

- Streetcar will not be able to make turn
- Modifications needed for streetcar to make turn
- Dashed segments indicate design constraints for streetcar

Legend

Comments
- Remove alternative from further consideration
- Concern to work through

15 to 17 vertical clearance under railroad bridge
Shir Duke Drive along Research Park Blvd north of Rama Drive
Correct key destinations
Removal of 14th emotional

OVERVIEW OF EXERCISE

Goal: Identify a service design that address the goals of the project in an effective and cost-efficient manner

TABLE DISCUSSION

- Take a moment to discuss the Routing Exercise Checklist *(see Sheet 5B)* with the members at your table
- Walk through the Initial Screening Summary *(see Sheet 3D)* and begin to identify route alternatives that you feel best meet the study goals
TABLE DISCUSSION

What route segments from the flowchart would you link together?

EXERCISE

✔ Take a segment(s) of the yellow ribbon and overlay it onto the working map to illustrate your table’s preferred route.
✔ Add additional pieces of ribbon to complete your preferred route, recognizing the costs of additional segments.
✔ Use pushpins to secure each segment of ribbon to the map.
✔ Designate routes in both directions (eastbound and westbound). Each piece of ribbon represents a single direction of travel.
EXERCISE

 ✓ Determine if your table had enhanced bus or streetcar in mind when you designed your route.
 ✓ Take a segment(s) of the pink ribbon and overlay it onto the working map to illustrate the direction of your table’s preferred future extensions.

CALCULATE COST

 ✓ Tally the number of segments of ribbon that your table uses
 ✓ Fill in the lines below to calculate the cost of your route

 Estimated cost for streetcar operating on route:

 # yellow pieces of ribbon x $12M =

 Estimated cost for enhanced bus operating on route:

 # yellow pieces of ribbon x $1.5M =
TABLE REPORT-OUTS

- Where did you begin and end your route? Why?
- What streets did you use? Why?
- What were the most critical considerations in your discussions?
- Did you use a couplet?
- How important was cost in your route selection?
- How important is vehicle technology?

COMMON THEMES?

- Route endpoints
- Streets used
- Activity centers served
- Critical considerations?
- Streetcar vs. enhanced bus?
- Unanswered questions?
NEXT STEPS

- Conduct transit survey / ridership analysis
- Initiate funding strategy discussion
- Refine route alignment
- Develop transit operations plan
- Conduct additional traffic analysis
- Develop detail comparison of technologies
- Gather additional public input

SCHEDULE

- Initial Screening
  - Stakeholder Input
- Spring 2012
- Select a Route
- Summer 2012
- Select a Technology
- Fall 2012
  - Refine Route
- Review and Adoption
- Winter 2012
  - Locally Preferred Alternative
APPENDIX B6:
ROUTING WORKSHOP
ROUTING EXERCISE
1. Exercise Materials

✓ Map showing conceptual route alternatives
✓ Precut yellow ribbon – each piece is 0.5 mile, one direction
✓ Pushpins

2. Table Discussion

✓ Take a moment to discuss the Routing Exercise Checklist (see Sheet 5B) with the members at your table.
✓ Walk through the Initial Screening Summary (see Sheet 3D) and begin to identify route alternatives that you feel best meet the study goals.

3. Exercise

✓ Take a segment(s) of the ribbon and overlay it onto the working map to illustrate your table’s preferred route. Discuss and adjust the route as necessary.
✓ Add additional pieces of ribbon to complete your preferred route, recognizing the costs of additional segments (see below).
✓ Use pushpins to secure each segment of ribbon to the map.
✓ Designate routes in both directions (eastbound and westbound). Each piece of ribbon represents a single direction of travel.
✓ Use pink ribbon to indicate non-specific future extensions.

4. Calculate the Cost of Your Route

✓ Tally the number of yellow segments of ribbon that your table uses
✓ Fill in the lines below to calculate the cost of your route

**Estimated cost for streetcar operating on route:**

<table>
<thead>
<tr>
<th># yellow pieces of ribbon</th>
<th>x</th>
<th>$12M</th>
<th>=</th>
</tr>
</thead>
</table>

**Estimated cost for enhanced bus operating on route:**

<table>
<thead>
<tr>
<th># yellow pieces of ribbon</th>
<th>x</th>
<th>$1.5M</th>
<th>=</th>
</tr>
</thead>
</table>
Routing Exercise Checklist

**Goal of Exercise:** Identify a service design that addresses the goals of the project in an effective and cost-efficient manner

1. **Start with Route Design Considerations**  
   *(see Sheet 2A)*
   - Does the route serve key activity centers where ridership is likely?  
     - Consider current and future activity centers  
     - Connect strong anchors at both ends of the route
   - Is the route simple and direct?  
     - Direct routes are easier to understand, enable more frequent service without adding vehicles, and are more conducive to consistent and reliable service  
     - Minimize turns and deviations, and avoid large loops
   - Did you consider couplets? (use of different streets for opposing directions of travel)  
     - Increases coverage, but may also increase complexity

2. **Review Screening Maps to Address Project-Specific Goals**  
   *(See Screening Maps)*
   - Does the route satisfactorily address the project goals for mobility and economic development?  
     - Consider how route options mesh with urban character, zoning, development potential, etc.

3. **Don’t Forget Design Constraints**  
   *(see Constraints and Concerns Map)*
   - Are significant infrastructure changes needed for streetcar to be able to operate along the route?  
     - For streetcar, avoid the at-grade rail crossings at 3rd St. and 4th St., and review the turning movements that are too tight

4. **Calculate the Cost of Your Route**
   - Is the total implementation cost of the service reasonable?  
     - For planning purposes, assume the following costs:
       - Enhanced Bus: $1.5M per 0.5 mile, per direction  
       - Streetcar: $12M per 0.5 mile, per direction

5. **Review and Revise if Necessary**
Do you have a preference?

- [x] Streetcar
- [ ] Enhanced bus
- [ ] Undecided

4 yellow pieces of string: $12M = 96M

Black string: $4M

3 yellow pieces of string: $1.5M = 12M
APPENDIX C:

PUBLIC FORUM PRESENTATIONS
AND MEETING NOTES
APPENDIX C1:

OPEN HOUSE #1
OPEN HOUSE #1 SUMMARY

April 2012
Meeting Date:  March 28, 2012
5:00 – 7:00 p.m.
Brief Presentation at 5:30 p.m.

Location:  Central Library Auditorium
660 W. Fifth Street, Winston-Salem, NC

Members of the Public (sign-in sheet attached as Appendix A)
86 citizens signed the meeting roster at the registration table

<table>
<thead>
<tr>
<th>City of Winston-Salem</th>
<th>Consultant Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stan Polanis</td>
<td>Brett Wallace, HDR</td>
</tr>
<tr>
<td>Paul Norby</td>
<td>Claire Brinkley, HDR</td>
</tr>
<tr>
<td>Phillip Vereen</td>
<td>Steve Carroll, HDR</td>
</tr>
<tr>
<td>Greg Errett</td>
<td>Mike Ousdahl, HDR</td>
</tr>
<tr>
<td></td>
<td>Amy Hubbard, Simon Resources</td>
</tr>
<tr>
<td></td>
<td>Tami Reina, Simon Resources</td>
</tr>
<tr>
<td></td>
<td>Karen Simon, Simon Resources</td>
</tr>
</tbody>
</table>

Introduction

A Community Open House was held at the Central Library Auditorium in downtown Winston-Salem on March 28, 2012 from 5:00 p.m. to 7:00 p.m. Meeting notices (“Please join the City of Winston-Salem” flyer) were emailed and/or mailed one to two weeks prior to the meeting date, flyers were placed on all buses and posted at the Transportation Center and various downtown establishments and a press release was emailed to the media on March 26. The City also noticed the Open House on their Facebook page on March 21st, 23rd and 28th. Appendices B and C include the flyer and press release.

During the two-hour period, citizens were free to drop-in at any time to talk with or ask questions to City staff and Project Team members about the study. Exhibit boards showing potential rail vehicles, comparison of other technologies and other project data were shown to help educate attendees. Citizens were also provided sticky dots and asked to highlight the vehicles that they liked and rank the goals that they thought were important, as well as add any that were not listed. Maps showing a previous route proposed in 2006 were available for participants to mark up with their own preference of stops and route (for more details, refer to all exhibit boards, maps and handouts in Appendices D-J.

At 5:30 p.m., Stan Polanis of the City of Winston-Salem welcomed citizens and briefly introduced the project. He then invited Brett Wallace of HDR to conduct a brief PowerPoint presentation (refer to Appendix K) that highlighted past studies, similar systems in the U.S., previous route, study goals and the process of conducting this study,
referred to as an Alternatives Analysis (AA). He stated that the AA will take about one year to complete, and will consider various types of technologies and vehicles, routes, costs associated with each type of system, region connectivity and economic development opportunities.

After the presentation, comments and questions were taken, as summarized below. As the meeting adjourned, participants were asked to provide their feedback regarding the Open House on the Comment Sheet. Comments are due preferably by April 18, 2012 (refer to Appendix L for comments received after the Open House).

**Verbal Comments/Questions**

1. **Q:** Will employers contribute towards streetcar operation? Will they help employees with fare?  
   **A:** It may be possible for institutions to forgo their own shuttle services and contribute to a public system by purchasing passes for employees/students in bulk or contributing to operating cost. We will be receiving input from these stakeholders throughout the study process.

2. **Q:** Emphasize economic impact of streetcar.  
   **A:** A slide was shared illustrating the economic impact of streetcar in other cities ranging in size from Kenosha, Wisconsin to Portland, Oregon.

3. **Q:** What will the transfer policy be between various systems (i.e., WSTA buses, streetcar; PART buses, etc.)?
   **A:** There will be a transfer policy but it’s too early to determine exactly what that will be at this time.

4. **Q:** Is the distance between the tracks the same as other types of rail?  
   **A:** Yes, the distance between the tracks (gauge) is the same.

5. **Q:** Will the streetcar have two loops (tracks) going in opposite directions?  
   **A:** It depends on the one-way streets at the time the streetcar is built, but the route should generally be as linear as possible.

6. **Q:** Is this considered light rail? What is the difference between light rail and heavy rail?  
   **A:** In terms of the vehicle size and bulk, a streetcar is a “light” light rail. A streetcar runs shorter distances than light rail and heavy rail systems. The streetcar would also have more frequent stops within that shorter distance.

7. **Q:** Is Charlotte looking at a streetcar to running its already existing light rail line?  
   **A:** Charlotte is building a short “starter” streetcar line that will use its own rail line, independent of the light rail. However, it will use the same maintenance facility as light rail. Future streetcar expansion in Charlotte is planned.

8. **Q:** How does the U.S. compare with Europe’s rail systems?  
   **A:** The rail system in Portland, Oregon adopted modern technology based on European systems.

9. **Q:** Both WFU and WSSU have their own bus service that takes them to downtown and other areas around town. I’m not sure there is a need for students to use the streetcar except for on weekends or at night. Can the City explore partnerships with these colleges to provide needed service?
A: At this point in the study, we are not aware of their bus schedules nor frequency, destinations, etc. However, that is something we need to do and will pursue a partnership when the time is right and if feasible.

10. Q: Can the City start with a streetcar system and then “branch out” further, i.e., what is the City’s long term vision?
   A: The long term vision would be to provide regional connectivity and coordinate with PART to provide regional service.

11. Q: Has there been consideration of a Park ‘N Ride facility on the outskirts of downtown, perhaps near Business 40. Riders could park there and take streetcar into downtown.
   A: This can certainly be considered as the study gets into more detail.

12. I think college students would use the streetcar more than on weekends. Should consider a connection to WF Baptist and PTRP.

13. Other cities’ bus systems service more than one college, allowing professors to teach at two colleges. Perhaps the City can consider this when deciding on a route.

14. Q: Would there be a potential to upgrade the streetcar to a fixed guide-way or dedicated lane?
   A: It would depend whether there are enough space on the road to do either service.

15. Q: Would providing more frequent service encourage people to ride the streetcar? How do you interface with PART service?
   A: More frequent service is always good and the City will coordinate with PART to determine regional service.

Written Comments (from the 26 Comment Sheets received during the Open House)

1. Was the Open House format acceptable for understanding the study? If not, how would you prefer the information be presented at the next workshop?

   Comments:
   - It was great! (times 2)
   - Yes. (times 11)
   - Always better to have a person present so that everyone has an opportunity for Q & A.
   - Excellent! Good presentation with open question period. Superb handling of questions – easy manner and well informed.
   - It was presented well, casually and informative. (times 4)
   - Good introductory meeting.
   - Yes, answered all questions thoroughly. (times 2)
   - Very organized by allowing exposure to the presentation contents before introducing the project.
Open House #1 Summary

Idea Generation:
• Would like to see future meetings broken down into small groups with topics for discussion.
• Provide senior citizen accessibility, tourists and other persons who would use public transportation.
• Would prefer a more in depth progress report – type of vehicle with more research, etc.

2. Did the PowerPoint presentation and exhibits provide enough information about the study and how it will be conducted?

Comments:
• Yes. (times 16)
• Did not attend presentation. Boards with various options soliciting public input were helpful.
• Sufficient information – great speaker.
• Thought the presentation in 2003 was better.
• Lacked in-depth research (ex: costs, fuel usage, space needed, time for construction, etc.).
• Very thorough and easy to follow.

Idea Generation:
• Show the slide that explains economic returns.
• Show pictures as good examples.

Questions:
• What have the previous studies provided as a platform for this type of urban circulator?

3. Are there any other issues or components related to the study that we could address?

• Name the streets that streetcars cannot travel along.
• Potential expansion stage.
• Potential for regional rail connectivity.
• Show connectivity to Transportation Center, Park and Ride, Government Center, Main Library.
• Would like to see presentation on how similar-size cities have introduced public transit in their communities.
• Need to consider the closing of Business 40 when studying the streetcar.
• Parking – there is not enough parking in downtown.
• Consider a north/south extensions as two possibilities (Downtown to Wake Forest University and Downtown to UNC School of the Arts).
• W-S has a reputation of history. I’d like a streetcar that takes in the great history of us having the ‘second public streetcar system in the U.S.
• Duke Energy suggests that the route be aware of underground facilities in downtown.
• Upfront costs and operation costs per year for each option.
• Hanes Mall/Forsyth Hospital are critical to/from destinations.
• Hopefully the route will consider visitation to historic sites of our city.
• Sunday service would be greatly appreciated – W-S is currently null and void of public transportation on Sunday.
• Survey potential riders from the major employers, hotels, etc. to determine the most beneficial route, rather than asking a few folks at this meeting.
Open House #1 Summary

- Audit route and community impacts.
- Integration with other transportation trends/planning efforts, i.e., private vehicles, bikes, light rail, regional service.
- Development goals (public, private, tourism, institutional).
- Parking distributors/pedestrian-only avenues.
- Safety considerations.
- Streetcar’s power usage (origin), regardless if it is electric (which is good) – still need to change how electric energy is produced.

4. Additional comments and/or questions (categorized into topics).

Economic Development
- Streetcar is the best option. It’s the only one that produces substantial economic return.
- Love the idea of creating arteries to open up more commerce opportunities.
- Should be designed to encourage development/improvement in nearby lower income neighborhoods, such as Cleveland Avenue area, West Salem and Kimberly Park area. It could help encourage people to live in these areas while housing costs are still reasonable.

Costs
- Not sure that the actuality of this project will be effective, just based on the failures of multiple transportation systems in other cities. The improvements needed to be effective would be great and costly, and in the current economic state I am not sure it would be a good idea.
- Those who benefit should help pay for it.

Power Usage/Utilities
- The final selection for the transportation system could have a significant impact on the underground high voltage power systems, which are a critical part of the infrastructure throughout downtown W-S. I am concerned about the potential impact that a rail system would impose on the maintenance, safety, reliability and cost of our systems. Duke Energy would like consideration in the decision process and to be involved in discussion at the right time for us – planning ahead is key.

Streetcar Operation/Route
- Suggest providing free rides – it makes it easier and more convenient to use (would pay more at gas pump to ride free). Important to include WFU campus – a lot of folks take bus to work and it would be great to encourage students to come into town more often.
- Would like to see route expanded to include connections to universities. I see tremendous opportunities if we can connect WFU, UNCSA, WSSU and Salem A&C.
- Suggest that the City develop plans for future upgrade. Start out using a shared road/rail lane and later close lane to cars IF and ONLY if it use merits lane restrictions. Perhaps time-based closure for rush hour.
- Need to add Forsyth/Memorial Hospital and Hanes Mall to destinations.

General
- No ‘olde time’ look, please; make it look cool!
- Thank you for consideration, implementation and execution of this splendid idea and presentation.
• Glad to see people who are actually considering making our city a better place, seeing advancement to a city like W-S is a big deal.
• Could not hear all the questions/comments, but answers cleared most of the questions.

Questions:
• If you have fixed rail, what happens when you want to close the streets for festivals, etc.?
• How do you deal with the homeless being able to use this service, but not simply ride back and forth?
• What are costs of the various models of streetcars? Overhead line issues? Interference with buses if established? Would it require some streets to go back to one-way? Will it tie into light rail?
• What will be the hours of operation?

Maps
A map showing the previous route from 2006 was distributed at the Open House and citizens were asked to mark up the map with any changes they would like. The map also included the following question, “What connections are important to you?” The responses to this question are listed below, while the marked up maps are located in Appendix C.

• WFU Baptist Hospital
• Piedmont Triad Research Park (PTRP)
• BB&T Ballpark (W-S Dash)
• UNC School of the Arts
• WFU
• WSSU
• Airport
• Union Station
• Convention Center
• Downtown to LJVMC, YMCA-Hanes Park, PTI Airport
• Forsyth Hospital
• Transportation Center to WSSU
• Salem College to UNCSA/Washington Park
• PTRP to WFU/WF Baptist Hospital
• Burke Street to Convention Center to Arts District
• Transportation Center
• Park n Ride
• Library, Government buildings
• Use 5th Street instead of 6th Street
• Circulator rather than single, 2-way tracks

Exhibit Boards – Interactive
Numerous exhibit boards asking citizens to place a colored dot under the most important design option/picture seemed very productive. The exhibit boards solicited feedback on questions with corresponding pictures/examples such as ‘What should service look like?’ and ‘What is important to you
(Example Goals)? The responses to these questions are listed below, while the marked up exhibit boards are located in Appendix C.

<table>
<thead>
<tr>
<th>What Should Service Look Like?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicles Types</td>
<td>Out of four pictures/examples, the two most popular are the Modern Streetcar (Portland) and the Heritage Streetcar (Tampa).</td>
</tr>
<tr>
<td>Streetscapes</td>
<td>Out of four pictures/examples, the two most popular are the Streetcar Operating In Mixed Traffic (Seattle) and the Enhanced Bus With Dedicated Lane (Eugene).</td>
</tr>
<tr>
<td>Station Stop Types</td>
<td>Out of four pictures/examples, the two most popular are the Curbside Streetcar Stop (Seattle) and the Enhanced Bus Shelter (Las Vegas).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What Is Important TO You (Goals)?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>Out of six goal options, the two most popular are the Circulate Among Key Destinations (connect major employers, colleges/universities, hospitals, event venues, etc.) and the Make Transit easy to use (create a transit circulator that is frequent, dependable, and easy to use for residents, employees and visitors)</td>
</tr>
<tr>
<td>Economic Development</td>
<td>Out of three goal options, the two most popular is the Encourage economic development (make a significant investment in transit infrastructure to attract high-quality development throughout the area) and the Support existing employers and institutions (serve major employment locations)</td>
</tr>
<tr>
<td>Community</td>
<td>Out of two goal options, the most popular is the Support Arts and the cultural activities (improve access to community facilities, including arts, cultural and recreational venues)</td>
</tr>
</tbody>
</table>

What Is Important To You? Citizens were asked to create other goals and the following were created.

<table>
<thead>
<tr>
<th>What Is Important To You?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday Transportation</td>
<td>4 citizens agreed.</td>
</tr>
<tr>
<td>Historic Site Accessibility</td>
<td>9 citizens agreed.</td>
</tr>
<tr>
<td>Frequent Service ≤ 10 minutes</td>
<td>9 citizens agreed.</td>
</tr>
</tbody>
</table>

Written Comments Received via Mail or Email after March 28, 2012

Please refer to Appendix E for written comments mailed and emailed as of the April 18, 2012 published deadline.

Next Steps

All comments and maps will be reviewed by the City and presented to the Technical Committee on April 25, 2012. The Technical and Policy Committees will work towards establishing the project goals. The study team will work on defining the problem, developing and evaluating options. The next Open House will be held in early fall to present the study alternatives. Announcements will be sent via email, mail and posted on the project website.
APPENDIX A

March 28, 2012 Community Open House Sign-In Sheets (86 Citizens Attended)
<table>
<thead>
<tr>
<th>#</th>
<th>NAME</th>
<th>ADDRESS</th>
<th>CITY, ZIP (only zip if W-S address)</th>
<th>PHONE</th>
<th>EMAIL</th>
<th>HOW DO YOU WANT TO BE CONTACTED (email, mail, phone call)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kevin Lindsey</td>
<td>1511 Jarvis St.</td>
<td>WS 27601</td>
<td>722-2889</td>
<td></td>
<td>phone</td>
</tr>
<tr>
<td>2</td>
<td>Frank Johnson</td>
<td>891-A W. 6th St.</td>
<td>2201</td>
<td>577-6010</td>
<td>on file</td>
<td>email</td>
</tr>
<tr>
<td>3</td>
<td>Kyle Laird</td>
<td>2704 Knoll Hill</td>
<td>Greensboro 27402</td>
<td>391-3250</td>
<td><a href="mailto:Kyle@laire.ad.com">Kyle@laire.ad.com</a></td>
<td>email</td>
</tr>
<tr>
<td>4</td>
<td>Anna Spencer</td>
<td>2401 Warwick Rd.</td>
<td>WS 27604</td>
<td>487-6447</td>
<td>aspenec@<a href="mailto:erickson@gmail.com">erickson@gmail.com</a></td>
<td>email</td>
</tr>
<tr>
<td>5</td>
<td>John V.</td>
<td>111 N. Hawthorne Ave</td>
<td>WS 27604</td>
<td>722-2529</td>
<td><a href="mailto:jerry@earthlink.net">jerry@earthlink.net</a></td>
<td>email</td>
</tr>
<tr>
<td>6</td>
<td>Gayle Anderson</td>
<td>CHAMBER.COM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Christy Turner</td>
<td>209 Payne Rd</td>
<td>CA NC 7395</td>
<td>978 4590</td>
<td><a href="mailto:cturmer@stimmel.com">cturmer@stimmel.com</a></td>
<td>email</td>
</tr>
<tr>
<td>8</td>
<td>Amanda Tutter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Jim N.</td>
<td>P.O. Box 4888</td>
<td>WS/NC</td>
<td>330-719-860</td>
<td><a href="mailto:jim@noroondale.com">jim@noroondale.com</a></td>
<td>email</td>
</tr>
<tr>
<td>10</td>
<td>Dondald A.</td>
<td>422 Horace Mann Ave</td>
<td>WS/NC</td>
<td>336-724-5821</td>
<td><a href="mailto:d@atriadrv.com">d@atriadrv.com</a></td>
<td>email</td>
</tr>
<tr>
<td>11</td>
<td>Taylor Endler</td>
<td>4915 Katie Court</td>
<td>Pretoria/NC</td>
<td>336-831-4685</td>
<td><a href="mailto:taylor@atriadrv.com">taylor@atriadrv.com</a></td>
<td>email</td>
</tr>
<tr>
<td>12</td>
<td>Abby Tutter</td>
<td>754 Anchor Ed</td>
<td></td>
<td></td>
<td><a href="mailto:abbytutter@gmail.com">abbytutter@gmail.com</a></td>
<td>email</td>
</tr>
<tr>
<td>13</td>
<td>Steve B.</td>
<td>205 Georgia Ave</td>
<td>WS 27607</td>
<td></td>
<td><a href="mailto:sr2010@hotmail.com">sr2010@hotmail.com</a></td>
<td>email</td>
</tr>
<tr>
<td>14</td>
<td>A. Knottin</td>
<td>633 Hunter Ave</td>
<td>WS 27601</td>
<td></td>
<td><a href="mailto:amalsist75@yahoo.com">amalsist75@yahoo.com</a></td>
<td>email</td>
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<td></td>
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<tr>
<td>#</td>
<td>NAME</td>
<td>ADDRESS</td>
<td>CITY, ZIP</td>
<td>PHONE</td>
<td>EMAIL</td>
<td>HOW DO YOU WANT TO BE CONTACTED (email, mail, phone call)</td>
</tr>
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<td>----------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Zhen Biao</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:zhenbiao@email.com">zhenbiao@email.com</a></td>
</tr>
<tr>
<td>2</td>
<td>Susanne Jin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:susanne.jin@yahoo.com">susanne.jin@yahoo.com</a></td>
</tr>
<tr>
<td>3</td>
<td>Bobby Lee Wilson</td>
<td>2324 Starter Ave</td>
<td>W/5 27101</td>
<td>336-4066738</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mark Elkington</td>
<td>PART</td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:markelkington@gmail.com">markelkington@gmail.com</a></td>
</tr>
<tr>
<td>5</td>
<td>Jessica Fields</td>
<td></td>
<td>W/5 27105</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Jeff Mabe</td>
<td>Duke Energy</td>
<td></td>
<td>917-7706</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Neil Bower</td>
<td>Duke Energy</td>
<td></td>
<td>917-2527</td>
<td></td>
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<tr>
<td>8</td>
<td>Chris Griffin</td>
<td>career center</td>
<td></td>
<td>27104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Pam Hawley</td>
<td>NCDOT</td>
<td></td>
<td>315-4904</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Scott Natworth</td>
<td>Student</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>Paul Nobles</td>
<td>CCPB</td>
<td></td>
<td>747-7061</td>
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<tr>
<td>12</td>
<td>Dong Bingle</td>
<td>3rd Electric Company</td>
<td></td>
<td>725-4936</td>
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</tr>
<tr>
<td>13</td>
<td>George Boyer</td>
<td>2123 E. W.S.</td>
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<td>500 West 4th Street</td>
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<td>4823 Meredith</td>
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APPENDIX B

Meeting notice(s) sent/posted via USPS mail and/or email
Please join the City of Winston-Salem at a

COMMUNITY OPEN HOUSE • MARCH 28, 2012
5:00 – 7:00 PM • Central Library Auditorium • 660 W. Fifth Street
(Brief presentation at 5:30 PM)

Join us at an Open House to learn about a study involving a proposed streetcar or enhanced bus service connecting Downtown and surrounding neighborhoods to each other and the region. We will present the following information and ask for your feedback and ideas.

- Project background and supporting plans
- Study process and schedule
- Project goals
- Route and vehicle options to be considered

Please drop in at any time during the 2-hour period to talk with or ask questions to City staff and Project Team members about the study.

For additional information contact:

Stan Polanis
City of Winston-Salem
336.747.6867
stangp@cityofws.org
APPENDIX C

Press Release
Community Open House on Streetcar and Other Transit Options Scheduled for March 28

City residents are invited to learn about a study to use street cars or enhanced bus service to connect downtown and surrounding neighborhoods to each other and to the region during a community open house Wednesday, March 28. The open house will be held from 5 to 7 p.m. in the auditorium of the Central Library, 660 W. Fifth St.

The format is informal and participants may drop in at any time during the open house to talk with city staff and project team members. However, a brief presentation will be given at 5:30.

Those who attend will learn about the results of past studies on this project, as well as the current study process and schedule, goals, route options and vehicle types to be considered. Exhibit boards showing possible route options and other graphics will be displayed.

City officials are holding the open house to collect public opinion on the project goals and the transit options to be evaluated during the year-long study.

The current study, which started in February, builds upon previous plans but will make a more detailed evaluation of various route and vehicle options. The study will also look at regional connections, growth management, economic development and costs.

Requests for auxiliary aids and services to review the documents at the open house should be made to Stan Polanis, P.O. Box 2511, Winston-Salem, NC 27102, or by phone to 747-6867, TDD (336) 727-8319.

For more information call CityLink 311.

-end-
APPENDIX D

Community Open House Material – Fact Sheet #1
The City of Winston-Salem is considering the possibility of implementing an “urban circulator” that would connect the downtown area with surrounding neighborhoods and the larger Triad region. Below are some quick facts about what the circulator could look like and how it would provide service.

**What It Could Look Like**
- Rubber-tire bus or rail vehicles
- An old-fashioned trolley or streetcar
- A more modern-looking, sleek vehicle
- Color scheme would be compatible with WSTA or other destination characteristics
- Air-conditioned
- Wheelchair-accessible

**How It Would Work**
- Would travel on same streets as automobiles, sharing travel lanes
- Route would be relatively short, with a high frequency of service
- Would obey same traffic signals and speed limits as automobiles
- Circulator stops would be located approximately every 2-3 blocks at high demand destinations and/or businesses
- Would also have stops at locations that would spur economic development
- Could potentially utilize historic Union Station in east Winston
APPENDIX E

Community Open House Material – Comment Sheet
Urban Circulator Open House
March 28, 2012
Comment Sheet
Please print

Name: __________________________________________ Date: ____________
Address: __________________________________________________________________________________________
City, State, Zip Code: ______________________________________________________________________________
Affiliation: _______________________________________________________________________________________
Phone/ E-mail address: ______________________________________________________________________________
Woul. you like to be added to our mailing list?
☐ YES ☐ NO

Please take a few minutes to share your thoughts about the materials shown at tonight’s open house. Please
complete this comment sheet and return it to the Comment Table or by mail (see address on page 2).

1. Was the Open House format acceptable for introducing the study? If not, how would
you prefer the information be presented at the next workshop?
__________________________________________________________________________________________________
__________________________________________________________________________________________________
__________________________________________________________________________________________________
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2. Did the power point presentation and exhibits provide enough information about the
study and how it will be conducted?
__________________________________________________________________________________________________
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3. Are there any other issues or components related to the study that we could address?

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4. Additional comments and/or questions.

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Please mail comments by April 18, 2012 to:

Stan Polanis
City of Winston-Salem DOT
100 E. First Street, Suite 307
Winston-Salem, NC  27101

THANK YOU FOR ATTENDING THE OPEN HOUSE!
YOUR COMMENTS ARE VERY IMPORTANT IN THE STUDY PROCESS.
APPENDIX F

Community Open House Material – Frequently Asked Questions
Why was the Winston-Salem Urban Circulator Study initiated?
In 2006, the City of Winston-Salem completed the Streetcar Feasibility Study, evaluating the potential for a streetcar in the City. One goal of the study was to identify an appropriate technology and route to achieve the transit objectives in The Legacy Plan and the Downtown Development Plan. One of The Legacy 2030 Plan recommendations was to “Build a center city streetcar system that will create linkages and spur business and development growth between the universities, medical centers, Piedmont Triad Research Park, central city neighborhoods and the Downtown area”.

In response, the City and PART have jointly initiated the Winston-Salem Urban Circulator Study to evaluate this proposal in more detail, and to consider other potential transit options that could enhance mobility and help meet other community goals in the downtown area. This study is also a requirement for the future use of federal funds for any project that may emerge from the study process.

What will this study involve?
The Winston-Salem Urban Circulator Study examines the impacts, costs and benefits of improving transit within downtown, connecting the major employers and underdeveloped land. The study will look at potential options for building an urban circulator (e.g. streetcar or enhanced bus service) within a two to three mile corridor through Winston-Salem’s downtown. Project goals will be identified at the outset. Community input will be solicited over the course of the study through Technical and Policy Committees, numerous stakeholder meetings, and community open houses.

The study will culminate with the selection of a “Locally Preferred Alternative” to potentially advance into further study and project development.

What is the proposed route?
In 2006, the Streetcar Feasibility Study recommended a proposed route that began at Wake Forest Baptist Medical Center, traveled through downtown via Burke St., 4th St., and 5th St., and connected to Piedmont Triad Research Park. A near-term extension to Winston-Salem State University was also identified.

Five years have passed since the initial recommendation was made, so this study will take a fresh look at all route options in the study area. One of the primary outputs of the study process will be the identification of a preferred route.

Will buses be considered too?
The study will evaluate all reasonable transit technologies that may be viable for the project, including rail-based technologies and bus-based technologies. Rail and bus options will be compared to determine which type of vehicle would best achieve desired goals.

With the current budget shortfalls, why is this being studied now?
The study is an initial step to enable the City to pursue federal funding for the project. An environmental assessment and design and engineering work, a process that could take several years, must occur before
construction begins. Recognizing the long lead time for this type of project, now is the time to plan for success. Furthermore, this type of study is required to receive federal funds that could be used to support project financing. Postponing this study would potentially delay the City’s ability to leverage competitive federal funds.

Completing this study does not commit any further funds from any source to a streetcar or bus project, nor does it commit the City to proceed to construction.

How does this study fit into the community vision for Winston-Salem?
The City’s Downtown Plan and Legacy 2030 Update identify a range of strategies to guide future initiatives within Winston-Salem, many of which include expanding and promoting the use of transit. The City’s vision focuses on creating a sustainable city, encouraging economic development, promoting residential development in downtown, maintaining a community with special character and identity, and supporting a high quality of life. PART’s Regional Transit Development Plan also emphasizes the role of existing and new transit modes in promoting mobility. One of the objectives of the Winston-Salem Urban Circulator Study is to support city and regional goals by providing a new travel option for circulating through downtown and surrounding areas, connecting to other transit hubs, and encouraging economic development.

How will this project benefit Winston-Salem?
A strong transportation infrastructure makes our city more attractive for investment and improves our overall quality of life. In addition to providing more transportation choice, transit reduces carbon emissions, encourages pedestrian activity and improves local public health. The Urban Circulator project also aims to use transit options to support and encourage sustainable growth, as recommended in the 2020 Legacy Plan.

Downtown Winston-Salem contains a concentration of employment, cultural, educational and medical facilities. By encouraging greater development and investment in this area through an urban circulator project, new jobs will be created, and the City, County, and State will benefit through increased tax and sales revenues resulting from new development.

Why isn’t the study considering longer routes (or more routes) to connect other neighborhoods?
The Urban Circulator Study focuses on Winston-Salem’s downtown as the area with the greatest concentration of activities and the highest density development (floor area ratio) in the county. A potential first phase should be relatively short (about 2 to 3 miles) to minimize project costs and increase the chances for implementation.

However, potential future extension beyond a first phase will be considered in the study process. PART’s Regional Transit Development Plan recommended that a future extension might incorporate a connection from downtown to Wake Forest University and UNC School of the Arts. Other cities have envisioned how a larger network of streetcar lines might fit with their initial streetcar route: Portland, OR
constructed an initial 2-mile streetcar route in 2001. The line has since been extended three times, and another 3-mile extension is under construction today.

**Are streetcars in operation elsewhere?**
Streetcar systems are in operation in fourteen US cities including mid-sized cities such as Little Rock, AR, and Tacoma, WA, as well as numerous international cities. Local municipalities and transit authorities are working together in about 30 additional US cities to study the feasibility of introducing streetcar to their transit networks. For example, Washington, DC has plans for a 37-mile streetcar network.

**How is streetcar different than other rail technologies?**
Streetcars are similar to, but differ from Light Rail. The main difference is purpose: streetcars cover a shorter distance (typically 2-3 mile segments) and support local mobility and short trips. Light Rail runs at higher speeds and is generally designed to transport commuters over longer distances within a city or between suburban locations and downtown. Streetcars are also lighter vehicles and can operate on local streets, in mixed traffic with automobiles and bicycles. The rail is embedded “flush” with the road network. Light Rail typically requires a dedicated right-of-way and is more complex and costly to construct.

**Would local bus routes be impacted by a new streetcar system?**
Streetcar would be only one tool in the transit toolbox. Streetcars would complement and work in conjunction with existing bus and potential commuter rail services to serve different areas, meet different mobility needs, and help achieve different goals.

**How frequently would a streetcar operate?**
Streetcars typically operate with a high frequency of service (10 to 15 minutes) to increase the attractiveness of the service. Details will be refined as the study progresses.

**Who would use a new Urban Circulator service?**
We anticipate that employees, students, residents, and visitors looking to make short-distance trips between destinations in the downtown area will use the service. In particular, streetcars are designed to serve relatively short-distance trips that may be slightly too long for people to walk, but too short to justify the inconvenience of traveling by auto and dealing with parking (streetcar is often termed a “walk extender”).

Urban circulators also serve as the “last mile” connection for regional transit services. For example, an urban circulator would connect to transportation hubs to provide the final link from transit routes serving other parts of the city and region to final destinations in the downtown area.
APPENDIX G

Community Open House Material – Study Area Map
WHAT ROUTE TO LINK THESE DESTINATIONS?

What connections are important to you?

_____________________________________

_____________________________________

_____________________________________

_____________________________________

Previously recommended route (to be re-evaluated during Alternatives Analysis)
APPENDIX H

Community Open House Material – Maps Marked-up by Attendees
What connections are important to you?

What route to link these destinations?

Previously recommended route (to be re-evaluated during Alternatives Analysis)
WHAT ROUTE TO LINK THESE DESTINATIONS?

What connections are important to you?

[Map of Winston-Salem with various landmarks and routes]

Previously recommended route (to be re-evaluated during Alternatives Analysis)
What connections are important to you?
- Win 3 blocks & needing dev. & dreams
- to school rail @ 2 pts
- circulate rather than single track

Previously recommended route (to be re-evaluated during Alternatives Analysis)
WHAT ROUTE TO LINK THESE DESTINATIONS?

What connections are important to you?


Previously recommended route (to be re-evaluated during Alternatives Analysis)
WHAT ROUTE TO LINK THESE DESTINATIONS?

What connections are important to you?

#1 - TRANSPORTATION LRT
#2 - PARK AND RIDE
#3 - LIBRARY, GYM

USE 5# INSTEAD OF 6
WHAT ROUTE TO LINK THESE DESTINATIONS?

Previously recommended route (to be re-evaluated during Alternatives Analysis)

---

What connections are important to you?

- Old Salem connections to WSSU, Fourth St.
- UNC Area to Salem Ave. round about + Broad St.
APPENDIX I

Community Open House Material – Display Exhibit Boards
WHAT SHOULD SERVICE LOOK LIKE?

Place Dots in Box Below Important Design Options

**Vehicle Types**

- Modern Streetcar (Portland)
- Heritage Streetcar (Tampa)
- Enhanced Bus (Las Vegas)
- Rubber-Tired Trolley (Winston-Salem)

**Streetscapes**

- Dedicated Right-of-Way (Tampa)
- Streetcar Operating in Mixed Traffic (Seattle)
- Streetcar Operating in Mixed Traffic with On-Street Parking (Seattle)
- Enhanced Bus With Dedicated Lane (Eugene)

**Station Stop Types**

- Standard Bus Stop on Sidewalk
- Typical Median Streetcar Stop (Portland)
- Curbside Streetcar Stop (Seattle)
- Enhanced Bus Shelter (Las Vegas)
## Transit Technology Options

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Heavy Rail</th>
<th>Commuter Rail</th>
<th>Modern Light Rail</th>
<th>Modern Streetcar</th>
<th>Enhanced Bus/Bus Rapid Transit</th>
<th>Standard Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Cities</td>
<td>Atlanta, Washington DC, Boston, Chicago, New York</td>
<td>Boston, New Jersey, New York, Dallas/Fort Worth</td>
<td>Charlotte, Denver, Seattle</td>
<td>Portland, Tacoma, Seattle</td>
<td>Los Angeles, Pittsburgh, Eugene</td>
<td>Most Cities Served by Bus Service</td>
</tr>
<tr>
<td>Approximate Cost Per Mile (Millions)</td>
<td>$150 - $250</td>
<td>$3 - $20</td>
<td>$80 - $120</td>
<td>$40 - $50</td>
<td>$4 - $50</td>
<td>$1 - $2</td>
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<tr>
<td>Service Type</td>
<td>Regional/Urban</td>
<td>Regional/Interurban</td>
<td>Regional/Urban</td>
<td>Urban</td>
<td>Regional/Urban</td>
<td>Urban</td>
</tr>
<tr>
<td>Typical Station Spacing</td>
<td>Urban Core &lt; 1 Mile Periphery 1 - 5 Miles</td>
<td>2 - 5 Miles</td>
<td>1 - 2 Miles</td>
<td>1/8 – 1/4 Mile</td>
<td>1/4 - 2 Miles</td>
<td>Stops Along Normal Routes</td>
</tr>
<tr>
<td>Typical Station Type</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign (Standard Bus Stop)</td>
</tr>
<tr>
<td>Passenger Entry/Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on One Side Platform or Curbside Boarding</td>
<td>Doors on One Side Curbside Boarding</td>
</tr>
<tr>
<td>Vehicle Size</td>
<td>75' Long x 10.5' Wide</td>
<td>88' Long x 9.2' Wide</td>
<td>94' Long x 8.7' Wide</td>
<td>66' Long x 8.1' Wide</td>
<td>60' Long x 8.5' Wide (articulated)</td>
<td>40' Long x 8.5' Wide</td>
</tr>
<tr>
<td>Capacity</td>
<td>122 seats 138 standing 260 total</td>
<td>136 seats 276 standing 412 total</td>
<td>68 seats 168 standing 236 total</td>
<td>30 seats 130 standing 160 total</td>
<td>60 seats 60 standing 120 total</td>
<td>40 seats 35 standing 75 total</td>
</tr>
<tr>
<td>Alignment ROW Width</td>
<td>Separate ROW 25 - 33 Feet</td>
<td>Existing Freight ROW 37+ Feet</td>
<td>Typically Separated ROW 25-30 Feet</td>
<td>Street Running in Mixed Traffic</td>
<td>Dedicated Lane or Mixed Traffic</td>
<td>Mixed Traffic</td>
</tr>
<tr>
<td>Power Source</td>
<td>Electric Powered Third Rail</td>
<td>Electric or Diesel Push-Pull Locomotive</td>
<td>Overhead Electric Line</td>
<td>Overhead Electric Line</td>
<td>Diesel / Hybrid</td>
<td>Diesel / Hybrid</td>
</tr>
</tbody>
</table>

## Photos

[Photos of transit technology options]
TRANSIT TECHNOLOGY OPTIONS

**Bus**
- Circulator
  - Emphasis on access with stop spacing every two blocks

**Streetcar**
- Circulator
  - Emphasis on access with stop spacing every two blocks

**LRT / BRT**
- Within a City
  - Balance between local access and mobility with stop spacing every ½ to 1 mile

**Commuter Rail**
- Regional
  - Emphasis on regional mobility with stop spacing every 2 to 5 miles
WHAT ROUTE TO LINK THESE DESTINATIONS?

Previously recommended route (to be re-evaluated during Alternatives Analysis)
PROJECT DEVELOPMENT PROCESS

Streetcar Feasibility Study
- Complete 2006
  - Conceptual Alignment
  - Economic Impact
  - Preliminary Capital and Operating Cost Estimates

Urban Circulator Study (Alternatives Analysis)
- One Year
  - General Alignment and Mode Selection
  - Ridership Forecasting
  - Refined Cost Estimates and Financial Plan
  - Locally Preferred Alternative

Environmental Analysis
- Six Months - One Year
  - Anticipated Finding of No Significant Impact

Project Development (Preliminary Engineering and Final Design)
- Two Years
  - Specific Alignment and Track Design
  - Station Stops, Roadway, Utilities, Structures, Traffic, Systems
  - Detailed Cost Estimates
  - Financial Plan Implementation
  - Project Construction Grant Agreement

Construction
- One and a Half Years
  - Implementation

Operation
  - Future
Federal Plans

State Plans

Regional Plans

City Plans

Federal Interagency Partnership for Sustainable Communities
- Provide more transportation choices
- Promote equitable and affordable housing
- Enhance economic competitiveness
- Target resources to existing communities
- Coordinate and leverage federal policies and investments
- Value unique characteristics of communities

Legacy 2030 Update (in progress)
- Build a center city streetcar system that will create linkages and spur business and development growth between the universities, medical centers, Piedmont Triad Research Park, central city neighborhoods and the Downtown area.
- Develop a streetcar system based on the recommendations of the Urban Circulator Alternatives Analysis to link downtown and nearby major employment, entertainment and education centers.

The Downtown Plan (2007)
- Support development concepts
- Add transportation link
- The initial routing of the streetcar system should help to stimulate economic development in areas that are currently underdeveloped.
- Short-term: Finalize streetcar study
- Long-term: Develop commuter rail and complete streetcar systems

Winston-Salem Feasibility Study (October 2006)
- Defined a potential streetcar route in the downtown area
- Identified areas with development potential that could be catalyzed by streetcar
- Discussed potential federal, state, and local funding opportunities

A VISION FOR WINSTON-SALEM
Other Supporting Local, State, and Federal Plans

Regional Transit Development Plan, Forsyth and Guilford Counties Transit Vision for 2025 (November 2010)
- Development concentrations in downtown are supportive of intensive transit circulation service, such as streetcars.
- Forsyth County Recommendations: Streetcar in downtown Winston-Salem
  - East-West connecting WSSU, PTRP, downtown, Wake Forest Baptist Medical Center
  - North-South connecting Wake Forest Univ., downtown, UNC School of the Arts
- Private sector funding contributions through a TIF and joint development may be appropriate for streetcar.
- Stakeholder input included suggestion to consider bus technology instead of streetcar.

NCDOT 2040 Plan (in progress)
Highlights of feedback from the public survey include:
- In a climate of limited funds, NCDOT’s top priorities should be:
  - Focusing on projects and programs that will boost the economy and create jobs
  - Focusing on other forms of transportation besides highways
- Better coordination of transportation and land development and investing more in public transportation are most important to address the transportation needs of a changing population
- More than 63 percent of respondents indicated expanding passenger service within cities or between downtowns and suburbs should be the focus of passenger rail efforts.
### Example Goals

<table>
<thead>
<tr>
<th>MOBILITY</th>
<th>Economic Development</th>
<th>Community</th>
</tr>
</thead>
</table>
| Connect to other transit services  
(serve Transportation Center to enable easy transit connections) |
| Circulate among key destinations  
(connect major employers, colleges/universities, hospitals, events venues, etc.) |
| Allow me to get to work without a car  
(provide “the last mile of service” with connections to local and regional transit) |
| Support future system expansion  
(design urban circulator transit service to be expandable to other neighborhoods) |
| Make transit easy to use  
(create a transit circulator that is frequent, dependable and easy to use for residents, employees and visitors) |
| Create an alternative to downtown parking  
(use transit to make better use of available downtown parking areas and possibly reduce the need to build more parking) |
| Encourage economic development  
(make a significant investment in transit infrastructure to attract high-quality development throughout the area) |
| Support existing employers and institutions  
(serve major employment locations) |
| Serve key development parcels  
.construct transit improvements adjacent to vacant parcels to serve future development) |
| Create vibrant, attractive places  
(use transit to support the unique character of our downtown) |
| Support arts and cultural activities  
(improve access to community facilities, including arts, cultural and recreational venues) |

### Place Dots in Box Next to Important Goal(s)

- MOBILITY
- Economic Development
- Community

### WHAT IS IMPORTANT TO YOU?

- MOBILITY
- Economic Development
- Community
<table>
<thead>
<tr>
<th>Please List Other Goals</th>
<th>Place Dots in Box Next to Important Goal(s)</th>
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APPENDIX J

Community Open House Material – Interactive Exhibit Boards
WHAT SHOULD SERVICE LOOK LIKE?
Place Dots in Box Below Important Design Options

Vehicle Types
- Modern Streetcar (Portland)
- Heritage Streetcar (San Jose)
- Enhanced Bus (Las Vegas)
- Rubber-Tired Trolley (Winston-Salem)

Streetscapes
- Dedicated Right-of-Way (Tampa)
- Streetcar Operating in Mixed Traffic (Seattle)
- Streetcar Operating in Mixed Traffic with On-Street Parked (Seattle)
- Enhanced Bus with Dedicated Lane (Eugene)

Station Stop Types
- Standard Bus Stop on Sidewalk
- Typical Median Streetcar Stop (Portland)
- Curbside Streetcar Stop (Seattle)
- Enhanced Bus Shelter (Las Vegas)
### WHAT IS IMPORTANT TO YOU?

#### Example Goals

<table>
<thead>
<tr>
<th>Category</th>
<th>Example Goals</th>
<th>Place Dots in Box Next to Important Goal(s)</th>
</tr>
</thead>
</table>
| **MOBILITY**   | Connect to other transit services (serve Transportation Center to enable easy transit connections) | ![Dots](image1)
|                | Circulate among key destinations (connect major employers, colleges/universities, hospitals, events venues, etc.) | ![Dots](image2)
|                | Allow me to get to work without a car (provide “the last mile of service” with connections to local and regional transit) | ![Dots](image3)
|                | Support future system expansion (design urban circulator transit service to be expandable to other neighborhoods) | ![Dots](image4)
|                | Make transit easy to use (create a transit circulator that is frequent, dependable and easy to use for residents, employees and visitors) | ![Dots](image5)
|                | Create an alternative to downtown parking (use transit to make better use of available downtown parking areas and possibly reduce the need to build more parking) | ![Dots](image6)
| **ECONOMIC DEVELOPMENT** | Encourage economic development (make a significant investment in transit infrastructure to attract high-quality development throughout the area) | ![Dots](image7)
|                | Support existing employers and institutions (serve major employment locations) | ![Dots](image8)
|                | Serve key development parcels (construct transit improvements adjacent to vacant parcels to serve future development) | ![Dots](image9)
| **COMMUNITY**  | Create vibrant, attractive places (use transit to support the unique character of our downtown) | ![Dots](image10)
<p>|                | Support arts and cultural activities (improve access to community facilities, including arts, cultural and recreational venues) | <img src="image11" alt="Dots" /> |</p>
<table>
<thead>
<tr>
<th>Please List Other Goals</th>
<th>Place Dots in Box Next to Important Goal(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday Transportation</td>
<td><img src="image" alt="Dots" /></td>
</tr>
<tr>
<td>Historic Site Accessibility</td>
<td><img src="image" alt="Dots" /></td>
</tr>
<tr>
<td>Frequent Service ≤ 10 min</td>
<td><img src="image" alt="Dots" /></td>
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</table>
APPENDIX K

City of Winston-Salem PowerPoint Presentation
COMMUNITY OPEN HOUSE
March 28, 2012

THE CASE FOR URBAN INVESTMENT
One of the best things that cities can do to create jobs—especially in the private sector—is to improve the quality of life of their inhabitants.

- Carlos Slim Helú (Mexican business magnate and philanthropist)

“We need to create a city that people want to live in. Talent can move anywhere. Building out places for people to walk…is important for business.”

- Janette Sadik-Khan, the commissioner of the New York City Department of Transportation

PART OF A “BIGGER PICTURE” OF BENEFITS
Transit investments yield significant benefits

PART OF A “BIGGER PICTURE” OF PLANNING

WHAT IS THIS STUDY FOR?

- Initial streetcar feasibility assessment in Winston-Salem Streetcar Feasibility Study (2006)
  - Established concept for streetcar route through urban core
- Need more detailed evaluation of “urban circulator” (bus or rail)
- Project definition, impacts, benefits, costs
- Produces federally-required Alternatives Analysis (AA)
- Next step toward potential implementation

KEY QUESTIONS TO ANSWER

- Is there a need for improved transit connections as part of a larger vision?
- What type of vehicle?
- Where should the route go?
- How would the project be funded?
SCOPE OF WORK

Define Problem
- Why are we doing this?
- “Purpose and Need” – making the case for a project

Develop Options
- Define conceptual options for route and mode
- Select “best” options for more detailed analysis

Evaluate and Refine Options
- Conceptual design
- Ridership projections
- Cost estimates
- Financial strategy

Select Preferred Alternative
- Adopt a “Locally Preferred Alternative”
- FTA decides if project should be advanced

WHY CONDUCT THIS STUDY NOW?

Long-term vision is key, even during short-term crisis
- Local and regional call for more transit investment
- Development catalysts are needed to spur recovery
- Unique ability to weave transit into development plans
- Change is always happening in transit
- The federal process is long...

URBAN CIRCULATOR STUDY AREA

Wake Forest Baptist Hospital – largest employer in Winston-Salem

Downtown – regional business and arts center, transportation hub, home to special events venues

Piedmont Triad Research Park – planned 6.1 million gross square feet of redevelopment space

URBAN CIRCULATOR PROJECTS ELSEWHERE

- Circulator among existing destinations
- Connector to regional transit system (the “final mile”)
- Catalyst for transit–oriented and pedestrian scale development
- Building the “Green City” of a sustainable future
- In some places…. It’s an amenity for tourists

OPEN HOUSE INFORMATION STATIONS

Goal is to introduce the study and obtain input on goals and options to consider

Local and regional plans
What is important to you?

What might new service look like?
What is the best route for new service?

WHAT IS IMPORTANT TO YOU?

Type of vehicle?
Access to specific destinations?
Frequent service?
Connections to other transit services?
Future extensions?
Ease of use?
WHAT MIGHT NEW SERVICE LOOK LIKE?

- Uses rails embedded in the street
- Shares traffic lane with automobiles
- Provides connections within a compact urban setting
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Station platforms enable easy boarding for bikes, wheelchairs, and strollers
- Accelerates economic development and creates more livable, desirable places

MODERN STREETCAR OVERVIEW

Portland opened the country’s first modern streetcar in 2001.

ENHANCED BUS OVERVIEW

- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
- Operates with automobiles in shared traffic lane
- Can operate as urban circulator or regional connector
- Oriented more toward enhancing mobility options rather than accelerating economic development
- Has proven successful in attracting riders who would not otherwise use transit

WHAT IS THE BEST ROUTE?

PROJECT DEVELOPMENT PROCESS

STUDY TIMELINE

Ongoing:
- Project Website, Social Media and YouTube
- Fact Sheets
- Stakeholder Meetings
- Policy Committee
- Technical Committee
FOR MORE INFORMATION

- Project website: coming soon
- Join our e-mail list for project updates
- City Project Manager:
  Stan Polanis
  stanp@cityofws.org
  336-747-6867

STREETCAR ECONOMIC IMPACT

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
</tr>
<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
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<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
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<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
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APPENDIX L

As of the April 18, 2012 published deadline, these are the March 28, 2012 Community Open House Written Comments received via Mail or Email:
Urban Circulator Open House  
March 28, 2012  
Comment Sheet  
Please print

Name: Troy Dehaven  
Address: 500 West 4th St  
City, State, Zip Code: Winston-Salem NC 27103  
Affiliation: The Housing Authority  
Phone/Email address: 336-917-6120 TDehaven@HAWs

Would you like to be added to our mailing list?  
☑ YES  ☐ NO

Please take a few minutes to share your thoughts about the materials shown at tonight's open house. Please complete this comment sheet and return it to the Comment Table or by mail (see address on page 2).

1. Was the Open House format acceptable for introducing the study? If not, how would you prefer the information be presented at the next workshop?

☑ YES

2. Did the power point presentation and exhibits provide enough information about the study and how it will be conducted?

☑ YES

Please see #3 on back.
3. Are there any other issues or components related to the study that we could address?

The study area does not include any shopping such as grocery stores, pharmacies, or dollar stores. Many mass transit users ride mass transit to do their shopping. The study area should be expanded to include Miller Street to the west (Harris Teeter, Whole Foods, CVS, Walgreens) and/or to MLK and walk town to the east (CVS, Food Lion, Save-A-Lot).

4. Additional comments and/or questions.

Please mail comments by April 18, 2012 to:

Stan Polanis
City of Winston-Salem DOT
100 E. First Street, Suite 307
Winston-Salem, NC 27101

THANK YOU FOR ATTENDING THE OPEN HOUSE!
YOUR COMMENTS ARE VERY IMPORTANT IN THE STUDY PROCESS.
APPENDIX C2:

OPEN HOUSE #2
PUBLIC WORKSHOP #2 SUMMARY

January 31, 2013
Meeting Date: January 31, 2013
5:00 – 7:00 p.m.
Brief Presentation at 5:30 p.m.

Location: Milton Rhodes Center for Arts, Mountcastle Forum
251 N. Spruce Street, Winston-Salem, NC

Members of the Public (sign-in sheet attached as Appendix A)
80 citizens signed the meeting roster at the registration table

<table>
<thead>
<tr>
<th>City of Winston-Salem</th>
<th>Consultant Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Norby</td>
<td>Taiwo Jaiyeoba, HDR</td>
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<td>Greg Errett</td>
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<td>Matthew Burczyk</td>
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Introduction

A Public Workshop was held in the Mountcastle Forum at the Milton Rhodes center for the Arts in downtown Winston-Salem on January 31, 2013 from 5:00 p.m. to 7:00 p.m. Meeting notices (“Please join the City of Winston-Salem” flyer) were emailed two weeks prior to the meeting date, flyers were placed on all buses and posted at the Transportation Center and various downtown establishments and a press release was emailed to the media on January 25. The City also noticed the Workshop on the project website (www.winstonsalemcirculator.com) and their Facebook page. Appendix B includes the flyer and press release.

During the two-hour period, citizens were free to drop-in at any time to talk with or ask questions to City staff and Project Team members about the study. A Project Fact Sheet (#4) was provided to participants at the registration table. Exhibit boards showing the proposed route, photos of both streetcar and enhanced bus vehicles, who we spoke to, proposed schedule and other project data were located around the room to help participants visualize what the system could look like in our community. Two interactive boards were provided where participants could 1. put a color sticky dot on their preferred vehicle and 2. write their comments and/or questions. The Fact Sheet #4 and exhibit boards are located in Appendix C.

At 5:30 p.m., Paul Norby of the City of Winston-Salem welcomed participants and briefly introduced the project. He then invited Taiwo Jaiyeoba of HDR to conduct a brief PowerPoint presentation (refer to Appendix D), which provided some background information on the project, as well as highlighted the following:
• Outreach efforts to date
• Proposed route and how it was developed
• Development impacts of an Urban Circulator
• Portland Case Study
• Findings from the Alternatives Analysis (ridership data, costs, etc.); and
• Personal benefits of a circulator

He stated that this Alternatives Analysis study is nearing completion and should be wrapped up by April/May. After the presentation, comments and questions were taken. Both the comments and questions, as well as the written comments from the interactive Comments Board are summarized below.

**Verbal Comments/Questions after PPT**

1. How will fares be determined?

   **Answer:** Fares will be determined by the agency that operates the system, and at this time, we do not know who will operate. However, it will be comparable with fares in other cities.

2. Since the PTRP plays such a huge role in this proposed route, will they participate/contribute to the funding?

   **Answer:** PTRP is one of the key stakeholders the City is discussing the overall project development with. At this time, there is no discussion on financial participation but PTRP is involved with the project process.

3. After initial funding, what impact on existing transportation budget will Streetcar have?

   **Answer:** In the federal financial planning process for Small Starts, the evaluation for financial rating includes ensuring that the operating budget of a new system does not negatively impact the overall operating budget of the existing transit system. Typically, for Very Small Starts, the financial plan must show that the operating budget of a new system is less than 5% of the existing transit service.

4. Which system will best serve physically disabled community?

   **Answer:** Either system provides access to physically disabled, as required by the ADA Act. Both the streetcar or enhanced bus vehicles have low riding buses so that a wheelchair can easily get onto the bus, there is no lift, its even with the sidewalk.

5. What would the wait time for a streetcar or enhanced bus be? Frequency?
Answer: As shown on the exhibit board and Fact Sheet #4, we are proposing 10-minute headways or waiting time between vehicles during peak hours (Mon-Fri, 7AM-6PM) and 15-minute headways on Saturdays and non-peak hours.

6. Would the City operate the streetcars on Sunday?

Answer: Due to the added cost but limited benefit, we are not proposing Sunday service at this time. However, depending on the success of the system, Sunday service could be added at a later date.

7. How can the federal government pick up the cost of the project?

Answer: The federal government portion of the project capital cost is determined by what the project sponsor (City) requests. Typically it could be from 50% to 80%. The state, local or other sources are responsible for the remainder of the project cost.

Comment Board Notes (categorized according to topic):

Streetcar Vehicles

- Streetcars are part of historic Winston-Salem.
- Streetcars will elevate character in center city and bringing them back will add another layer of interest to city.
- Streetcars are more attractive (and sexy) than enhanced buses.
- Streetcars will be attractive way to alleviate traffic problems in downtown while growing businesses along the routes. Another plus is attracting first time riders to public transportation.
- Rails represent reliability and structure.
- Love the streetcar system in Portland; it’s clean, easy and attractive.
- Steel wheels/streetcar is the way to go.
- A streetcar is infrastructure and promotes long-term growth.
- As a downtown resident, streetcar is very important to the economic livelihood of downtown businesses. It would make it easy to navigate downtown and surrounding areas.
- Environmental benefit of streetcar is reduction of urban sprawl.
- Streetcar has the positive fiscal input from the increase in development and increase in property tax.
- Streetcar would be novel for the city and its riders.
Enhanced Bus

- Get 2 or 3 electric buses, which can charge when not in use. They are clean, require no infrastructure, and are quiet and inexpensive.
- Although streetcars are attractive, enhanced busses are less expensive and more flexible.

Route

- Would like to see expansion of routes to include Thruway Shopping Center, Forsyth Medical Center and Hanes Mall, given the volume of traffic on Hanes Mall Blvd and Silas Creek Parkway.
- Need connectivity to East Winston - feel that they were left out of plans.
- Route to Reynolds Healthcare should be included.
- Please consider the thousands of students at Salem College and UNCSA, as well as the Old Salem area and include in route.
- Extend route to Thruway and offer monthly rider pass - we need this now.
- Link route to Southern Railway Corridor - extend to mall and Union Station (light rail to Greensboro airport).

Funding

- How will this be financed? What are the funding sources? With over $300 million in unfunded infrastructure needs, will this project delay other needs?

General

- Would like to see Sunday operating hours.
- Too much benefit for WFU Baptist Medical Center and not enough benefit for banking and government centers.
- Will development plan leave room for green space and pocket parks?
- As the new form of transit is introduced, do not forget about all the existing WSTA and/or PART riders.
- Our current busses are too big and never filled with riders.
**Interactive Board**

In addition to the numerous boards showing various data about the project, an exhibit showing three technology/vehicle types was available for participants to place a dot on their “favorite”. Below is a photo of the board, which clearly shows that the favorite technology of participants is the streetcar.

![Interactive Board Image]

**Next Steps**

All comments and questions will be reviewed by the Project Team and presented to the Policy and Technical committees on February 1, 2013. After consideration of the written comments, the Technical and Policy committee members were posed the questions, “What type of vehicle/system do you recommend and do you approve the proposed route being recommended to City Council?”

Unanimously, committee members made a recommendation to advance the streetcar technology and proposed route, with one addition: At a request from the City Manager that morning, the Project Team was asked to consider extending the route to east Winston along MLK Jr. Blvd. Basically, this would be a “loop” from PTRP to WSSU to east Winston and back to PTRP. The Project Team will analyze this new loop and present the information to the City Manager and Council for their decision.
APPENDIX A

January 31, 2013 Public Workshop Sign-In Sheets (81 Citizens Attended)
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<th>NAME</th>
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<td>1</td>
<td>Betsy Gregg</td>
<td>2623 Greenview Rd</td>
<td>W-5 22104</td>
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<td>Susan Macintosh</td>
<td>129 Woodrow Rd</td>
<td>W-5 27106</td>
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<td>Alex Coit</td>
<td>1824 Wake Forest Rd</td>
<td>27109</td>
<td>336-258-3510</td>
<td><a href="mailto:cristajdw@gmail.com">cristajdw@gmail.com</a></td>
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<td>5767 Antietam Piz</td>
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<td>Tim DelCristo</td>
<td>1533 S. Main St.</td>
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<td>Steve Mason</td>
<td>2050 Northpoint Dr</td>
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<td>896-1300</td>
<td><a href="mailto:smr@geotec.com">smr@geotec.com</a></td>
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<td>Ethan Groce</td>
<td>Box 3169/1834 UERL</td>
<td>27109</td>
<td>x7956</td>
<td><a href="mailto:groce9@ufl.edu">groce9@ufl.edu</a></td>
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<td>Kirk Ericson</td>
<td>City Planning</td>
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<td>213 Horace Ave</td>
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<td>Michelle McCaffy</td>
<td>836 Clearview St, 87104</td>
<td>WS 27116</td>
<td>747-3963</td>
<td><a href="mailto:micheleemccaffy@csusm.edu">micheleemccaffy@csusm.edu</a></td>
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<td>Keith Wilson</td>
<td>124 Vintage Ave</td>
<td>WS 27127</td>
<td>408-0504</td>
<td><a href="mailto:keithwilson@triad.rr.com">keithwilson@triad.rr.com</a></td>
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<td>Ruth Markle</td>
<td>635 N Tombs St</td>
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<td>Jeff Miller</td>
<td>4017 Ivy Bluff</td>
<td>27106</td>
<td>761-1151</td>
<td><a href="mailto:ezjeff2@proline.com">ezjeff2@proline.com</a></td>
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<td>Tara Warden</td>
<td>222 N Sunset Dr.</td>
<td>27101</td>
<td>910-122-5657</td>
<td><a href="mailto:warden.tara@gmail.com">warden.tara@gmail.com</a></td>
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<tr>
<td>9</td>
<td>Kate Mutchinney</td>
<td>2306 Westfield Ave</td>
<td>27103</td>
<td>723-6412</td>
<td><a href="mailto:mewinski@uwfu.edu">mewinski@uwfu.edu</a></td>
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<td>125 Grove Oak Cir</td>
<td>27106</td>
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<td>100 N Main St D509-010</td>
<td>Winton</td>
<td>919-995-2608</td>
<td><a href="mailto:janet.hoover@wellsfargo.com">janet.hoover@wellsfargo.com</a></td>
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<td>Andrea Walker</td>
<td>Edg W. 7th St. Apt A</td>
<td>27101</td>
<td>336-391-5662</td>
<td><a href="mailto:andrawalker@gmail.com">andrawalker@gmail.com</a></td>
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<td>1102 Melrose St</td>
<td>27103</td>
<td>723-1237</td>
<td><a href="mailto:kathy.pounds5@uwspd.gov">kathy.pounds5@uwspd.gov</a></td>
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<td>2002 Elizabeth Ave</td>
<td>27103</td>
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<td>375 Silk Creek Plk</td>
<td>W-5 20137</td>
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<td><a href="mailto:dhampton@ncdoj.gov">dhampton@ncdoj.gov</a></td>
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<td>2308 Westfield</td>
<td>US NC 27108</td>
<td>773-6416</td>
<td><a href="mailto:dmlartin@bellsouth.net">dmlartin@bellsouth.net</a></td>
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<td>Andrea McDonald</td>
<td>3333 Sill Creek Pkwy, W-S 27103</td>
<td></td>
<td>336-718-2074</td>
<td><a href="mailto:amcdonald@newtnealth.org">amcdonald@newtnealth.org</a></td>
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<td>100 N Main St, Durham 27701</td>
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<td>932-2677</td>
<td><a href="mailto:kristi_etheridge@nstenresearch.org">kristi_etheridge@nstenresearch.org</a></td>
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<td>Betsy Stathis</td>
<td>2415 S 10th St, Atascadero 237</td>
<td></td>
<td>978-485-2117</td>
<td><a href="mailto:beth.stathis@maclaren.com">beth.stathis@maclaren.com</a></td>
<td>cyrusarchitects</td>
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<td>5</td>
<td>Danielle Yihane</td>
<td>1211 W. 4th St, W-S 27101</td>
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<td>960-857-5787</td>
<td><a href="mailto:danell.yihane1977@gmail.com">danell.yihane1977@gmail.com</a></td>
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<td>Brooke Barber</td>
<td>101 S. Church St, W-S 27101</td>
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<td>336-345-2081</td>
<td><a href="mailto:brooke.barber@wisc.edu">brooke.barber@wisc.edu</a></td>
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<td>Nathaniel Baskett</td>
<td>305 W. 4th St, W-S 27101</td>
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<td>336-944-1636</td>
<td><a href="mailto:nathaniel.baskett@email.com">nathaniel.baskett@email.com</a></td>
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<td>Frederick Veit</td>
<td>2401 Rosecrans Ave, W-S 27101</td>
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<td><a href="mailto:fveit@leakehealth.edu">fveit@leakehealth.edu</a></td>
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<td>Linda Hasting</td>
<td>1436 Capri Rd, W-S 27103</td>
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<td><a href="mailto:hastings@eatadr.com">hastings@eatadr.com</a></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Craig Schaub</td>
<td>1238 Wedgewood Dr, W-S 27103</td>
<td></td>
<td></td>
<td><a href="mailto:cschaub@gmail.com">cschaub@gmail.com</a></td>
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<tr>
<td>#</td>
<td>NAME</td>
<td>ADDRESS</td>
<td>CITY, ZIP (only zip if W-S address)</td>
<td>PHONE</td>
<td>EMAIL</td>
<td>HOW DO YOU WANT TO BE CONTACTED (email, mail, phone call)</td>
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<td>1</td>
<td>Owen Cooks</td>
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<tr>
<td>2</td>
<td>Andrew Edmonds</td>
<td>4825 Gladwyne Dr</td>
<td>27104</td>
<td>391-4632</td>
<td><a href="mailto:edmundsra@apsc.edu">edmundsra@apsc.edu</a></td>
<td>email</td>
</tr>
<tr>
<td>3</td>
<td>Dan Besse</td>
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<td>4</td>
<td>Chad Nonaka</td>
<td>131-C N. Pala St</td>
<td>27101</td>
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<td>email</td>
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<td>5</td>
<td>Troy Delahant</td>
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<tr>
<td>6</td>
<td>Frank Ameyia</td>
<td>7105 &amp; Brandemere Ln</td>
<td>27106</td>
<td>706-254-642</td>
<td><a href="mailto:fameyia@davenportworld.com">fameyia@davenportworld.com</a></td>
<td>email/phone</td>
</tr>
<tr>
<td>7</td>
<td>Arie Norby</td>
<td>1W 5th St, Ste 503</td>
<td>27101</td>
<td>336-582-0658</td>
<td><a href="mailto:aric.mor@gmail.com">aric.mor@gmail.com</a></td>
<td>either</td>
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<td>8</td>
<td>Jessica Freeman</td>
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<td>9</td>
<td>Nicole Callahan</td>
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<td>10</td>
<td>Walt Wagner</td>
<td>225 N Simpson St</td>
<td>27101</td>
<td>336-723-1501</td>
<td><a href="mailto:waltwagner@ymail.com">waltwagner@ymail.com</a></td>
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<tr>
<td>1</td>
<td>Matthew Buczyk</td>
<td>961 Hutton St.</td>
<td>27101</td>
<td></td>
<td><a href="mailto:matthew.b@cityofws.org">matthew.b@cityofws.org</a></td>
<td>email</td>
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<tr>
<td>2</td>
<td>John Larson</td>
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<tr>
<td>3</td>
<td>David Bergin</td>
<td>2432 Fairfax Dr.</td>
<td>27103</td>
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<tr>
<td>4</td>
<td>Kate Gallanty</td>
<td>961 Hutton St.</td>
<td>27101</td>
<td></td>
<td><a href="mailto:kgallanty@cityofws.org">kgallanty@cityofws.org</a></td>
<td>email</td>
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<tr>
<td>5</td>
<td>Ken Basch</td>
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<td>Tom Carroll</td>
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<td>John Noble</td>
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<td>10</td>
<td>Frank ellion</td>
<td>1100 Queenswood Dr</td>
<td>27106</td>
<td></td>
<td><a href="mailto:cmitchell@cityofws.org">cmitchell@cityofws.org</a></td>
<td>phone call</td>
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<tr>
<td>11</td>
<td>Lynee Mitchell</td>
<td>1200 Federi Dr.</td>
<td>27106</td>
<td>659-6003</td>
<td><a href="mailto:cmitchell@cityofws.org">cmitchell@cityofws.org</a></td>
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APPENDIX B

Meeting Notice

Please join the City of Winston-Salem

PUBLIC WORKSHOP • JANUARY 31, 2013
5:00 – 7:00 PM • Milton Rhodes Center for the Arts
251 N. Spruce Street
(Brief presentation at 5:30 PM)

Join us at the Workshop for an update on the proposed circulator project (streetcar or enhanced bus service) connecting Downtown and locations with high activity. We will present information and ask for your feedback on the selected route and type of vehicle, as well as discuss what’s next in the study.

There will be a brief power point presentation at 5:30 p.m.; however, feel free to drop in at any time during the 2-hour period to talk with or ask questions to City staff and Project Team members about the study.

*Parking is FREE in the Spruce Street lot across from the Center*

For additional information contact:

Paul Norby
Winston-Salem/Forsyth County
336.747.7061
pauln@cityofws.org
APPENDIX B

Press Release

Planning

Contact: Paul Norby, 747-7061; pauln@cityofws.org

Public Workshop on Streetcar and Enhanced Bus Service Scheduled for January 31

City residents are invited to hear about the progress of the Urban Circulator Study, which is considering the use of streetcars or enhanced bus service to connect downtown and surrounding neighborhoods, during a public workshop on Thursday, Jan. 31. The workshop will be held from 5 to 7 p.m. in the Mountcastle Forum at the Milton Rhodes Center for the Arts, 251 N. Spruce St. Parking is free in the Spruce Street lot across from the center.

The format is informal and participants may drop in at any time during the workshop to talk with city staff and project team members. However, there will be a brief presentation at 5:30 p.m.

City staff and project team members will present information on the project, solicit opinions on the selected route and type of vehicle, and discuss what’s next in the study. Exhibit boards showing the preferred route and other project components will be displayed.

The study began in February 2012 using a framework based on previous plans; however, a significant amount of work has been conducted over the past year to evaluate many route and vehicle options, regional connections, growth management, economic development and costs.

Citizens who are hearing or visually impaired may request assistance in reviewing these documents by contacting Chris Frye, P.O. Box 2511, Winston-Salem, NC 27102, or by phone to 747-7053, TDD (336) 727-8319. For more information call CityLink 311.

- end -
APPENDIX C

Fact Sheet #4
FACT SHEET #4

STUDY VISION AND GOALS

The vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development was established by the Legacy Comprehensive Plan. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

Winston-Salem is now comparing the merits of streetcars and enhanced buses to identify the best way to shape the community by enhancing economic competitiveness and increasing mobility options as part of the overall effort to grow smarter and better by managing future development.

“SELECTED” ROUTE

A 3.3-mile route would connect our major activity centers, improve transit and mobility, encourage development, and support future growth.

PROPOSED OPERATING PLAN

Hours of Service and Frequency (in minutes)

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday-Wednesday</th>
<th>Thursday-Friday</th>
<th>Saturday</th>
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</thead>
<tbody>
<tr>
<td>5AM</td>
<td>15</td>
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January 2013
www.WinstonSalemCirculator.com
TRANSPORT Options

Streetcar

Characteristics
- Uses rails embedded in the street
- Operates with automobiles in shared traffic lane
- Provides connections within a compact urban setting, not across a region
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Serves as district circulator and pedestrian accelerator
- Accelerates economic development and creates more livable, desirable places

Power
- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles

The streetcar project is anticipated to create 12,500 new jobs, and spur 3,750+ housing units and an additional 500,000 square feet of commercial space (above the 2 million square foot baseline).

Enhanced Bus

Characteristics
- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
- Operates with automobiles in shared traffic lane
- Can operate as urban circulator or regional connector
- Oriented more toward enhancing mobility options rather than accelerating economic development
- Has proven successful in attracting riders who would not otherwise use transit

Power
- Powered by engine on bus
- Many enhanced buses are hybrid-electric
- No overhead infrastructure

The enhanced bus project is anticipated to be similar to the do nothing scenario. The city is expected to see 8,000 to 10,000 new jobs, 1,250 housing units and 2 million square feet of commercial space.

One-time cost: $113 million
Annual operating costs: $3.4 million

Streetcar ridership anticipated to be nearly 1,600 riders per weekday in operating year 2017.

One-time cost: $64 million
Annual operating costs: $1.5 million

Enhanced bus ridership anticipated to be approximately 1,320 riders per weekday in operating year 2017.
DEVELOPMENT BENEFITS OF STREETCAR

DEVELOPMENT TRANSPLATES INTO INCREASED PROPERTY VALUES AND JOBS

WHAT HAS BEEN THE ECONOMIC IMPACT OF STREETCAR IN OTHER CITIES?

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
</tr>
<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
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<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
</tr>
<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
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<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
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WINSTON-SALEM’S DOWNTOWN COMPARES TO OTHER “STREETCAR CITIES”

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Employment</th>
<th>University Enrollment</th>
<th>Hotel Rooms</th>
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</thead>
<tbody>
<tr>
<td>Winston-Salem*</td>
<td>8,918</td>
<td>20,000</td>
<td>6,442</td>
<td>828</td>
</tr>
<tr>
<td>Little Rock</td>
<td>1,942</td>
<td>21,323</td>
<td>0</td>
<td>1,896</td>
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<tr>
<td>Portland</td>
<td>20,564</td>
<td>110,684</td>
<td>16,781</td>
<td>3,910</td>
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<td>Seattle</td>
<td>6,031</td>
<td>22,411</td>
<td>800</td>
<td>1,453</td>
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<tr>
<td>Tacoma</td>
<td>2,836</td>
<td>13,296</td>
<td>2,001</td>
<td>641</td>
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<tr>
<td>Tampa</td>
<td>1,603</td>
<td>10,358</td>
<td>1,125</td>
<td>1,328</td>
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</table>
ECONOMIC DEVELOPMENT IS A DESIRED PROJECT OUTCOME

**Enhance Economic Competitiveness**
- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

**Increase Mobility Options**
- Connect key destinations in urban core
- Connect to local and regional transit to provide the “last mile” of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity

<table>
<thead>
<tr>
<th>Project Goals</th>
<th>Enhanced Bus</th>
<th>Streetcar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulator Mode</td>
<td>Additional Housing Units</td>
<td>Additional Commercial Square Footage</td>
</tr>
<tr>
<td>Baseline</td>
<td>1,250</td>
<td>2 million square feet</td>
</tr>
<tr>
<td>Enhanced Bus</td>
<td>1,250</td>
<td>2 million square feet</td>
</tr>
<tr>
<td>Streetcar</td>
<td>Up to 3,750</td>
<td>Up to 2.5 million square feet + boost in PTRP</td>
</tr>
</tbody>
</table>

**ECONOMIC DEVELOPMENT IS A DESIRED PROJECT OUTCOME**

Streetcar tracks are viewed as permanent investment and more likely to attract development:
- Comfortable ride
- High-quality stations
- Improved sense of place
- Attractive vehicles

**Conclusions:**
- Streetcar is needed to meet City’s economic development goals

**Enhanced Bus**
- Connects key destinations in urban core
- Connects to local and regional transit to provide the “last mile” of service
- Supports existing communities and infrastructure
- Extends pedestrian connectivity

**Streetcar**
- Connects key destinations in urban core
- Connects to local and regional transit to provide the “last mile” of service
- Supports existing communities and infrastructure
- Extends pedestrian connectivity

**ROUTE MUST CONNECT KEY DESTINATIONS AND SUPPORT EXISTING COMMUNITIES**

- Many key destinations are within a 5 minute walk of the route
- Direct access to the Transportation Center provides a connection to WSTA and PART
- The circulator route follows an easy-to-understand, “readable” route

**Conclusions:**
- Both bus and streetcar meet basic mobility goals
- Initial success will support future extensions
APPENDIX D

PowerPoint Presentation
OPEN HOUSE
JANUARY 31, 2013

AGENDA

1. Welcome and Project Team Introductions
2. Project Background
3. Project Goals & Process
4. Public Outreach Efforts To-Date
5. Overviews of Circulators
6. Development Impacts of Urban Circulators
7. Alternatives Analysis Key Findings
8. Personal Benefits of Urban Circulators
9. Questions & Answers
## PROJECT BACKGROUND

## PREVIOUS STUDIES

<table>
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<tbody>
<tr>
<td>* Promotes the construction of a modern rail streetcar system to connect destinations in the larger Center City area and be a catalyst for development.</td>
<td>* Established concept for streetcar route through urban core.</td>
</tr>
<tr>
<td>* Promotes transit connections between Downtown and suburban areas to increase ridership.</td>
<td>* Envisions a plan that encourages new residential development, establishes better transportation linkages and stimulates other parts of the city and surrounding areas.</td>
</tr>
</tbody>
</table>
2012 ALTERNATIVES ANALYSIS

- Required by Federal Transit Administration (FTA) for projects seeking federal funding.
- Provides more detailed planning and initiates federal process.
- Considers and evaluates options for route and transit technology.
- Evaluates financial strategy for implementing preferred route and system.

WHY INVEST IN DOWNTOWN FIRST?

- Connection from WFUBMC to WSSU through Center City would offer mobility options to the entire region.
- New development could occur where transportation and utility infrastructure already exists.
- Encourage dense development on small pieces of land.
- Initial line for future opportunities for expansions.
PROJECT GOALS & PROCESS

PROJECT GOALS

Enhance Economic Competitiveness
• Focus development and coordinate investments to maximize economic return and minimize sprawl
• Encourage a mixture of uses including equitable and affordable housing
• Protect and enhance the City’s distinct character

Increase Mobility Options
• Connect key destinations in urban core
• Connect to local and regional transit to provide the “last mile” of service
• Support existing communities and infrastructure
• Extend pedestrian connectivity

Developed using input from Policy Advisory and Technical Committees made up of key organizational and institutional stakeholders such as PTRP and WFBMC, WSSU, DWSP, Chamber, DOT Board, PART, RJR, Goler CDC, WSTA, Council rep., etc.
PROJECT PROCESS

- Initial Screening
- Stakeholder Input
- Conceptual Engineering
- Ridership Estimates
- Public Input

Study required to pursue federal funding.

Spring 2012
- Select a Route

Summer 2012
- Select a Technology / Refine Route

Fall 2012
- Review and Adoption

Winter 2012/2013
- Locally Preferred Alternative

ROUTE AND VEHICLE OPTIONS

ROUTE SELECTION

TECHNOLOGY SELECTION / ROUTE REFINEMENT

SELECTING A ROUTE
VACANT AND UNDERUTILIZED PROPERTY

Piedmont Triad Research Park has development potential and an established master plan.

Development potential north of 5th St.

Development potential surrounding BB&T Ballpark.

ZONING

Encourage a mixture of uses including market-rate and affordable housing.
HISTORIC DISTRICTS

No support for 1st St / 2nd St couplet in workshop; economic development goals would impact the distinct character of Holly Avenue Neighborhood.

ACTIVITY CENTERS

No support for 1st St / 2nd St couplet in workshop; streetcar not conducive with existing and future land use.
SELECTING A ROUTE

Referred to as “Selected” Route until adopted by City Council.
SELECTING A ROUTE

- 3.3-mile Urban Circulator connecting Wake Forest University Baptist Medical Center (WFUBMC) to Winston-Salem State University (WSSU) through Downtown Winston-Salem and the Piedmont Triad Research Park (PTRP)
- Connects major activity centers:
  - 11,000+ Baptist Medical Center Employees
  - 6,500+ students attending WSSU
  - Planned 6.1 million gross square feet of redevelopment space at PTRP
  - 300,000 game-day visitors annually at BB&T Baseball Park
  - 84,000 annual visitors at Convention Center
  - Transportation hub with connection to PART and WSTA buses, serving nearly 11,000 passengers per day
  - Restaurants and entertainment centers

SELECTING A MODE

- **Streetcar**
  - Fixed rail technology, operating in mixed traffic

- **Enhanced Bus**
  - Bus option offering physical and technological enhancements

- **Standard Bus**
  - Continuation of current local bus service
PUBLIC OUTREACH

• Open House on March 28, 2012
• Planning Workshop on August 29, 2012
• Policy Advisory / Technical Committees
• 4th Street Stakeholders
• Creative Corridor Coalition
• Wake Forest Baptist Medical Center
• PTRP
• BB&T Ballpark
• Convention Center
• WSSU
• Online Survey (200 respondents)
PUBLIC OUTREACH

Survey:
• Over 200 people participated
• When asked “Where would you like to go?”
  • Restaurants or bars – 87% desirable or very desirable
  • Arts or entertainment – 85% desirable or very desirable
  • BB&T Ballpark - 76% desirable or very desirable
• 54% would be more likely to use a streetcar rather than an enhanced bus
• 75% responded that they never use WSTA or PART
• 85% responded that they never use the trolley

OVERVIEWS OF URBAN CIRCULATORS
ENHANCED BUS OVERVIEW

- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities.
- Operates with automobiles in shared traffic lane.
- Can operate as urban circulator or regional connector.
- Oriented more toward enhancing mobility options rather than accelerating economic development.
- Has proven successful in attracting riders who would not otherwise use transit.
STREETCAR OVERVIEW

• Low floors/multiple doors for easy boarding.

• Larger than typical transit buses and can carry more passengers.

• They operate on streets with regular traffic and on rails embedded in those streets.

• Most modern streetcars are powered by a single overhead wire to reduce visual clutter.

• Stations are located every 1/8 mile on average and typically include amenities: shelters, benches, and passenger information. They are built into the adjacent sidewalk and placed in a parking lane.

• Although modern Streetcars look like light rail, they are not the same.
## STREETCARS IN OTHER CITIES

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</table>

Enhanced Bus versus Streetcar

- Enhanced bus can include a variety of infrastructure elements; development impacts increase as the level of investment increases.

**Development Forecasts**

<table>
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<th>Additional Housing Units</th>
<th>Additional Commercial Square Footage</th>
<th>Additional Jobs</th>
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<td>1,250</td>
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</tr>
<tr>
<td>Streetcar</td>
<td>Up to 3,750</td>
<td>Up to 2.5 million sf + boost in PTRP</td>
<td>10,000-12,500 jobs + boost in PTRP</td>
</tr>
</tbody>
</table>
ALTERNATIVES ANALYSIS:
KEY FINDINGS

KEY FINDINGS TO DATE:

• Development impacts increase as level of investment increases. The Influence Zone has enough capacity for at least 40 to 50 years of development with a streetcar line.
• No significant environmental impact along corridor.
• Prelim. capital cost $113m (Streetcar) or $64m (Enhanced Bus).
• Annual operating and maintenance cost is $3.4m (Streetcar) or $1.5m (Enhanced Bus).
• A maintenance facility to store a fleet of 6 vehicles at WFBMC.
• Circulator is proposed to operate as follows:
  – Monday to Wed (5.30am to 7.30pm)
  – Thursday to Friday (5.30am to 11.00pm)
  – Saturday (7.00am to 11pm). No Sundays/Holiday services.
CAPITAL COSTS COMPARISON

• Preliminary Capital Cost for Winston-Salem:
  – Streetcar: $113 Million
  – Enhanced Bus: $64 Million

• Capital Cost for Streetcar in Other Cities:
  – Portland Phase 1 – 4: $103.2M (4.0mi)
  – Portland Eastside Loop: $148.3M (3.3 mi)
  – Seattle First Hill Line: $140M (2.2 mi)
  – Tucson Modern: $187.8M (3.9 mi)
  – Cincinnati: $110.4M (1.5 mi)
  – Charlotte: $37M (1.5 mi)
  – Sugar Hill Salt Lake City: $37.2M (2.0 mi)
  – St. Louis Loop: $39.5 (2.2 mi)
  – Ft. Lauderdale Wave: $83M (1.4 mi)
  – Dallas: $61.8M (1.6 mi)

POTENTIAL CAPITAL FUNDING SOURCES

• Federal (up to 80% of total project costs)
  – FTA New Starts / Small Starts
  – FTA Section 5307 Urbanized Area Formula Funds
  – FTA Section 5312 Research, Development, Demonstration and Deployment Program (Low/Zero Emission Vehicles)
  – FHWA Flexible Funds (CMAQ, STP, Transportation Alternatives)

• State
  – Transit Trust Funds (provided 25% funding for CATS - Blue Line)

• Regional
  – ½¢ sales tax

• Local
  – Potential future voter-approved local dedicated funding source
  – Benefit Assessment Districts/TIF Districts
  – Property / ROW donations
  – Naming rights
  – Cost sharing with major activity centers / employment centers, universities, other institutions served
POTENTIAL OPERATING FUNDING SOURCES

• Fares
• CMAQ (first 3-years of operations)
• Reallocation of existing fixed route bus service
• Cost sharing with major activity centers / employment centers, universities, other institutions served
• General fund
• Advertising
• Parking fee
• Admission fees

PERSONAL BENEFITS OF URBAN CIRCULATORS
PERSONAL BENEFITS

• A new reliable choice of transit service.

• Ability to park once and travel throughout Center City without driving.

• Creates new employment opportunities.

• Provides more housing options.

• Increased tax base in Center City means improved infrastructure and services throughout Winston-Salem.

UPCOMING ACTIVITIES

• Policy/Technical Committee Meetings
  • City Council Presentation

http://www.WinstonSalemCirculator.com
QUESTIONS & ANSWERS

APPENDIX
OTHER CITIES WITH ENHANCED BUS

<table>
<thead>
<tr>
<th></th>
<th>WSTA Local Bus</th>
<th>WSTA Trolley</th>
<th>Charlotte/Gold Rush</th>
<th>Baltimore/Charm City</th>
<th>Denver/SWIFT BRT</th>
<th>Las Vegas MAX</th>
<th>Orlando/LYNX</th>
<th>Eugene OR</th>
<th>Seattle, WA</th>
<th>Portland, OR</th>
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<td>Free fare</td>
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<td></td>
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<tr>
<td>Traffic signal priority</td>
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<tr>
<td>Electronic passenger information</td>
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<td>✓</td>
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<tr>
<td>Level boarding</td>
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<td>Dedicated lanes</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

ECONOMIC IMPACT OF STREETCARS

The case of Portland:

- Portland’s streetcar system entered the planning phase in 1995 and the first phase opened in 2001.
- In first 5 years of streetcar development, commercial properties (which in Portland refers primarily to office-zoned land including buildings/improvements) along the streetcar alignment increased in value by 62% more than other comparable commercial properties during the same time period.
- Notably, almost all of this value increase occurred during the first phase of streetcar development, which opened before the recent real estate boom and bubble.
- Additional factors to note in Portland are that during the study period, the streetcar area accounted for 50% of all development within the City of Portland, whereas the area had previously accounted for only 20%. Additionally, development intensity increased in the area.
ECONOMIC IMPACT OF STREETCARS

The case of Portland:
Portland Floor Area Ratio (FAR) Achieved Before and After Streetcar Project

Source: Portland Streetcar Inc; Reconnecting America
APPENDIX E

Exhibit Boards
COMMUNITY OPEN HOUSE
Federal Plans

State Plans

Regional Plans

City Plans

Federal Interagency Partnership for Sustainable Communities
• Provide more transportation choices
• Promote equitable and affordable housing
• Enhance economic competitiveness
• Target resources to existing communities
• Coordinate and leverage federal policies and investments
• Value unique characteristics of communities

Regional Transit Development Plan, Forsyth and Guilford Counties Transit Vision for 2025 (November 2010)
• Development concentrations in downtown are supportive of intensive transit circulation service, such as streetcars.
• Forsyth County Recommendations: Streetcar in downtown Winston-Salem
  o East-West connecting WSSU, PTRP, downtown, Wake Forest Baptist Medical Center
  o North-South connecting Wake Forest Univ., downtown, UNC School of the Arts
• Private sector funding contributions through a TIF and joint development may be appropriate for streetcar.
• Stakeholder input included suggestion to consider bus technology instead of streetcar.

NCDOT 2040 Plan (in progress)
Highlights of feedback from the public survey include:
• In a climate of limited funds, NCDOT’s top priorities should be:
  o Focusing on projects and programs that will boost the economy and create jobs
  o Focusing on other forms of transportation besides highways
• Better coordination of transportation and land development and investing more in public transportation are most important to address the transportation needs of a changing population
• More than 63 percent of respondents indicated expanding passenger service within cities or between downtowns and suburbs should be the focus of passenger rail efforts.

Legacy 2030 Update (2012)
• Build a center city streetcar system that will create linkages and spur business and development growth between the universities, medical centers, Piedmont Triad Research Park, central city neighborhoods and the Downtown area.
• Develop a streetcar system based on the recommendations of the Urban Circulator Alternatives Analysis to link downtown and nearby major employment, entertainment and education centers.

The Downtown Plan (2007)
• Support development concepts
• Add transportation link
• The initial routing of the streetcar system should help to stimulate economic development in areas that are currently underdeveloped.
• Short-term: Finalize streetcar study
• Long-term: Develop commuter rail and complete streetcar systems

Winston-Salem Feasibility Study (October 2006)
• Defined a potential streetcar route in the downtown area
• Identified areas with development potential that could be catalyzed by streetcar
• Discussed potential federal, state, and local funding opportunities

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PROJECT DEVELOPMENT PROCESS

Streetcar Feasibility Study

Complete 2006

Conceptual Alignment

Economic Impact

Preliminary Capital and Operating Cost Estimates

Urban Circulator Study (Alternatives Analysis)

One Year

General Alignment and Mode Selection

Ridership Forecasting

Refined Cost Estimates and Financial Plan

Locally Preferred Alternative

Environmental Analysis

Six Months - One Year

Anticipated Finding of No Significant Impact

Project Development (Preliminary Engineering and Final Design)

Two Years

Specific Alignment and Track Design

Station Stops, Roadway, Utilities, Structures, Traffic, Systems

Detailed Cost Estimates

Financial Plan Implementation

Project Construction Grant Agreement

Construction

One and a Half Years

Operation

Future

Future

Future

Future

Future

Future

Future

Future

Future

Future

Future

Future
# Transit Mode Options

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Heavy Rail</th>
<th>Commuter Rail</th>
<th>Modern Light Rail</th>
<th>Modern Streetcar</th>
<th>Enhanced Bus/Bus Rapid Transit</th>
<th>Standard Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Cities</td>
<td>Atlanta, Washington DC, Boston, Chicago, New York</td>
<td>Boston, New Jersey, New York, Dallas/Fort Worth</td>
<td>Charlotte, Denver, Seattle</td>
<td>Portland, Tacoma, Seattle</td>
<td>Los Angeles, Pittsburgh, Eugene</td>
<td>Most Cities Served by Bus Service</td>
</tr>
<tr>
<td>Approximate Cost Per Mile (Millions)</td>
<td>$150 - $250</td>
<td>$3 - $20</td>
<td>$80 - $120</td>
<td>$40 - $50</td>
<td>$4 - $50</td>
<td>$1 - $2</td>
</tr>
<tr>
<td>Service Type</td>
<td>Regional/Urban</td>
<td>Regional/Interurban</td>
<td>Regional/Urban</td>
<td>Urban</td>
<td>Regional/Urban</td>
<td>Urban</td>
</tr>
<tr>
<td>Typical Station Spacing</td>
<td>Urban Core &lt; 1 Mile</td>
<td>2 - 5 Miles</td>
<td>1 - 2 Miles</td>
<td>1/8 – 1/4 Mile</td>
<td>1/4 - 2 Miles</td>
<td>Stops Along Normal Routes</td>
</tr>
<tr>
<td>Typical Station Type</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign (Standard Bus Stop)</td>
</tr>
<tr>
<td>Passenger Entry/Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on One Side Platform or Curbside Boarding</td>
<td>Doors on One Side Curbside Boarding</td>
</tr>
<tr>
<td>Vehicle Size</td>
<td>75’ Long x 10.5’ Wide</td>
<td>88’ Long x 9.2’ Wide</td>
<td>94’ Long x 8.7’ Wide</td>
<td>66’ Long x 8.1’ Wide</td>
<td>60’ Long x 8.5’ Wide (articulated)</td>
<td>40’ Long x 8.5’ Wide</td>
</tr>
<tr>
<td>Capacity</td>
<td>122 seats 138 standing 260 total</td>
<td>136 seats 276 standing 412 total</td>
<td>68 seats 168 standing 236 total</td>
<td>30 seats 130 standing 160 total</td>
<td>60 seats 60 standing 120 total</td>
<td>40 seats 35 standing 75 total</td>
</tr>
<tr>
<td>Alignment ROW Width</td>
<td>Separate ROW 25 - 33 Feet</td>
<td>Existing Freight ROW 37+ Feet</td>
<td>Typically Separated ROW 25-30 Feet</td>
<td>Street Running in Mixed Traffic</td>
<td>Dedicated Lane or Mixed Traffic</td>
<td>Mixed Traffic</td>
</tr>
<tr>
<td>Power Source</td>
<td>Electric Powered Third Rail</td>
<td>Electric or Diesel Push-Pull Locomotive</td>
<td>Overhead Electric Line</td>
<td>Overhead Electric Line</td>
<td>Diesel / Hybrid</td>
<td>Diesel / Hybrid</td>
</tr>
</tbody>
</table>

## Photos

- [Image 1](image1.png)
- [Image 2](image2.png)
- [Image 3](image3.png)
- [Image 4](image4.png)
- [Image 5](image5.png)
- [Image 6](image6.png)
**TRANSIT MODE OPTIONS**

- **Bus**
  - Circulator
  - Emphasis on access with stop spacing every two blocks

- **Streetcar**
  - Circulator
  - Emphasis on access with stop spacing every two blocks

- **LRT / BRT**
  - Within a City
  - Balance between local access and mobility with stop spacing every ½ to 1 mile

- **Commuter Rail**
  - Regional
  - Emphasis on regional mobility with stop spacing every 2 to 5 miles
WHO WE HAVE TALKED WITH

February 2012
Project Kickoff

Kickoff Meeting with Policy and Technical Committees
February 8, 2012
Policy Advisory and Technical Committees made up of key organizational and institutional stakeholders such as PTRP, WFBMC, WSSU, DWSP, Chamber, DOT Board, PART, RJR, Goler CDC, WSTA, City Council rep., etc.

March 2012
Open House #1

Community Open House
March 28, 2012

Winston-Salem Walking Tour
October 21, 2012
all members of public

4th Street Stakeholders
November 8, 2012

Survey Transit Riders
October - November

Winston-Salem State University
January 14, 2013

August 2012
Routing Workshop

Planning Work Session and Walking Tour
August 29, 2012
Attended by Policy & Technical Committees and community stakeholders

December 2012
“What Select Route”

January 2013
Open House #2

Study team received input from:
• Policy Advisory / Technical Committees
• 4th Street Stakeholders
• Wake Forest Baptist Medical Center
• Piedmont Triad Research Park
• BB&T Ballpark
• Convention Center
• Winston-Salem State University
• Creative Corridor Coalition
• Online Survey (200 respondents)
A 3.3-mile route would connect our major activity centers, improve transit and mobility, encourage development, and support future growth.
URBAN CIRCULATOR OPTIONS

Streetcar
Fixed rail technology, operating in mixed traffic

- One-time cost: $113 million
- Annual operating costs: $3.4 million

The streetcar project is anticipated to create 12,500 new jobs, and spur 3,750+ housing units and an additional 500,000 square feet of commercial space (above the 2 million square foot baseline).

Streetcar ridership anticipated to be nearly 1,600 riders per weekday in operating year 2017.

Enhanced Bus
Bus option offering physical and technological enhancements

- One-time cost: $64 million
- Annual operating costs: $1.5 million

The enhanced bus project is anticipated to be similar to the do nothing scenario. The city is expected to see 8,000 to 10,000 new jobs, 1,250 housing units and 2 million square feet of commercial space.

Enhanced bus ridership anticipated to be approximately 1,320 riders per weekday in operating year 2017.

Ridership Compared to Other Streetcar Cities

- Portland (12,131)
- Tacoma
- Seattle
- Tampa
- Little Rock

Winston-Salem Streetcar

Weekday Boardings

Other Systems (2011)  2017

PROPOSED OPERATING PLAN FOR STREETCAR AND ENHANCED BUS ALTERNATIVES

- Hours of Service and Frequency (in minutes)
- 16 stops, spaced approximately every 800 feet
- 1 stop at Union Station to coincide with future commuter rail service
- End-to-End Travel Time: 20 minutes
- Vehicles Required: 5 active plus 1 spare (total of 6)
DOES IT MEET PROJECT GOALS?

<table>
<thead>
<tr>
<th>Enhance Economic Competitiveness</th>
<th>Increase Mobility Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Focus development and coordinate investments to maximize economic return and minimize sprawl</td>
<td>• Connect key destinations in urban core</td>
</tr>
<tr>
<td>• Encourage a mixture of uses including equitable and affordable housing</td>
<td>• Connect to local and regional transit to provide the “last mile” of service</td>
</tr>
<tr>
<td>• Protect and enhance the City’s distinct character</td>
<td>• Support existing communities and infrastructure</td>
</tr>
<tr>
<td></td>
<td>• Extend pedestrian connectivity</td>
</tr>
</tbody>
</table>

Enhanced Economic Competitiveness

- Streetcar tracks are viewed as permanent investment and more likely to attract development:
  - Comfortable ride
  - High-quality stations
  - Improved sense of place
  - Attractive vehicles

Streetcar tracks are viewed as permanent investment and more likely to attract development:

Conclusions:

- Both bus and streetcar meet basic mobility goals
- Initial success will support future extensions

Route must connect key destinations and support existing communities

- Many key destinations are within a 5 minute walk of the route
- Direct access to the Transportation Center provides a connection to WSTA and PART
- The circulator route follows an easy-to-understand, “readable” route

Economic Development is a desired project outcome

<table>
<thead>
<tr>
<th>Circulator Mode</th>
<th>Additional Housing Units</th>
<th>Additional Commercial Square Footage</th>
<th>Additional Jobs</th>
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<tbody>
<tr>
<td>Baseline</td>
<td>1,250</td>
<td>2 million square feet</td>
<td>8,000 - 10,000 jobs</td>
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<tr>
<td>Enhanced Bus</td>
<td>1,250</td>
<td>2 million square feet</td>
<td>8,000 - 10,000 jobs</td>
</tr>
<tr>
<td>Streetcar</td>
<td>Up to 3,750</td>
<td>Up to 2.5 million square feet + boost in PTRP</td>
<td>10,000 - 12,500 jobs + boost in PTRP</td>
</tr>
</tbody>
</table>

Route must connect key destinations and support existing communities

- The route provides direct access to PTRP and the area surrounding BB&T Ballpark, both offer significant development potential
- A couplet was used to expand the economic impact area to Burke St. and BB&T Ballpark

Enhanced bus can include a variety of infrastructure elements; development impacts increase as the level of investment increases.
DEVELOPMENT BENEFITS OF STREETCAR

Development translates into increased property values and jobs

What has been the economic impact of streetcar in other cities?

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
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<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
</tr>
<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
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<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
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</table>

Winston-Salem’s downtown compares to other “Streetcar Cities”

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Employment</th>
<th>University Enrollment</th>
<th>Hotel Rooms</th>
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</thead>
<tbody>
<tr>
<td>Winston-Salem*</td>
<td>8,918</td>
<td>20,000</td>
<td>6,442</td>
<td>828</td>
</tr>
<tr>
<td>Little Rock</td>
<td>1,942</td>
<td>21,323</td>
<td>0</td>
<td>1,896</td>
</tr>
<tr>
<td>Portland</td>
<td>20,564</td>
<td>110,684</td>
<td>16,781</td>
<td>3,910</td>
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<tr>
<td>Seattle</td>
<td>6,031</td>
<td>22,411</td>
<td>800</td>
<td>1,453</td>
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<tr>
<td>Tacoma</td>
<td>2,836</td>
<td>13,296</td>
<td>2,001</td>
<td>641</td>
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<tr>
<td>Tampa</td>
<td>1,603</td>
<td>10,358</td>
<td>1,125</td>
<td>1,328</td>
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</tbody>
</table>

*Downtown Winston-Salem Partnership statistics

Streetcar is projected to produce 12,500 new jobs in the City over 20 years, which is almost as many as currently employed by Wake Forest Baptist Medical Center.

More than 3,750 new households/housing units by 2035, over and above existing units as of 2010 would move into the area, supporting local businesses.

Nearly 500,000 square feet of new commercial development is expected to be generated by streetcar over 20 years.
TRANSIT BENEFITS

WHAT COULD THIS DO FOR ME...

Provide you a new **reliable** transportation choice.

Give you the ability to park your car once and travel throughout Center City.

There would be **new employment opportunities**, given that streetcar projects have spurred new jobs in the cities that make the investment.

The streetcar option would encourage developers to build more residential housing in Center City. For those who choose to live in an urban environment, there would be **more housing options** available.

Increased tax base in Center City means improved infrastructure and services **throughout** Winston-Salem:

- Road resurfacing projects;
- Sidewalk improvement projects;
- Bicycle paths and greenway improvements;
- Reconfigured WSTA service with increased frequency; and
- Additional Trans-AID service.

### TRANSIT VS ROADWAY

<table>
<thead>
<tr>
<th>Project</th>
<th>Miles</th>
<th>Cost per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Circulator Streetcar Option</td>
<td>3.3</td>
<td>$34.2 Million</td>
</tr>
<tr>
<td>Urban Circulator Enhanced Bus Option</td>
<td>3.3</td>
<td>$19.4 Million</td>
</tr>
<tr>
<td>Salem Creek Connector</td>
<td>1.1</td>
<td>$62.6 Million</td>
</tr>
<tr>
<td>Rehab US 421, west of 4th St. to east of Church St.</td>
<td>1.1</td>
<td>$44.6 Million</td>
</tr>
<tr>
<td>Future I-74, Winston-Salem Northern Beltway</td>
<td>34.2</td>
<td>$31.6 Million</td>
</tr>
<tr>
<td>Rehab US 421, west of Old Vineyard Road</td>
<td>1.6</td>
<td>$7.8 Million</td>
</tr>
<tr>
<td>US 158, Multi-lanes north of US 421/I-40 Business</td>
<td>18.8</td>
<td>$5.6 Million</td>
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A VISION FOR WINSTON-SALEM

COMMENTS

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MODE ALTERNATIVES
Place Dots in Preferred Mode Option Box Below

STREETCAR
- Modern Streetcar (Portland)

ENHANCED BUS
- Enhanced Bus (Las Vegas)

LOCAL BUS
- Enhanced Bus (Las Vegas)
APPENDIX C3:

OPEN HOUSE #3
PUBLIC OPEN HOUSE #3 SUMMARY

June 27, 2013

Prepared for City of Winston-Salem
July 2013
Meeting Date: June 27, 2013
5:00 – 7:00 p.m.
Brief Presentation at 5:30 p.m.

Location: Anderson Center at WSSU, McNeil Ballroom
Reynolds Road off MLK, Jr. Road Winston-Salem, NC

<table>
<thead>
<tr>
<th>Members of the Public (sign-in sheet attached as Appendix A)</th>
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<tr>
<td>42 citizens signed the meeting roster at the registration table</td>
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<tr>
<td><strong>City of Winston-Salem</strong></td>
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<tr>
<td>Paul Norby</td>
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<td>Toneq McCullough</td>
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<td>Greg Errett</td>
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<tr>
<td>Frank Elliott</td>
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<tr>
<td>Kaori Fujisaua</td>
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<tr>
<td>City Council member Derwin L. Montgomery</td>
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Introduction

A Public Open House was held in the McNeil Ballroom at the Anderson Center at WSSU on June 27, 2013 from 5:00 p.m. to 7:00 p.m. The purpose of the meeting was to present the updated route that extends to east Winston. Meeting notices (“Please join the City of Winston-Salem” flyer) were emailed two weeks prior to the meeting date, flyers were placed on all buses, posted at the Transportation Center and delivered to various downtown and east Winston establishments. A press release was emailed to the media on June 21 and articles were placed by the Winston-Salem Journal and Camel City Dispatch. The City also noticed the Workshop on the project website (www.winstonsalemcirculator.com) and their Facebook page. Appendix B includes the flyer, press release and articles.

During the two-hour period, citizens were free to drop-in at any time to talk with or ask questions to City staff and Project Team members about the study. A Project Fact Sheet (#5) and Comment Sheet were provided to participants at the registration table. Exhibit boards located around the room provided visuals and information on the following:

- Transit Technology Options
- Project Development Process
- A Vision for Winston-Salem
- Who We Have Talked With
- Transit Benefits
- Modes Considered in the Study
- Proposed Route and Stop Locations
Two interactive boards were provided where participants could write their comments and/or questions. Fact Sheet #5, Comment Sheet and the exhibit boards are located in Appendix C.

At 5:30 p.m., Paul Norby of the City of Winston-Salem welcomed participants and briefly introduced the project. He then invited HDR consultants to conduct a brief PowerPoint presentation (refer to Appendix D), which highlighted the following:

- Project Background
- Project Goals and Process
- Public Outreach and Activities
- Streetcar Overview
- Results of Technical Analysis
- Potential Funding Scenarios
- Next Steps
- Questions and Answers

Presenters stated that the capital cost of the 4.0-mile streetcar route is approximately $179 million with operating/maintenance cost of $4.3 million/year (2017 dollars). The route would assume eight (8) vehicles along 8 track miles (tracks in two directions along a 4-mile route) with 19 stops. This open house is the final public meeting for this study, which should be completed in July 2013. There will be additional comment periods as the project advances.

After the presentation, comments and questions were taken. All comments and questions, as well as the written comments from the interactive Comment Board and Comment Sheets, are summarized below.

**Verbal Comments/Questions after PPT**

1. Since the operating costs are $4.3M, how will revenues be generated to cover that cost?

   **Answer:** Fares will cover some of the cost, similar to how WSTA operates, with other revenue sources paying for the remaining cost. These sources will be determined by the agency that operates the system, and at this time, we do not know who will operate the streetcar.

2. In regards to the $179M capital cost, will the primary local source be from taxpayers?
Answer: There are many types of sources, but again, we are too early in the process to have identified these. Potential sources could be development funds, transit tax, general tax and other sources yet to be identified.

3. If there is a general bond issue, would taxpayers vote?

Answer: Yes, it could be tied to other projects or all transit projects in a special referendum.

4. What is the length of the section from BB&T Ballpark to 1st Street?

Answer: About 1/3 – 1/2 mile.

5. Currently WSTA does not provide service in the downtown area, while it seems like other cities do provide downtown service. Why have we not tried to operate a simple bus service in downtown?

Answer: The City has been working on a strategic plan to provide better service, which is the reason for this study. If the Locally Preferred Alternative (LPA) for the streetcar is approved, the proposed route will be considered. The City can now include this route in the transit operational analysis.

6. Will the streetcar take away parking spaces on 4th and 5th Streets?

Answer: Each stop will take 3 to 4 parallel parking spaces. There are 143 parking spaces along the route, of which less than 30 will be taken for stop platforms.

7. It seems like the cost of the streetcar is high compared to Tampa. Have you looked at other technology costs?

Answer: Yes, we looked at other technology modes and prepared a cost estimate for all, and presented those at our public workshop in January. The Tampa system is much shorter in length, runs on single track and uses a different vehicle. It is also 11 years old.

8. Will tickets be transferable from one system to another?

Answer: Yes.

9. How old is the Little Rock system?

Answer: The system opened in 2004. It operates on is a much shorter distance (less than 3-mile one-way loop) and uses heritage vehicles.
10. Will workers really ride this system?

**Answer:** A simple answer is yes, we expect a combination of residents, students, employees and visitors to use the streetcar. At this time, there are several large employers who run shuttles for their employees, for example, Wake Forest Baptist Medical Center, Wells Fargo, WSSU and other colleges/universities. It is logical to expect these shuttles to stop running once the streetcar is operating.

11. What type of development usually occurs with this type of system, i.e., what development would spur/support this system?

**Answer:** There are many benefits of a streetcar system, as shown in the exhibit board. Typically, high density development would support a system and increase the tax base.

12. Is the 2017 cost estimate a goal? Why 2017?

**Answer:** The year 2017 is just a reference, we just picked it as a possible start date as a “what if…” scenario.

13. Is the study eligible for federal funds?

**Answer:** Yes, this study is the first step in requesting federal funds. In the federal financial planning process for Small Starts, the evaluation for financial rating includes ensuring that the operating budget of a new system does not negatively impact the overall operating budget of the existing transit system. Typically, for Very Small Starts, the financial plan must show that the operating budget of a new system is less than 5% of the existing transit service.

14. Are there other cities in NC requesting federal funds for transit?

**Answer:** Charlotte is the only city that we are aware of asking for funds for a streetcar.

### Comment Sheets

1. **Is this the first time you attended an open house or workshop for the project?**
   
   Yes – 6
2. **Did the PPT presentation and exhibits provide clear and sufficient information about the study, route and technology?**
   Yes -12

   **Additional comments:**
   When showing dollar amounts for cost and investment, use the same unit, i.e. millions of dollars. Mixing millions and billions makes the comparison difficult.

3. **Are there any other issues related to the study that we did not address that you are interested?**

   - In addition to LED signage along the route, I’d like to see data sources publicly available so mobile apps could be made available for passenger information. An accessible data infrastructure could really enhance this plan.
   - Add parking collector points.
   - What are the criteria for potential development areas on the map?
   - Have route come further down into West Salem.
   - How can citizens of Winston-Salem evangelize this to others?
   - The new projected route still does not include a major grocery store. Is it possible to take it to the Harris Teeter at Cloverdale and/or the Food Lion at MLK and New Walkertown?

4. **Additional Comments and /or Suggestions**

   **Route and/or Streetcar Operation**

   - The frequency at 10 minutes should occur at peak commute times i.e., 6-9am and 4-6pm. Ultimately, as more jobs and households are added downtown, this will be peak ridership.
   - The route through the Research Park (WF Innovation Quarter) should go through the north since this is the part of the Research Park that is being built out. Then the route could go along MLK to WSSU. The connection through the south part of the Research Park could be added later as it is built out. Basically, we should spend the money to serve what exists first.
   - I would like to see more connectors for the universities: WSSU, Salem College, WFU and UNCSA. Add more shuttles for students during evenings and weekends.
   - Would like to see link/loop from end of MLK west thru 4th or 3rd.
   - Would like route to go on Hawthorne and Glade to connect to YMCA, Hanes Park and future RJR Stadium to downtown and hospital.
   - Route streetcar straight down 4th Street without the dogleg up 5th Street. I understand the need to tie into the current Transportation Center but I foresee that Union Station area will
tie into a multi-model. Think past 5-10 years before committing rails to 5th Street if Transportation Center may be moved.

General

- Thanks for sharing this information with the public. I appreciate the focus on ROI and planning for future growth.

- Impressed with the plans and hopeful that the project moves forward.

- What tourist population will use this when not connected to any destination? Portland, Oregon has a very different zoning/growth management that helps with development. Forsyth County/ Winston-Salem not likely to establish policy.

- Given the interest in bicycle travel here, investigate a bicycle share system program and coordinate with WSTA.

Comment Board Notes – see Appendix E

- Great opportunity for Union Station, WSSU, east Winston and downtown development.

- Works well with higher density populations in downtown areas (efficient; potentially safer than auto/bike).

NOTE: These next comments were written by one person.

- Too expensive.

- Obsolete technology.

- Replace by cars and buses.

- W-S stopped its streetcar service in 1936.

- Does not spur economic development w/o subsidies.

- Takes up the road and decreases mobility.

- Creates congestion and pollution.
Next Steps

All comments and questions will be reviewed by the Project Team and presented to the City for their final approval. This Open House was the final task of the AA study, which will be completed in July 2013. The next steps will be to present the study findings to FTA and the City Council. City Council will have the opportunity to adopt the route and technology. The project could then be advanced and an environmental analysis could be performed. The City could also begin to look at the future of the potential extensions identified in this study and determine the possible timing of a system plan.
APPENDIX A – Sign In Sheets
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<th>ADDRESS</th>
<th>CITY, ZIP (only zip if W-3 address)</th>
<th>PHONE</th>
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<td>1</td>
<td>Mary Harper</td>
<td>572 Miller St</td>
<td>27103</td>
<td></td>
<td><a href="mailto:maryharper2010@bellsouth.net">maryharper2010@bellsouth.net</a></td>
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<tr>
<td>2</td>
<td>Suzanne Beers</td>
<td>5408 Winona St</td>
<td>27106</td>
<td>924-1995</td>
<td></td>
<td>mail</td>
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<tr>
<td>3</td>
<td>David Berger</td>
<td>2432 Fairway Dr</td>
<td>27103</td>
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<td>4</td>
<td>Russ Dubois</td>
<td>3510 Byrdsworth St</td>
<td>27106</td>
<td>793-8477</td>
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<tr>
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<td>Lisa Elam</td>
<td>114 Piedmont Ave</td>
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<tr>
<td>6</td>
<td>Perri Beall</td>
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<td>Lee Young</td>
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<td>Brunson Salters</td>
<td>3018 Cambridge Rd</td>
<td>27104</td>
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<td>8411 N Patterson</td>
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<td>(336)</td>
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<td><a href="mailto:chareta.johnson@hotmail.com">chareta.johnson@hotmail.com</a></td>
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<td>Fiscus &amp; Neser</td>
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<td>2</td>
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<td>City of Winston-Salem W-5, NC 27102</td>
<td>336-747-6871</td>
<td>Greg @ City of W-S.org</td>
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<td>Frankie Elliott</td>
<td>City of WS</td>
<td>27107</td>
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<td>Cornelius Graves</td>
<td>WSSU</td>
<td>27265</td>
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<td>Mark Frankert</td>
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<td>Joey Burdette</td>
<td>2413 Autumn Valley Dr. 27103</td>
<td>919/720 9688</td>
<td></td>
<td><a href="mailto:Jerry06@gmail.com">Jerry06@gmail.com</a></td>
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<tr>
<td>9</td>
<td>Derwin L. Montgomery</td>
<td>2451 southbrook dr</td>
<td>27105</td>
<td></td>
<td><a href="mailto:Derwm@wssu.edu">Derwm@wssu.edu</a></td>
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<td>Kay Frank</td>
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<td><a href="mailto:ffrank65@gmail.com">ffrank65@gmail.com</a></td>
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<td>E.G. Anderson</td>
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APPENDIX B – Flyer, Press Release, Articles
Please join the City of Winston-Salem

PUBLIC OPEN HOUSE • JUNE 27, 2013
5:00 – 7:00 PM • Anderson Center at WSSU
Reynolds Park Road, directly off S. MLK Jr., Drive
(Brief presentation at 5:30 PM)

Join us at the Open House to learn about the revised plans and view the new, expanded streetcar route. We will present information and ask for your feedback on the streetcar route and vehicle, as well as discuss what’s next for the project.

There will be a brief power point presentation at 5:30 p.m., which we encourage you to attend. However, feel free to drop in at any time during the 2-hour period to talk with or ask questions to City staff and Project Team members about the study.

*Parking is FREE at Anderson Center*

For additional information contact:

Paul Norby
City-County Planning 336.747.7061
pauln@cityofws.org
Public Workshop on Urban Circulator Study and Route Scheduled for June 27

City residents are invited to hear about the progress of the proposed urban circulator (streetcar and enhanced bus), which will connect Wake Forest Baptist Medical Center with West End, the BB&T Ballpark area, downtown, Wake Forest Innovation Quarter, WSSU and East Winston neighborhood during a public open house on Thursday, June 27. The open house will be held from 5 to 7 p.m. in the McNeil Ballroom in the Anderson Conference Center at WSSU on Reynolds Park Road off MLK Jr., Drive. Parking is free at the Center.

The format is informal and participants may drop in at any time during the workshop to talk with city staff and project team members. However, there will be a brief presentation at 5:30 p.m., which we encourage everyone to be present, especially if you are not familiar with the project.

City staff and project team members will present updated information on the project, including the proposed route, factors considered during the study, and next steps. Exhibit boards showing the proposed route and other project components will be displayed.

The study is anticipated to be complete by the end of this summer.

Citizens who are hearing or visually impaired may request assistance in reviewing these documents by contacting Chris Frye, P.O. Box 2511, Winston-Salem, NC 27102, or by phone to 747-7053, TDD (336) 727-8319. For more information call CityLink 311.

- end -
A streetcar plying the route between Wake Forest Baptist Medical Center and destinations downtown would cost almost $180 million to build, but planners say it would return far more than that in additional investment downtown. Citing a study tracking the experience of other cities that have put in streetcar routes, planners said the streetcar should stimulate new building alongside the tracks that would be worth far more than the cost of the route.

But some people attending the public open house to show off the plans had questions that the planners couldn’t answer, at least not yet: Where will the money come from to pay the annual $4.3 million cost of operating the streetcar?

There are several options, the planners said. Revenues could include a local tax, contributions from companies that stop running their shuttle services to let their employees use the streetcar, and fares, if there is a charge to use the service. But fares alone cannot cover the cost, said Paul Norby, the city-county planning director. They never do, he said.

“There is no form of transportation that pays its way, not even roads,” Norby said. A study of possible revenues is a future phase of the study. No actual construction would happen unless or until the Winston-Salem City Council gives the go-ahead at some future unspecified date.

Norby and planners with the consulting firm HDR held the open house as the final public meeting of a study to figure out the best route and type of transportation for a downtown transit
What they’ve come up with is a route that would connect the medical center with downtown using First, Fourth and Fifth streets, with a return route that would swing by BB&T Ballpark. From downtown the route would continue east into the Wake Forest Innovation Quarter, a research park under development in a district of old tobacco factories. After dipping south through the park, the route would swing east to Winston-Salem State University, then north to the corner of Fifth Street and Martin Luther King Jr. Drive.

Planners considered using what are called enhanced buses to run the route, but said more people want a streetcar, and that streetcars bring more new building than buses do. The streetcars would travel on rails on city streets along with regular traffic.

Planners predict a daily ridership of 2,250 on a streetcar, and project it would create new jobs and add 600,000 more square feet of commercial space than would occur without the streetcar.

Mary Harper, who spoke during the hearing, said the city should consider running a bus route along the proposed route to see if the demand is really there.

“It seems like you would try to set up a bus service that works downtown … before we put all this in the ground,” Harper said.

wyoung@wsjournal.com
(336) 727-7369
Workshop will deal with progress on proposed urban circulator

A public workshop on the progress of the proposed urban circulator will be held from 5 to 7 p.m. Thursday in the McNeil Ballroom in the Anderson Conference Center at Winston-Salem State University. The proposed circulator would connect Wake Forest Baptist Medical Center with the West End, the BB&T Ballpark area, downtown, Wake Forest Innovation Quarter, Winston-Salem State, and East Winston using streetcars and enhanced bus service.

Residents may drop in at any point during the workshop and get information about the project, including proposed routes and other factors that are being considered. At 5:30 p.m. there will be a presentation for residents who are not familiar with the project. The study is scheduled to be completed by the end of the summer.
APPENDIX C – Comment Sheets, Exhibit Boards
Please take a few minutes to share your thoughts about the materials shown at tonight’s open house. Please complete this comment sheet and return it to the Comment Table or by mail (see address on page 2).

1. Is this the first time you attended an open house or workshop for the project?
   ☐ YES ☐ NO

2. Did the power point presentation and exhibits provide clear and sufficient information about the study, route and technology?
   ☐ YES ☐ NO

If no, what could we have done better?
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
3. Are there any other issues related to the study that we did not address that you are interested?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

4. Additional comments and/or questions.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Please mail comments by July 8, 2013 to:

Paul Norby
City-County Planning
100 E. First Street, Suite 307
Winston-Salem, NC  27101

THANK YOU FOR ATTENDING THE OPEN HOUSE!
YOUR COMMENTS ARE VERY IMPORTANT IN THE STUDY PROCESS.
COMMUNITY OPEN HOUSE
# Transim Technology Options

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Heavy Rail</th>
<th>Commuter Rail</th>
<th>Modern Light Rail</th>
<th>Modern Streetcar</th>
<th>Enhanced Bus Rapid Transit</th>
<th>Standard Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Cities</td>
<td>Atlanta, Washington DC, Boston, Chicago, New York</td>
<td>Boston, New Jersey, New York, Dallas/Fort Worth</td>
<td>Charlotte, Denver, Seattle</td>
<td>Portland, Tacoma, Seattle</td>
<td>Los Angeles, Pittsburgh, Eugene</td>
<td>Most Cities Served by Bus Service</td>
</tr>
<tr>
<td>Approximate Cost Per Mile (Millions)</td>
<td>$150 - $250</td>
<td>$3 - $20</td>
<td>$80 - $120</td>
<td>$40 - $50</td>
<td>$4 - $50</td>
<td>$1 - $2</td>
</tr>
<tr>
<td>Service Type</td>
<td>Regional/Urban</td>
<td>Regional/Interurban</td>
<td>Regional/Urban</td>
<td>Urban</td>
<td>Regional/Urban</td>
<td>Urban</td>
</tr>
<tr>
<td>Typical Station Spacing</td>
<td>Urban Core &lt; 1 Mile Periphery 1 - 5 Miles</td>
<td>2 - 5 Miles</td>
<td>1 - 2 Miles</td>
<td>1/8 – 1/4 Mile</td>
<td>1/4 - 2 Miles</td>
<td>Stops Along Normal Routes</td>
</tr>
<tr>
<td>Typical Station Type</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Station/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign/Platform</td>
<td>Sidewalk Sign (Standard Bus Stop)</td>
</tr>
<tr>
<td>Passenger Entry/Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on Both Sides Platform Boarding</td>
<td>Doors on One Side Platform or Curbside Boarding</td>
<td>Doors on One Side Curbside Boarding</td>
</tr>
<tr>
<td>Vehicle Size</td>
<td>75' Long x 10.5' Wide</td>
<td>88' Long x 9.2' Wide</td>
<td>94' Long x 8.7' Wide</td>
<td>66' Long x 8.1' Wide</td>
<td>60' Long x 8.5' Wide (articulated)</td>
<td>40' Long x 8.5' Wide</td>
</tr>
<tr>
<td>Capacity</td>
<td>122 seats 138 standing 260 total</td>
<td>136 seats 276 standing 412 total</td>
<td>68 seats 168 standing 236 total</td>
<td>30 seats 130 standing 160 total</td>
<td>60 seats 60 standing 120 total</td>
<td>40 seats 35 standing 75 total</td>
</tr>
<tr>
<td>Alignment ROW Width</td>
<td>Separate ROW 25 - 33 Feet</td>
<td>Existing Freight ROW 37+ Feet</td>
<td>Typically Separated ROW 25-30 Feet</td>
<td>Street Running in Mixed Traffic</td>
<td>Dedicated Lane or Mixed Traffic</td>
<td>Mixed Traffic</td>
</tr>
<tr>
<td>Power Source</td>
<td>Electric Powered Third Rail</td>
<td>Electric or Diesel Push-Pull Locomotive</td>
<td>Overhead Electric Line</td>
<td>Overhead Electric Line</td>
<td>Diesel / Hybrid</td>
<td>Diesel / Hybrid</td>
</tr>
</tbody>
</table>

| Photos | ![Photo](image1) | ![Photo](image2) | ![Photo](image3) | ![Photo](image4) | ![Photo](image5) | ![Photo](image6) | ![Photo](image7) | ![Photo](image8) | ![Photo](image9) | ![Photo](image10) |
TRANSIT TECHNOLOGY OPTIONS

Bus
- Circulator
  - Emphasis on access with stop spacing every two blocks

Streetcar
- Circulator
  - Emphasis on access with stop spacing every two blocks

LRT / BRT
- Within a City
  - Balance between local access and mobility with stop spacing every ½ to 1 mile

Commuter Rail
- Regional
  - Emphasis on regional mobility with stop spacing every 2 to 5 miles
PROJECT DEVELOPMENT PROCESS

Streetcar Feasibility Study

Complete 2006

Conceptual Alignment

Economic Impact

Preliminary Capital and Operating Cost Estimates

Urban Circulator Study (Alternatives Analysis)

One Year

General Alignment and Mode Selection

Ridership Forecasting

Refined Cost Estimates and Financial Plan

Locally Preferred Alternative

Environmental Analysis

Six Months - One Year

Anticipated Finding of No Significant Impact

Project Development (Preliminary Engineering and Final Design)

Two Years

Specific Alignment and Track Design

Station Stops, Roadway, Utilities, Structures, Traffic, Systems

Detailed Cost Estimates

Financial Plan Implementation

Project Construction Grant Agreement

Construction

One and a Half Years

Operation
Federal Plans

State Plans

Regional Plans

City Plans

Federal Interagency Partnership for Sustainable Communities
- Provide more transportation choices
- Promote equitable and affordable housing
- Enhance economic competitiveness
- Target resources to existing communities
- Coordinate and leverage federal policies and investments
- Value unique characteristics of communities

Regional Transit Development Plan, Forsyth and Guilford Counties Transit Vision for 2025 (November 2010)
- Development concentrations in downtown are supportive of intensive transit circulation service, such as streetcars.
- Forsyth County Recommendations: Streetcar in downtown Winston-Salem
  - East-West connecting WSSU, PTRP, downtown, Wake Forest Baptist Medical Center
  - North-South connecting Wake Forest Univ., downtown, UNC School of the Arts
- Private sector funding contributions through a TIF and joint development may be appropriate for streetcar.
- Stakeholder input included suggestion to consider bus technology instead of streetcar.

Winston-Salem Feasibility Study (October 2006)
- Defined a potential streetcar route in the downtown area
- Identified areas with development potential that could be catalyzed by streetcar
- Discussed potential federal, state, and local funding opportunities

Legacy 2030 Update (in progress)
- Build a center city streetcar system that will create linkages and spur business and development growth between the universities, medical centers, Piedmont Triad Research Park, central city neighborhoods and the Downtown area.
- Develop a streetcar system based on the recommendations of the Urban Circulator Alternatives Analysis to link downtown and nearby major employment, entertainment and education centers.

The Downtown Plan (2007)
- Support development concepts
- Add transportation link
- The initial routing of the streetcar system should help to stimulate economic development in areas that are currently underdeveloped.
- Short-term: Finalize streetcar study
- Long-term: Develop commuter rail and complete streetcar systems

NCDOT 2040 Plan (in progress)
Highlights of feedback from the public survey include:
- In a climate of limited funds, NCDOT’s top priorities should be:
  - Focusing on projects and programs that will boost the economy and create jobs
  - Focusing on other forms of transportation besides highways
- Better coordination of transportation and land development and investing more in public transportation are most important to address the transportation needs of a changing population
- More than 63 percent of respondents indicated expanding passenger service within cities or between downtowns and suburbs should be the focus of passenger rail efforts.
WHO WE HAVE TALKED WITH

February 2012
Project Kickoff

March 2012
Open House #1

April 2012
Routing Workshop

June 2012
Open House #2

August 2012
Winston-Salem Walking Tour
October 21, 2012
All members of public

February 2013
4th Street Stakeholders
November 8, 2012

Winston-Salem State University
January 14, 2013

Study team received input from:
- City Council Public Works Committee
- Policy Advisory / Technical Committees
- 4th Street Stakeholders
- Wake Forest Baptist Medical Center
- Piedmont Triad Research Park
- BB&T Ballpark
- Convention Center
- Winston-Salem State University
- Creative Corridor Coalition
- East Ward Town Hall Meeting
- Online Survey (200 respondents)

Kickoff Meeting with Policy and Technical Committees
February 8, 2012
Policy Advisory and Technical Committees made up of key organizational and institutional stakeholders such as PWRP, WFBMC, WSSU, DWSP, Chamber, DOT Board, PART, RJR, Goler CDC, WSTA, City Council rep., etc.
TRANSIT BENEFITS

WHAT COULD THIS DO FOR ME...

Provide you a new **reliable** transportation choice.

Give you the ability to park your car once and travel throughout Center City.

There would be **new employment opportunities**, given that streetcar projects have spurred new jobs in the cities that make the investment.

The streetcar option would encourage developers to build more residential housing in Center City. For those who choose to live in an urban environment, there would be **more housing options** available.

Increased tax base in Center City means improved infrastructure and services **throughout** Winston-Salem:

- Road resurfacing projects;
- Sidewalk improvement projects;
- Bicycle paths and greenway improvements;
- Reconfigured WSTA service with increased frequency; and
- Additional Trans-AID service.

TRANSIT VS ROADWAY

<table>
<thead>
<tr>
<th>Project</th>
<th>Miles</th>
<th>Cost per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Circulator Streetcar Option</td>
<td>4.0</td>
<td>$44.7 Million</td>
</tr>
<tr>
<td>Salem Creek Connector</td>
<td>1.1</td>
<td>$62.6 Million</td>
</tr>
<tr>
<td>Rehab US 421, west of 4th St. to east of Church St.</td>
<td>1.1</td>
<td>$44.6 Million</td>
</tr>
<tr>
<td>Future I-74, Winston-Salem Northern Beltway</td>
<td>34.2</td>
<td>$31.6 Million</td>
</tr>
<tr>
<td>Rehab US 421, west of Old Vineyard Road</td>
<td>1.6</td>
<td>$7.8 Million</td>
</tr>
<tr>
<td>US 158, Multi-lanes north of US 421/I-40 Business</td>
<td>18.8</td>
<td>$5.6 Million</td>
</tr>
<tr>
<td>US 421, west of US 311</td>
<td>1.6</td>
<td>$5.1 Million</td>
</tr>
<tr>
<td>Clemmonsville Road Widening</td>
<td>1.9</td>
<td>$3.6 Million</td>
</tr>
</tbody>
</table>
MODES CONSIDERED IN THE STUDY

STREETCAR

Enhanced Bus
(Las Vegas)

Enhanced Bus
(Portland)

Modern Streetcar
(Portland)

ENHANCED BUS

LOCAL BUS

Enhanced Bus
(Las Vegas)

Modern Streetcar
(Portland)

Enhanced Bus
(Las Vegas)

Local Bus

Local Bus
DOES IT MEET PROJECT GOALS?

Enhanced Economic Competitiveness

- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

Increase Mobility Options

- Connect key destinations in urban core
- Connect to local and regional transit to provide the “last mile” of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity

<table>
<thead>
<tr>
<th>Development Impacts</th>
<th>Level of Infrastructure Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Enhanced Bus</td>
<td>High</td>
</tr>
<tr>
<td>Streetcar</td>
<td></td>
</tr>
</tbody>
</table>

Enhanced bus can include a variety of infrastructure elements; development impacts increase as the level of investment increases.

Economic Development is a desired project outcome

<table>
<thead>
<tr>
<th>Circulator Mode</th>
<th>Additional Housing Units</th>
<th>Additional Commercial Square Footage</th>
<th>Additional Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1,250 units</td>
<td>2 million square feet</td>
<td>8,000 - 10,000 jobs</td>
</tr>
<tr>
<td>Streetcar</td>
<td>Up to 4,000 units</td>
<td>Up to 2.6 million square feet</td>
<td>Up to 13,000 jobs</td>
</tr>
</tbody>
</table>

- These numbers are in addition to possible development and baseline employment gains over the projection period in the PTRP area alone. Continued build-out of PTRP can be expected. Their plans total an additional 5.5 million sf. of building space over and above the roughly 700,000 sf. already completed in the area. PTRP build-out targets an additional 20,000-25,000 employees over the next 25-30 years.
- No national evidence for an increased development pace with Enhanced Bus exists. Therefore no projections over “baseline” are assumed.

Conclusions:

- Streetcar is needed to meet City’s economic development goals

Route must connect key destinations and support existing communities

- Many key destinations are within a 5 minute walk of the route
- Direct access to the Transportation Center provides a connection to WSTA and PART
- The circulator route follows an easy-to-understand, “readable” route

- Both bus and streetcar meet basic mobility goals
- Initial success will support future extensions

Enhanced Bus Streetcar

- ✔

Enhanced Bus Streetcar

- ✔
DEVELOPMENT BENEFITS OF STREETCAR

Development translates into increased property values and jobs

What has been the economic impact of streetcar in other cities?

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
</tr>
<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
</tr>
<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
<td>29 : 1</td>
</tr>
<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
</tr>
</tbody>
</table>

Winston-Salem’s downtown compares to other “Streetcar Cities”

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Employment</th>
<th>University Enrollment</th>
<th>Hotel Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winston-Salem*</td>
<td>8,918</td>
<td>20,000</td>
<td>6,442</td>
<td>828</td>
</tr>
<tr>
<td>Little Rock</td>
<td>1,942</td>
<td>21,323</td>
<td>0</td>
<td>1,896</td>
</tr>
<tr>
<td>Portland</td>
<td>20,564</td>
<td>110,684</td>
<td>16,781</td>
<td>3,910</td>
</tr>
<tr>
<td>Seattle</td>
<td>6,031</td>
<td>22,411</td>
<td>800</td>
<td>1,453</td>
</tr>
<tr>
<td>Tacoma</td>
<td>2,836</td>
<td>13,296</td>
<td>2,001</td>
<td>641</td>
</tr>
<tr>
<td>Tampa</td>
<td>1,603</td>
<td>10,358</td>
<td>1,125</td>
<td>1,328</td>
</tr>
</tbody>
</table>

*Downtown Winston-Salem Partnership statistics

Streetcar could resulting in up to an additional 2,750 housing units over and above the 1,250 that might be expected to be added in any event by 2035, thereby increasing support for local businesses.

Streetcar could accelerate commercial development by up to 600,000 sf. over and above baseline projections, thereby supporting possibly an additional 3,000 to 3,500 jobs by 2035 over the baseline projections.
APPENDIX E – Comment Boards
Too Expensive
Obsolete Technology
Replaced by cars & buses
W-S stopped its streetcar service in 1936
Does not spur economic development w/o subsidies
Takes up the road & decreases mobility
Creates congestion & pollution
Does not decrease CO2 or GHG emissions
Jibes well with higher density populations in downtown areas (efficient, potentially safer than auto/bike)
Great opportunity for Union Station, USSU, E. W. S., Downtown development
APPENDIX D:

WEB SURVEY RESULTS
Winston-Salem Circulator Survey

1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)

<table>
<thead>
<tr>
<th>Location</th>
<th>Very Undesirable</th>
<th>Undesirable</th>
<th>Neutral</th>
<th>Desirable</th>
<th>Very Desirable</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake Forest University Baptist Medical Center area</td>
<td>6.7% (13)</td>
<td>2.1% (4)</td>
<td>20.5% (40)</td>
<td>28.2% (55)</td>
<td><strong>42.6% (83)</strong></td>
<td>3.98</td>
<td>195</td>
</tr>
<tr>
<td>BB&amp;T Ballpark</td>
<td>8.6% (17)</td>
<td>2.0% (4)</td>
<td>12.6% (25)</td>
<td>24.7% (49)</td>
<td><strong>52.0% (103)</strong></td>
<td>4.10</td>
<td>198</td>
</tr>
<tr>
<td>Clark Campbell Transportation Center (downtown Winston-Salem)</td>
<td>7.8% (15)</td>
<td>3.6% (7)</td>
<td>23.3% (45)</td>
<td>27.5% (53)</td>
<td><strong>37.8% (73)</strong></td>
<td>3.84</td>
<td>193</td>
</tr>
<tr>
<td>Central Library</td>
<td>7.3% (14)</td>
<td>4.2% (8)</td>
<td>23.4% (45)</td>
<td><strong>32.8% (63)</strong></td>
<td>32.3% (62)</td>
<td>3.79</td>
<td>192</td>
</tr>
<tr>
<td>Piedmont Triad Research Park (PTRP)</td>
<td>5.9% (11)</td>
<td>3.2% (6)</td>
<td>28.0% (52)</td>
<td>26.9% (50)</td>
<td><strong>36.0% (67)</strong></td>
<td>3.84</td>
<td>186</td>
</tr>
<tr>
<td>Winston-Salem State University</td>
<td>8.6% (16)</td>
<td>2.1% (4)</td>
<td><strong>41.7% (78)</strong></td>
<td>19.3% (36)</td>
<td>28.3% (53)</td>
<td>3.57</td>
<td>187</td>
</tr>
<tr>
<td>Restaurants or bars</td>
<td>5.5% (11)</td>
<td>1.0% (2)</td>
<td>6.0% (12)</td>
<td>20.5% (41)</td>
<td><strong>67.0% (134)</strong></td>
<td>4.43</td>
<td>200</td>
</tr>
<tr>
<td>Arts or entertainment activities</td>
<td>6.0% (12)</td>
<td>1.5% (3)</td>
<td>7.0% (14)</td>
<td>24.1% (48)</td>
<td><strong>61.3% (122)</strong></td>
<td>4.33</td>
<td>199</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

70 answered question
203 skipped question
2. I would ride a new enhanced bus or streetcar route if service were provided (select one):

<table>
<thead>
<tr>
<th>Frequency of Service</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every 10 minutes</td>
<td>16.9%</td>
<td>35</td>
</tr>
<tr>
<td>Every 15 minutes</td>
<td>34.3%</td>
<td>71</td>
</tr>
<tr>
<td>Every 20 minutes</td>
<td>20.3%</td>
<td>42</td>
</tr>
<tr>
<td>Frequency of service is not important to me</td>
<td>15.0%</td>
<td>31</td>
</tr>
<tr>
<td>I am unlikely to use any new transit service</td>
<td>13.5%</td>
<td>28</td>
</tr>
</tbody>
</table>

answered question 207
skipped question 0
3. Is the type of transit technology important to you? (select one)

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be more likely to use a streetcar, rather than enhanced bus</td>
</tr>
<tr>
<td>I would be more likely to use an enhanced bus, rather than streetcar</td>
</tr>
<tr>
<td>The type of transit technology is not important to me</td>
</tr>
<tr>
<td>I am unlikely to use any new transit service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be more likely to use a streetcar, rather than enhanced bus</td>
<td>53.9%</td>
<td>111</td>
</tr>
<tr>
<td>I would be more likely to use an enhanced bus, rather than streetcar</td>
<td>4.9%</td>
<td>10</td>
</tr>
<tr>
<td>The type of transit technology is not important to me</td>
<td>31.1%</td>
<td>64</td>
</tr>
<tr>
<td>I am unlikely to use any new transit service</td>
<td>10.2%</td>
<td>21</td>
</tr>
</tbody>
</table>

answered question 206

skipped question 1
### 4. How often do you currently use WSTA or PART bus service? (select one)

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td></td>
<td>1.9%</td>
<td>4</td>
</tr>
<tr>
<td>Occasionally</td>
<td></td>
<td>23.2%</td>
<td>48</td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td>74.9%</td>
<td>155</td>
</tr>
</tbody>
</table>

answered question 207
skipped question 0

### 5. How often do you currently use the Winston-Salem’s downtown trolley (WSTA Route 40)? (select one)

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td></td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Occasionally</td>
<td></td>
<td>15.6%</td>
<td>32</td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td>84.4%</td>
<td>173</td>
</tr>
</tbody>
</table>

answered question 205
skipped question 2
### Question:
6. If “occasionally” or “never”, why do you rarely ride the downtown trolley (WSTA Route 40)? (select all that apply)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not go downtown</td>
<td>1.9%</td>
<td>4</td>
</tr>
<tr>
<td>I am not sure where the trolley goes</td>
<td>54.9%</td>
<td>113</td>
</tr>
<tr>
<td>I do not know where to get on the trolley</td>
<td>49.0%</td>
<td>101</td>
</tr>
<tr>
<td>The trolley is not convenient to where I need to go</td>
<td>24.8%</td>
<td>51</td>
</tr>
<tr>
<td>The trolley takes too long</td>
<td>19.9%</td>
<td>41</td>
</tr>
<tr>
<td>I would rather drive and find parking near my destination</td>
<td>29.6%</td>
<td>61</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>27.2%</td>
<td>56</td>
</tr>
</tbody>
</table>

- **answered question**: 206
- **skipped question**: 1
7. If Winston-Salem were to add streetcar or enhanced bus service from Wake Forest University Baptist Medical Center through downtown to Piedmont Triad Research Park (PTRP) and to Winston-Salem State University how often would you use this service? (select one)

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>13.1%</td>
<td>27</td>
</tr>
<tr>
<td>Occasionally</td>
<td>52.4%</td>
<td>108</td>
</tr>
<tr>
<td>Never</td>
<td>19.9%</td>
<td>41</td>
</tr>
<tr>
<td>Don’t know / need more information</td>
<td>14.6%</td>
<td>30</td>
</tr>
</tbody>
</table>

answered question 206
skipped question 1
8. If your trip involves transfer from streetcar to enhanced bus system or enhanced bus system to streetcar, how many times would you be willing to transfer?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 transfer</td>
<td>34.0%</td>
<td>68</td>
</tr>
<tr>
<td>1 transfer</td>
<td>61.0%</td>
<td>122</td>
</tr>
<tr>
<td>More than 1 transfer (identify how many transfers)</td>
<td>5.0%</td>
<td>10</td>
</tr>
</tbody>
</table>

9. Additional Comments (OPTIONAL):

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>answered question</td>
<td>200</td>
</tr>
<tr>
<td>skipped question</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>answered question</td>
<td>68</td>
</tr>
<tr>
<td>skipped question</td>
<td>139</td>
</tr>
<tr>
<td>Q1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)</td>
<td>Nov 12, 2012 6:04 AM</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1  northern most point of the city</td>
<td>Nov 27, 2012 9:43 AM</td>
</tr>
<tr>
<td>2  South Strafford Rd. to Clemmons, Hanes Mall Blvd., and Silas Creek</td>
<td>Nov 18, 2012 12:46 PM</td>
</tr>
<tr>
<td>3  If bus service is expanded I feel it would be better money spent to get to the neighborhoods that are 5 miles + from downtown center. Also, have service that runs past 12 midnight.</td>
<td>Nov 16, 2012 7:52 AM</td>
</tr>
<tr>
<td>4  walking access to our downtown neighborhoods Washington Park, West End, etc...</td>
<td>Nov 16, 2012 5:39 AM</td>
</tr>
<tr>
<td>5  A stop near Wake Forest University for university’s students to connect.</td>
<td>Nov 15, 2012 10:11 AM</td>
</tr>
<tr>
<td>6  Thruway Shopping Center area, Forsyth Medical Center/Silas Creek Parkway area</td>
<td>Nov 14, 2012 12:38 PM</td>
</tr>
<tr>
<td>7  1st and 2nd streets (City Hall, Wells Fargo, etc.)</td>
<td>Nov 14, 2012 11:56 AM</td>
</tr>
<tr>
<td>8  Trader Joe's, Greenway- near WSSU,</td>
<td>Nov 13, 2012 2:10 PM</td>
</tr>
<tr>
<td>9  Thruway Shopping Center. Hanes Mall, LJVM Coliseum, Build hub on east side at Bus Rt 40 and Linville Rd.</td>
<td>Nov 13, 2012 10:28 AM</td>
</tr>
<tr>
<td>10 Use the Broad Street Corridor so that area can be beautified</td>
<td>Nov 12, 2012 5:37 PM</td>
</tr>
<tr>
<td>11 Add a grocery store and add it to the route</td>
<td>Nov 12, 2012 2:10 PM</td>
</tr>
<tr>
<td>12 uncsa, whole foods, trader joes.</td>
<td>Nov 12, 2012 11:43 AM</td>
</tr>
<tr>
<td>13 Parks</td>
<td>Nov 12, 2012 10:38 AM</td>
</tr>
<tr>
<td>14 the courthouse</td>
<td>Nov 12, 2012 6:16 AM</td>
</tr>
<tr>
<td>15 some sort of grocery store, generalized shopping, somewhere people want to walk around at- it doesn't need to run the length of 4th I think it just needs to pick up and drop off at the end points nearby. I like the idea of fifth or even sixth better because then it gives closer access to trade st activities. also important to connect to transportation areas so people can really get around with out cars- otherwise need to support parking around streetcar end points.</td>
<td>Nov 12, 2012 6:04 AM</td>
</tr>
<tr>
<td>16 Hanes Mall Blvd. and Stratford Rd.</td>
<td>Nov 11, 2012 6:22 PM</td>
</tr>
<tr>
<td>17 Coliseum area</td>
<td>Nov 11, 2012 8:11 AM</td>
</tr>
</tbody>
</table>
Q1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Salem college and wake forest, thruway and the mall</td>
<td>Nov 11, 2012 6:28 AM</td>
</tr>
<tr>
<td>19</td>
<td>Grocery store</td>
<td>Nov 11, 2012 5:33 AM</td>
</tr>
<tr>
<td>20</td>
<td>Wake Forest University</td>
<td>Nov 11, 2012 5:33 AM</td>
</tr>
<tr>
<td>21</td>
<td>West End, YMCA and Hanes Park</td>
<td>Nov 11, 2012 5:29 AM</td>
</tr>
<tr>
<td>22</td>
<td>Wake Forest University! Please!</td>
<td>Nov 11, 2012 2:58 AM</td>
</tr>
<tr>
<td>23</td>
<td>Wake Forest University</td>
<td>Nov 10, 2012 9:44 PM</td>
</tr>
<tr>
<td>24</td>
<td>Wake Forest University</td>
<td>Nov 10, 2012 7:33 PM</td>
</tr>
<tr>
<td>25</td>
<td>Wake Forest University</td>
<td>Nov 10, 2012 6:25 PM</td>
</tr>
<tr>
<td>26</td>
<td>Wake Forest University, Grocery Store - Trader Joes, Whole Foods, Harris Teeter, Lowes Foods</td>
<td>Nov 10, 2012 5:59 PM</td>
</tr>
<tr>
<td>27</td>
<td>Farmers Market (Coliseum/27th st)</td>
<td>Nov 10, 2012 3:37 PM</td>
</tr>
<tr>
<td>28</td>
<td>UNCSA, Salem College</td>
<td>Nov 10, 2012 1:54 PM</td>
</tr>
<tr>
<td>29</td>
<td>a grocery store- Harris Teeter, or Trader Joes</td>
<td>Nov 10, 2012 10:15 AM</td>
</tr>
<tr>
<td>30</td>
<td>Old Salem/UNCSA/Gateway area</td>
<td>Nov 10, 2012 6:24 AM</td>
</tr>
<tr>
<td>31</td>
<td>Old Salem's Visitor Center, Reynolda Gardens, Wake Forest University, Salem Academy, School of the Arts, YMCA : Gateway and White locations, a stop on 4th Street and Trade Street for shops &amp; restaurants.</td>
<td>Nov 10, 2012 4:33 AM</td>
</tr>
<tr>
<td>32</td>
<td>Thruway Shopping Center!</td>
<td>Nov 9, 2012 10:19 PM</td>
</tr>
<tr>
<td>33</td>
<td>Old Salem Visitor Center</td>
<td>Nov 9, 2012 6:26 PM</td>
</tr>
<tr>
<td>34</td>
<td>Thru-Way, Hanes Mall</td>
<td>Nov 9, 2012 5:55 PM</td>
</tr>
<tr>
<td>35</td>
<td>Corpening Plaza; Twin City Quarter; Trade street ( I guess this would go into the Arts and entertainment category). Also perhaps something close to Northwest Blvd/Trade Street intersection- many people live there who cannot afford cars, but</td>
<td>Nov 9, 2012 5:31 PM</td>
</tr>
</tbody>
</table>
Q1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)

<table>
<thead>
<tr>
<th>Location</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>this should probably be something that the transit authority could work into eventually. Many people may not use the new transit system initially if there are a lot of rowdy people on the “trolley” though. I am not trying to discriminate against a socioeconomic class, but I used to work over there and some who may use the system will abuse it and not take care of the trolleys. However, I think that it would benefit them to have better means of transportation to work and could perhaps make them a little more reliable employee and could, in turn, lower the unemployment rate. (I'm just thinking chain reaction, and long-term). Also, in a way, our city is pretty small... walking is good exercise!</td>
<td></td>
</tr>
<tr>
<td>36 Ardmore</td>
<td>Nov 9, 2012 3:50 PM</td>
</tr>
<tr>
<td>37 Wake Forest University, Thruway</td>
<td>Nov 9, 2012 3:14 PM</td>
</tr>
<tr>
<td>38 near School of the Arts</td>
<td>Nov 9, 2012 3:08 PM</td>
</tr>
<tr>
<td>39 Professional offices and places of high employment</td>
<td>Nov 9, 2012 10:20 AM</td>
</tr>
<tr>
<td>40 Thruway shopping center</td>
<td>Nov 9, 2012 7:41 AM</td>
</tr>
<tr>
<td>41 Cloverdale, Thruway &amp; 5 Points, need to get downtown residents access to large Grocery &amp; Goods. Include Forsyth Hospital &amp; WFU too.</td>
<td>Nov 9, 2012 7:30 AM</td>
</tr>
<tr>
<td>42 unlikely to use this transit system</td>
<td>Nov 9, 2012 7:16 AM</td>
</tr>
<tr>
<td>43 Salem College Thruway</td>
<td>Nov 9, 2012 7:02 AM</td>
</tr>
<tr>
<td>44 Thruway Shopping Center. Those of us who live downtown can walk to almost every service except the grocery store. The corner of Brookstown and 4th also would be great.</td>
<td>Nov 9, 2012 6:56 AM</td>
</tr>
<tr>
<td>45 Thruway Salem College</td>
<td>Nov 9, 2012 6:48 AM</td>
</tr>
<tr>
<td>46 New Train Station</td>
<td>Nov 9, 2012 6:45 AM</td>
</tr>
<tr>
<td>47 Potential connection to Thruway/Stratford Rd area would be helpful</td>
<td>Nov 9, 2012 6:05 AM</td>
</tr>
<tr>
<td>48 Thruway and MLK blvd.</td>
<td>Nov 9, 2012 5:43 AM</td>
</tr>
<tr>
<td>49 Waterworks Rd YMCA/Winston Lake Complex</td>
<td>Nov 9, 2012 5:41 AM</td>
</tr>
<tr>
<td>Q1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>50</strong></td>
<td>Thruway Shopping Center</td>
</tr>
<tr>
<td><strong>51</strong></td>
<td>salem lake,,winston lake</td>
</tr>
<tr>
<td><strong>52</strong></td>
<td>Forsyth Medical Center</td>
</tr>
<tr>
<td><strong>53</strong></td>
<td>shopping - Cloverdale area - Thruway</td>
</tr>
<tr>
<td><strong>54</strong></td>
<td>Mass transit for Winston-Salem is an expensive burden on the few people that pay taxes in this town. For the same annual expense, we could subsidize taxi service and handicap van service for those few that use public transportation, and for many more that would use it if it were convenient and ubiquitous.</td>
</tr>
<tr>
<td><strong>55</strong></td>
<td>UNCSA</td>
</tr>
<tr>
<td><strong>56</strong></td>
<td>Would love to see it get to Washington park, and Konnoak</td>
</tr>
<tr>
<td><strong>57</strong></td>
<td>grocery stores</td>
</tr>
<tr>
<td><strong>58</strong></td>
<td>Connect to Old Salem</td>
</tr>
<tr>
<td><strong>59</strong></td>
<td>Why haven't you included Forsyth Medical Center and Hanes Mall. More people go to Forsyth than Baptist and some of the heaviest traffic in town is in that quadrant.</td>
</tr>
<tr>
<td><strong>60</strong></td>
<td>The Kennedy Learning Center</td>
</tr>
<tr>
<td><strong>61</strong></td>
<td>Reynolda House, WFU</td>
</tr>
<tr>
<td><strong>62</strong></td>
<td>I work in Winston Tower.</td>
</tr>
<tr>
<td><strong>63</strong></td>
<td>Extend service to the Ardmore neighborhood. Especially on weekend nights.</td>
</tr>
<tr>
<td><strong>64</strong></td>
<td>Old Salem</td>
</tr>
<tr>
<td><strong>65</strong></td>
<td>Old Salem Visitors Center</td>
</tr>
<tr>
<td><strong>66</strong></td>
<td>Wake Forest University Campus, Thruway Connector</td>
</tr>
</tbody>
</table>
Q1. If the City of Winston-Salem were to add a new enhanced bus or streetcar route serving downtown and adjacent neighborhoods, where would you like to go? (Select one for each location)

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>Mall</td>
<td>Nov 1, 2012 6:41 AM</td>
</tr>
<tr>
<td>68</td>
<td>It would be a big mistake and terrible waste of taxpayer and community money.</td>
<td>Oct 31, 2012 5:41 PM</td>
</tr>
<tr>
<td>69</td>
<td>Salem College, LJVM, Wake Forest Campus</td>
<td>Oct 31, 2012 12:10 PM</td>
</tr>
<tr>
<td>70</td>
<td>Wish it could tie in to Stratford Rd. somehow to get the local neighborhoods and businesses connected to alleviate some traffic concerns.</td>
<td>Oct 31, 2012 7:23 AM</td>
</tr>
</tbody>
</table>
### Q6. If “occasionally” or “never”, why do you rarely ride the downtown trolley (WSTA Route 40)? (select all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Riding the trolley is not pleasant. Noisy, rocking, bumpy.</td>
<td>Nov 27, 2012 5:31 AM</td>
</tr>
<tr>
<td>2</td>
<td>Because I do not live in that area. If the trolley was available in my area then I would of used it.</td>
<td>Nov 18, 2012 12:46 PM</td>
</tr>
<tr>
<td>3</td>
<td>There is no bus service within a 45 minute walk of where I live. Once in downtown I already have my car.</td>
<td>Nov 16, 2012 7:52 AM</td>
</tr>
<tr>
<td>4</td>
<td>Didn't know about it.</td>
<td>Nov 16, 2012 1:32 AM</td>
</tr>
<tr>
<td>5</td>
<td>Do not feel safe using this method of transportation.</td>
<td>Nov 14, 2012 12:12 AM</td>
</tr>
<tr>
<td>6</td>
<td>I'm usually on walking and like the exercise. If I knew schedule better for trolly and thought I'd get there faster than walking i may consider it.</td>
<td>Nov 13, 2012 2:10 PM</td>
</tr>
<tr>
<td>7</td>
<td>One of the main reasons for that people don't ride the existing public transportation is because you cannot transfer from bus to bus. You have to go to the ugliest bus depot downtown. Get rid of that bus depot and have the bus routes cross and you don't need it!</td>
<td>Nov 12, 2012 5:37 PM</td>
</tr>
<tr>
<td>8</td>
<td>The times are not convenient. I would either be very early to work, or late.</td>
<td>Nov 12, 2012 5:17 PM</td>
</tr>
<tr>
<td>9</td>
<td>I mostly walk but I may reconsider if a streetcar was available</td>
<td>Nov 12, 2012 2:10 PM</td>
</tr>
<tr>
<td>10</td>
<td>I love street cars and use them whenever I can because they are clean, efficient, and quick. I view the bus as dirty, slow, and packed with a certain slice of our more eccentric part of society. I also have never had an experience with a streetcar breaking down or having to be re-routed which is something that happens to buses. Also with the street car the stops are clear and you don't have people trying to get off or flag down the transport at unofficial stops- then yelling at a driver like so many people seem to do on buses.</td>
<td>Nov 12, 2012 6:04 AM</td>
</tr>
<tr>
<td>11</td>
<td>I live downtown</td>
<td>Nov 12, 2012 5:51 AM</td>
</tr>
<tr>
<td>12</td>
<td>Depending on where it goes, how often it comes through, and how long it takes to get to my destination, I may still not use it...would love to see something that is urban, streetcar style, that runs often through downtown destinations identified as popular stops</td>
<td>Nov 11, 2012 5:33 AM</td>
</tr>
<tr>
<td>13</td>
<td>Does the trolley go to downtown from Clemmons?</td>
<td>Nov 10, 2012 3:37 PM</td>
</tr>
<tr>
<td>14</td>
<td>I usually walk to get places downtown.</td>
<td>Nov 10, 2012 10:15 AM</td>
</tr>
<tr>
<td>15</td>
<td>Right, now the car is the most convenient. But a streetcar would get me to use public transit.</td>
<td>Nov 10, 2012 6:24 AM</td>
</tr>
<tr>
<td>No.</td>
<td>Comment</td>
<td>Date and Time</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>16</td>
<td>Trolley stops are not well marked.</td>
<td>Nov 10, 2012 2:21 AM</td>
</tr>
<tr>
<td>17</td>
<td>I have young children - easier to take my own car, and I don't go downtown very often.</td>
<td>Nov 9, 2012 7:01 PM</td>
</tr>
<tr>
<td>18</td>
<td>I live in Davie county, but work downtown. so I have to drive there. Once my car is already downtown, I park it on the street and walk to my destinations.</td>
<td>Nov 9, 2012 5:31 PM</td>
</tr>
<tr>
<td>19</td>
<td>Don't think about it, or walk to a lot of places downtown</td>
<td>Nov 9, 2012 8:30 AM</td>
</tr>
<tr>
<td>20</td>
<td>I like to walk Downtown when I can and the connections which exist now are not user friendly. If I could get on public transportation from PTRP and go to a restaurant, bar, or BB&amp;T field in West End, then I would use it for sure.</td>
<td>Nov 9, 2012 7:58 AM</td>
</tr>
<tr>
<td>21</td>
<td>I can get anywhere I need to go in downtown in 10 min. by walking. the streetcar would only serve me if I need to leave the core of downtown and travel to wfbmc or old salem.</td>
<td>Nov 9, 2012 7:38 AM</td>
</tr>
<tr>
<td>22</td>
<td>I live in Sherwood Forest but work at 6th &amp; Trade. I would ride the bus if closer stop to my home.</td>
<td>Nov 9, 2012 7:30 AM</td>
</tr>
<tr>
<td>23</td>
<td>I generally walk among downtown locations</td>
<td>Nov 9, 2012 7:24 AM</td>
</tr>
<tr>
<td>24</td>
<td>The trolley is a joke. NOBODY ever rides the trolley. I have worked downtown for years watching this completely empty vehical drive around in circles wasting gas and money. What a waste of resources this is.</td>
<td>Nov 9, 2012 6:40 AM</td>
</tr>
<tr>
<td>25</td>
<td>Winston Salem is too small a city to be concerned about public transit---the City cannot even get the citizens to park in the correct direction on streets</td>
<td>Nov 8, 2012 7:32 AM</td>
</tr>
<tr>
<td>26</td>
<td>Busses are crap!</td>
<td>Nov 7, 2012 12:38 PM</td>
</tr>
<tr>
<td>27</td>
<td>Transit technologies ineffectively serve the entire city's population. The proposed routes are geared to support Wake Forest enterprises almost entirely.</td>
<td>Nov 6, 2012 10:18 AM</td>
</tr>
<tr>
<td>28</td>
<td>Trolley is basically a bus and a waste of taxpayers money.</td>
<td>Nov 4, 2012 1:16 PM</td>
</tr>
<tr>
<td>29</td>
<td>I have to drive to get downtown so I might as well just park and walk</td>
<td>Nov 4, 2012 9:04 AM</td>
</tr>
<tr>
<td>30</td>
<td>Get information to residents of Old Salem &amp; Marshall Street area</td>
<td>Nov 4, 2012 6:50 AM</td>
</tr>
<tr>
<td>31</td>
<td>When not using city transpo I walk or borrow someone's vehicle depending on the situation.</td>
<td>Nov 4, 2012 6:15 AM</td>
</tr>
</tbody>
</table>
Q6. If “occasionally” or “never”, why do you rarely ride the downtown trolley (WSTA Route 40)? (select all that apply)

<table>
<thead>
<tr>
<th>Comment</th>
<th>Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most of my movement in this corridor is time sensitive and I have to get back to work. Retirement is in my short-term future and it will allow greater flexibility to help reduce carbons.</td>
<td>Nov 3, 2012 9:14 AM</td>
</tr>
<tr>
<td>I do not think the Trolley comes to my neighborhood, Ardmore, or has a stop close to it</td>
<td>Nov 2, 2012 12:52 PM</td>
</tr>
<tr>
<td>Live downtown, so I just walk to my destination.</td>
<td>Nov 2, 2012 7:55 AM</td>
</tr>
<tr>
<td>Not clear how much it costs and the fact that nobody rides it is discouraging. It's nicknamed the ghost trolley for a reason.</td>
<td>Nov 2, 2012 7:43 AM</td>
</tr>
<tr>
<td>As long as I have to drive to get to downtown, why would I park somewhere and then ride a trolley for a few blocks?</td>
<td>Nov 2, 2012 5:29 AM</td>
</tr>
<tr>
<td>Service does not run at night to the Ardmore neighborhood</td>
<td>Nov 2, 2012 4:51 AM</td>
</tr>
<tr>
<td>Can totally walk the downtown</td>
<td>Nov 1, 2012 12:52 PM</td>
</tr>
<tr>
<td>Not necessarily safe, efficient nor timely</td>
<td>Nov 1, 2012 12:42 PM</td>
</tr>
<tr>
<td>I work close enough to downtown that I can walk there in less time than the trolley comes by here.</td>
<td>Nov 1, 2012 6:41 AM</td>
</tr>
<tr>
<td>I live up near Pfafftown, and the bus/trolley doesn't come up here</td>
<td>Nov 1, 2012 5:54 AM</td>
</tr>
<tr>
<td>If I had an office or residence downtown, then I may pay attention to trolley/buses. That being said, we have such a small downtown, I'd rather walk.</td>
<td>Nov 1, 2012 4:18 AM</td>
</tr>
<tr>
<td>I LIVE DOWNTOWN AND CAN WALK EVERYWHERE I NEED TO GO DOWNTOWN</td>
<td>Oct 31, 2012 8:10 PM</td>
</tr>
<tr>
<td>This is an expense unwarranted and benefits very few. There is a larger community than Downtown and WFU.</td>
<td>Oct 31, 2012 5:41 PM</td>
</tr>
<tr>
<td>If it ran through my neighborhood (and did so more frequently than every 25 minutes) I'd take it downtown.</td>
<td>Oct 31, 2012 12:54 PM</td>
</tr>
<tr>
<td>Currently when I am downtown I have had to drive. But if the streetcar connects with WSTA or PART I would be more likely to ride transit.</td>
<td>Oct 31, 2012 12:29 PM</td>
</tr>
<tr>
<td>If in downtown, I usually walk.</td>
<td>Oct 31, 2012 12:28 PM</td>
</tr>
<tr>
<td>I tend to walk where I need to go downtown</td>
<td>Oct 31, 2012 12:24 PM</td>
</tr>
<tr>
<td>I drive from home and walk from work.</td>
<td>Oct 31, 2012 12:20 PM</td>
</tr>
<tr>
<td>ID</td>
<td>Response</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>50</td>
<td>When the downtown area gets full of residents, I will look for transportation alternatives. I am a big fan of Charlotte’s Lynx and have parked “down the line” and used the train to get into downtown.</td>
</tr>
<tr>
<td>51</td>
<td>I frequent downtown but the trolley does not service my area</td>
</tr>
<tr>
<td>52</td>
<td>BB&amp;T Ballpark</td>
</tr>
<tr>
<td>53</td>
<td>Probably quicker to walk.</td>
</tr>
<tr>
<td>54</td>
<td>Didn't even know we had one</td>
</tr>
<tr>
<td>55</td>
<td>I live outside of W-S, so when I use it's when I'm staying in town after business hours for a function or entertainment</td>
</tr>
<tr>
<td>56</td>
<td>I work downtown and all the destinations, such as restaurants, etc. are all within walking distance of where I park</td>
</tr>
</tbody>
</table>
Q8. If your trip involves transfer from streetcar to enhanced bus system or enhanced bus system to streetcar, how many times would you be willing to transfer?

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>as long as it's completely fast</td>
<td>Nov 27, 2012</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Nov 9, 2012</td>
</tr>
<tr>
<td>3</td>
<td>5000</td>
<td>Nov 9, 2012</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Nov 9, 2012</td>
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<tr>
<td>5</td>
<td>2 or 3</td>
<td>Nov 9, 2012</td>
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<tr>
<td>6</td>
<td>2</td>
<td>Nov 9, 2012</td>
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<tr>
<td>7</td>
<td>2</td>
<td>Nov 9, 2012</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>Nov 2, 2012</td>
</tr>
<tr>
<td>9</td>
<td>Never</td>
<td>Oct 31, 2012</td>
</tr>
<tr>
<td>10</td>
<td>Transferring will make it a less desired option of travel.</td>
<td>Oct 31, 2012</td>
</tr>
<tr>
<td></td>
<td>Comment</td>
<td>Date and Time</td>
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<td>---</td>
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<td>--------------------------------</td>
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<tr>
<td>1</td>
<td>There have been plenty of studies that show little if any development boost along the routes of enhanced bus service. For this reason, I oppose a bus option. If we're going to invest in a circulator, let's pick the option that might actually earn back its capital costs through growth in the tax base.</td>
<td>Nov 27, 2012 5:31 AM</td>
</tr>
<tr>
<td>2</td>
<td>I believe that if Winston Salem improves public transportation and add sidewalks and cross walk for the pedestrians then more people will be able to use the transportation system. It will also cut down on the amount of elderly people having drivers.</td>
<td>Nov 18, 2012 12:46 PM</td>
</tr>
<tr>
<td>3</td>
<td>Wake Forest Baptist Medical Center will continue to shift staff and resources to the Piedmont Triad Research Park. The connection between these 2 large employment centers is essential.</td>
<td>Nov 16, 2012 11:04 AM</td>
</tr>
<tr>
<td>4</td>
<td>I think this project is a mistake.</td>
<td>Nov 16, 2012 7:52 AM</td>
</tr>
<tr>
<td>5</td>
<td>DO THIS! MAKE OUR CITY A SHINING EXAMPLE!</td>
<td>Nov 16, 2012 5:39 AM</td>
</tr>
<tr>
<td>6</td>
<td>Although I do not use public transit today, I think it would be beneficial to our city. I would definitely use it if I knew more about the existing system. Thank you for asking for our opinions.</td>
<td>Nov 14, 2012 2:26 PM</td>
</tr>
<tr>
<td>7</td>
<td>I truly believe that a streetcar system will convey to the rest of society that Winston-Salem is truly a forward-thinking community that is preparing for the future with progressive ideas.</td>
<td>Nov 14, 2012 12:58 PM</td>
</tr>
<tr>
<td>8</td>
<td>If you build it...</td>
<td>Nov 13, 2012 2:10 PM</td>
</tr>
<tr>
<td>9</td>
<td>Have the bus routes cross and allow transfers like NYC transit system and get rid of the bus depot downtown. Recognize that building was a mistake, make it a great market and move on!</td>
<td>Nov 12, 2012 5:37 PM</td>
</tr>
<tr>
<td>10</td>
<td>no one rides bus now. look at ridership except to Hospt to work. can't support all day service with no one riding</td>
<td>Nov 12, 2012 2:21 PM</td>
</tr>
<tr>
<td>11</td>
<td>its really hard to get a good look at this- people who have not had experience using a streetcar mostly dont think they will use it but everyone will end up using it! In my experience living in Portland OR and Salt Lake City- it will get so much use you will have to expand the lines because people will start using it, realize its convenience and prefer it to driving and parking. The only reasons i have had in the past for not utilizing the street car more is that in Utah i had to drive practically to my destination to access the service- there wasn't a point close enough to my neighborhood to allow me to give up my car, and there was no parking structure or lot at the rail access for me to leave my car for switching to rail. Thank you for considering street cars!</td>
<td>Nov 12, 2012 6:04 AM</td>
</tr>
<tr>
<td>12</td>
<td>I think citizens would be much more receptive to a streetcar because buses have such a bad rep. Also, the permanent infrastructure involved with streetcars will be a confidence booster for businesses and citizens.</td>
<td>Nov 11, 2012 6:22 PM</td>
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<td>#</td>
<td>Comment</td>
<td>Date</td>
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<tr>
<td>13</td>
<td>Considering the budget crisis facing many households and local governments, this is not money that needs to be spent. Our city does not seem nearly large enough to need or support such as service.</td>
<td>Nov 11, 2012 8:16 AM</td>
</tr>
<tr>
<td>14</td>
<td>Regardless of how many times I ride the new system personally (I work from home currently), I think it's hugely important for W.S. to be thinking about these solutions to be greener and promote urban community planning rather than suburban crawl - thanks!!</td>
<td>Nov 11, 2012 5:33 AM</td>
</tr>
<tr>
<td>15</td>
<td>It would be nice to use parking available at the Dash Ballpark and connect with a streetcar/enhanced bus system for downtown events and dining. The present bus operations have a very limited schedule which does not cover late night hours and weekends.</td>
<td>Nov 11, 2012 5:29 AM</td>
</tr>
<tr>
<td>16</td>
<td>i would like it to go to the southside aswell UNCSA</td>
<td>Nov 10, 2012 8:03 PM</td>
</tr>
<tr>
<td>17</td>
<td>I live on Wake Forest University without a car and it is often times very inconvenient for me to get into Winston-Salem. I feel that if there was a trolley system that went from Wake Forest to downtown Winston-Salem, I feel that I would go into Winston-Salem very often as would many other college students.</td>
<td>Nov 10, 2012 7:33 PM</td>
</tr>
<tr>
<td>18</td>
<td>Adding a stop at Wake Forest University would be most desirable, especially since many of us do not have transportation and are therefore often stuck on campus.</td>
<td>Nov 10, 2012 6:25 PM</td>
</tr>
<tr>
<td>19</td>
<td>I've rode streetcars in other cities that don't have overhead wires. As a city of arts and innovation, planners should look into this new innovative streetcar technology. I'm waiting excitedly for the return of streetcars in our city and will ride them daily. I would like to see the ballpark added to the route too.</td>
<td>Nov 10, 2012 6:09 PM</td>
</tr>
<tr>
<td>20</td>
<td>I know cost will be an issue. I drive my car because it is convenient and parking GENERALLY is not a problem for me. If the circulator was free, I would take it often - perhaps park my car in a remote location and take the circulator into town, or walk to WFUBMC and take the circulator from there.</td>
<td>Nov 10, 2012 1:54 PM</td>
</tr>
<tr>
<td>21</td>
<td>I live in the West End and work downtown. I would use a streetcar everyday to get to and from work.</td>
<td>Nov 10, 2012 2:21 AM</td>
</tr>
<tr>
<td>22</td>
<td>I believe this will be a great idea! It would also help to possibly move buss routes along that way and make the standard bus system more convenient. Running every 15-30 min. I like the bus system currently but it is so inconvenient to get anywhere without having to plan on getting there two or three hours early because the times between the buses are so long. The street car and enhanced bus is a great idea.</td>
<td>Nov 9, 2012 11:09 PM</td>
</tr>
<tr>
<td>23</td>
<td>I love this idea, I just watched the documentary &quot;Urbanized&quot; and saw the same Streetcars being used in South America. I'm very thrilled that you all are taking this into consideration!!!!</td>
<td>Nov 9, 2012 8:44 PM</td>
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<tr>
<td>24</td>
<td>I think we really need to determine if this is a wise long-term investment. Will this encourage growth and development and energy-efficiency as well as create jobs? Or will it put people out of work? Is there availability for people to be trained for the jobs needed for this particular ‘project’? Other than this, what other market research has been completed in order to analyze the potential success of this project? What are the marketing plans after this begins construction; how can we encourage people to use the new transit system? We don’t want to waste city money building something that we haven’t marketed and that people will not use often.</td>
<td>Nov 9, 2012 5:31 PM</td>
</tr>
<tr>
<td>25</td>
<td>I think this is a great idea!</td>
<td>Nov 9, 2012 3:14 PM</td>
</tr>
<tr>
<td>26</td>
<td>I would choose the streetcar option if it were electric and it did not have a stinky exhaust pipe spewing; like found on a bus. please re-activate passenger rail: its affordable, does not require massive inputs of technology (we’ve done it before) and its literally sitting out there rusting in the rain.</td>
<td>Nov 9, 2012 12:34 PM</td>
</tr>
<tr>
<td>27</td>
<td>I currently do not use mass transit as it is not convenient from Ardmore to Downtown. Would like for service to run from WFUBMC to Downtown Transit Center with a frequency between the morning commute hours (7:30am - 9:00am) and evening hours (5:00pm - 8:00pm)</td>
<td>Nov 9, 2012 8:54 AM</td>
</tr>
<tr>
<td>28</td>
<td>See comments above also. I support the concept and want to see it happen. I just has to be user friendly and provide the connectivity to be viable</td>
<td>Nov 9, 2012 7:58 AM</td>
</tr>
<tr>
<td>29</td>
<td>a transportation system on a dedicated route and with on time predictability is key. the streetcar to me accomplishes this, but i would need ride it to get around the core of downtown since everythign is already within walking distance.</td>
<td>Nov 9, 2012 7:38 AM</td>
</tr>
<tr>
<td>30</td>
<td>Need more clean, economical and easy to use mass transit servies ASAP!!! Also inclue options for late evening &amp; weekends.</td>
<td>Nov 9, 2012 7:30 AM</td>
</tr>
<tr>
<td>31</td>
<td>Q 2 should be how long would I wait for service, not how often I would ride (i.e., no one would ride every 10 minutes)</td>
<td>Nov 9, 2012 7:24 AM</td>
</tr>
<tr>
<td>32</td>
<td>I have never seen any passengers on the trolley buses that exist--absolutely never</td>
<td>Nov 9, 2012 7:16 AM</td>
</tr>
<tr>
<td>33</td>
<td>I love this idea. I currently do not use WSTA because Wake Forest University offers a bus to downtown winston. But I would be very receptive to transporation within the downtown area.</td>
<td>Nov 9, 2012 7:13 AM</td>
</tr>
<tr>
<td>34</td>
<td>The option in #7 will not serve many of us. I would never use that. I would go the Thruway Shopping Center and downtown W-S.</td>
<td>Nov 9, 2012 6:56 AM</td>
</tr>
<tr>
<td>35</td>
<td>Adding a route to Thruway and including a stop closer to Salem College would be great.</td>
<td>Nov 9, 2012 6:48 AM</td>
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<tr>
<td>Comment ID</td>
<td>Comment</td>
<td>Date and Time</td>
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<tr>
<td>36</td>
<td>I honestly don’t see the value in adding this service in Winston-Salem. It would be a benefit to Wake Forest hospital and the research park to a certain degree which can easily be handled through their own shuttle service. The community would be better served in its transportation needs by expanding existing bus service to underserved neighborhoods and invest in other more important economic development resources to create jobs. This is a boondoggle unless there is no cost to the City.</td>
<td>Nov 9, 2012 6:04 AM</td>
</tr>
<tr>
<td>37</td>
<td>We need to go all the way with this and do the streetcar and make the investment worth it. We need a great marketing effort!</td>
<td>Nov 9, 2012 5:43 AM</td>
</tr>
<tr>
<td>38</td>
<td>We need this sooner than later...</td>
<td>Nov 9, 2012 5:28 AM</td>
</tr>
<tr>
<td>39</td>
<td>If the city cannot afford to pay police/fireman more HOW can the city justify this&gt;&gt;&gt;?&gt;??????</td>
<td>Nov 8, 2012 7:32 AM</td>
</tr>
<tr>
<td>40</td>
<td>The bus station downtown needs to go!!! Move the main terminal and make downtown a spur destination so not every crack peddling local criminal has to go through downtown and have a layover in the hear of the city! The bus station downtown is the worst part of downtown and everyone knows it! Rail is a completely different matter!</td>
<td>Nov 7, 2012 12:38 PM</td>
</tr>
<tr>
<td>41</td>
<td>I would vote for the transportation method that could be implemented with the least amount of capital required.</td>
<td>Nov 6, 2012 1:50 PM</td>
</tr>
<tr>
<td>42</td>
<td>While I understand it's a downtown circulator, if you plan to include WSSU, then consideration of nearby institutions Salem College and UNCSA should also be added.</td>
<td>Nov 4, 2012 1:16 PM</td>
</tr>
<tr>
<td>43</td>
<td>I think this is a great idea. What is important is getting people from the near but not that near neighborhoods into downtown and having - whatever- run on weekend (yes even Sunday) and late at night so that one could go out to the bars downtown and get back to your 'hood safely.</td>
<td>Nov 4, 2012 9:04 AM</td>
</tr>
<tr>
<td>44</td>
<td>Since Winston needs to deal with increasing single-user car traffic &amp; a growing older population, I like this idea a lot. I prefer to leave my car at home if I can to avoid parking issues.</td>
<td>Nov 4, 2012 6:50 AM</td>
</tr>
<tr>
<td>45</td>
<td>Mighty fine idea</td>
<td>Nov 4, 2012 6:15 AM</td>
</tr>
<tr>
<td>46</td>
<td>You are missing the point if you leave out the Hanes Mall/Forsyth Medical Center area, which has multiple times more traffic than what you show on this map. If you have doubts, sit in a vehicle at the Silas Creek/Hanes Mall intersection and observe it yourself.</td>
<td>Nov 3, 2012 9:14 AM</td>
</tr>
<tr>
<td>47</td>
<td>I live in West End and enjoy walking to work except on bad weather days or I'm in a rush. Would like the option of public transportation of streetcar.</td>
<td>Nov 2, 2012 5:30 AM</td>
</tr>
<tr>
<td>Comment ID</td>
<td>Text</td>
<td></td>
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<tr>
<td>48</td>
<td>Bus service is limited to southern W-S, Ebert and Clemmonsview Rd area. The idea that I would volunteer to walk a mile+ with no sidewalks on Ebert to catch a bus and spend 30 minutes taking a 10 minute drive downtown is ridiculous. I would love to be able to go downtown, party, trolley around downtown, and catch a bus home. It just can't happen as things are now. Last route of closest line at night 2323, ends at 11:53pm. So if I go to Ziggy's for a show, I can't use a bus. Nov 2, 2012 5:29 AM</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>It is great to have service downtown, but without service to the surrounding neighborhoods like Ardmore, Washington Park, West Salem, etc past working hours it serves no purpose to have to drive downtown to ride the trolley, especially on weekends. A service to neighborhoods on the weekends and nights would help the downtown restaurants and bars as well as relieve downtown traffic congestion and parking. Why offer service to just the downtown area when we already have to drive there anyway. Nov 2, 2012 4:51 AM</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Why run empty buses now? Like the ‘banking center’ shuttle... Nov 1, 2012 12:52 PM</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>How is this going to be paid for? What's the source of funding and will this impact other infrastructure projects in the region/city (i.e. pull funding from those projects)? Nov 1, 2012 12:42 PM</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>I believe a clean and efficient people mover system is essential to attracting those of the &quot;creative class&quot; who wish to live, work and play in a modern urban community. More must be done, however, to demonstrate the economic benefits of a streetcar system as a catalyst for new private downtown investment. Nov 1, 2012 10:03 AM</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>I live in Ardmore and work at City Hall. I could catch the streetcar/bus at the hospital and get off downtown or at PTRP, depending on the stop. I think you should think about other densely populated neighborhoods for stops if this program is successful. Nov 1, 2012 6:41 AM</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>This is great for people downtown but all of us in the surrounding rural areas still need safe routes to downtown via things like GREENWAYS! Nov 1, 2012 5:54 AM</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Streetcar is better and cheaper to operate. However, requires more initial investmetns! Good luck! Nov 1, 2012 5:36 AM</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Streetcar is fixed infrastructure and much more likely to enhance development and long-term, regular ridership along its route. Nov 1, 2012 5:21 AM</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>What would the &quot;enhanced bus&quot; or streetcar give us today that traditional green buses cannot? What additional traffic would be generated with the new vehicles? My assumption is that the majority of people drive to/from downtown from their remote houses and that the new service would be more of a cost than an benefit. At what cost would these new vehicles provide service over what we have today? I see the buses as more of a convenience between WFB and the PTRP during business hours and possibly from a parking garage to a ballgame. Without having more information on the benefits of the bus/rail, it's tough to determine. Nov 1, 2012 4:18 AM</td>
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<tr>
<td>Q9. Additional Comments (OPTIONAL):</td>
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<td>-------------------------------------</td>
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<td><strong>58</strong></td>
<td>This project is not appropriate nor anywhere within reasonable beneficial for the community. It benefits one tiny segment of the community and serves no useful purpose considering we have a bus system already. Use and WFU -Baptist can pay for it, but no city, no county, no state, no federal never ever should be used nor build a competing system other than the community bus system.</td>
<td>Oct 31, 2012 5:41 PM</td>
</tr>
<tr>
<td><strong>59</strong></td>
<td>I think a streetcar would need to go farther than Baptist Hospital and connect downtown to the commercial development along Stratford Rd, perhaps going through the edge of the Ardmore neighborhood along the way.</td>
<td>Oct 31, 2012 12:54 PM</td>
</tr>
<tr>
<td><strong>60</strong></td>
<td>I think it should be on 5th Street and not go through the heart of 4th Street.</td>
<td>Oct 31, 2012 12:22 PM</td>
</tr>
<tr>
<td><strong>61</strong></td>
<td>I live near the hospital, so I could take to work everyday and to downtown restaurants and entertainment on the weekends.</td>
<td>Oct 31, 2012 12:20 PM</td>
</tr>
<tr>
<td><strong>62</strong></td>
<td>Streetcar technology will help accelerate development and economic growth downtown, in the ballpark area and in PTPR.</td>
<td>Oct 31, 2012 12:13 PM</td>
</tr>
<tr>
<td><strong>63</strong></td>
<td>I am happy we are looking into this ahead of the progressive growth we expect to see in our downtown area.</td>
<td>Oct 31, 2012 12:10 PM</td>
</tr>
<tr>
<td><strong>64</strong></td>
<td>Sounds like a waste of money. We cannot afford a trolly system. It is very unlikely that these systems would pay for themselves.</td>
<td>Oct 31, 2012 12:09 PM</td>
</tr>
<tr>
<td><strong>65</strong></td>
<td>In times of restraint, let's not spend tax dollars on something that will cost us more.</td>
<td>Oct 31, 2012 11:58 AM</td>
</tr>
<tr>
<td><strong>66</strong></td>
<td>Stops at BB&amp;T ballpark and downtown restaurants/bars would be a HUGE plus!</td>
<td>Oct 31, 2012 5:58 AM</td>
</tr>
<tr>
<td><strong>67</strong></td>
<td>I think if parking were a major problem downtown and/or WS was a bigger city, I would be inclined to use a streetcar. I like the idea, just don't think I need the transportation at this time. I can walk everywhere I need to go by parking at my office</td>
<td>Oct 31, 2012 5:50 AM</td>
</tr>
<tr>
<td><strong>68</strong></td>
<td>i would use for all games to BBT Ballpark</td>
<td>Oct 31, 2012 5:41 AM</td>
</tr>
</tbody>
</table>
APPENDIX E:
FACT SHEETS
APPENDIX E1:

FACT SHEET #1
FACT SHEET #1

The City of Winston-Salem is considering the possibility of implementing an “urban circulator” that would connect the downtown area with surrounding neighborhoods and the larger Triad region. Below are some quick facts about what the circulator could look like and how it would provide service.

What It Could Look Like

- Rubber-tire bus or rail vehicles
- An old-fashioned trolley or streetcar
- A more modern-looking, slick vehicle
- Color scheme would be compatible with WSTA or other destination characteristics
- Air-conditioned
- Wheelchair-accessible

How It Would Work

- Would travel on same streets as automobiles, sharing travel lanes
- Route would be relatively short, with a high frequency of service
- Would obey same traffic signals and speed limits as automobiles
- Circulator stops would be located approximately every 2-3 blocks at high demand destinations and/or businesses
- Would also have stops at locations that would spur economic development
- Could potentially utilize historic Union Station in east Winston
APPENDIX E2:

GLOSSY DOC
TRANSPORT IS PART OF THE VISION

A multi-modal transportation system is a key part of the City’s vision for economic growth and environmental sustainability. The Winston-Salem Urban Circulator ties together a variety of ongoing public and private initiatives targeted to advancing the economic health and vitality of our community.

Building upon the 2006 Streetcar Feasibility Study, this Alternatives Analysis will further investigate opportunities to implement enhanced transit service (streetcar or bus) in downtown and surrounding neighborhoods. This study will consider a 3-mile corridor that extends east to west through downtown Winston-Salem and surrounding neighborhoods, from Wake Forest Baptist Medical Center through downtown to Winston-Salem State University. Previous studies identified this corridor as having the most activity centers and underutilized areas where development can be spurred. A north-south route connecting Wake Forest University, downtown, and the UNC School of the Arts has been identified as a longer-term goal. The study will result in a decision on the preferred transit route and technology for the initial corridor.

THE VISION FOR WINSTON-SALEM

The Legacy Comprehensive Plan is a guide for shaping the future of Winston-Salem and Forsyth County. The Legacy Plan was adopted in 2001 and is currently being updated. A diverse group of citizens participated in the planning process to establish a vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

This local vision is supported by planning efforts at the regional, state, and national levels. These cooperative efforts to plan for housing, transportation and infrastructure investments will improve living choices and accessibility for people, while protecting the environment and helping ensure a sustainable future.

In order to accommodate 120,000 new people and 66,000 jobs over the next twenty years, we need a new paradigm, the recognition that one of the major purposes of our transportation system is to move people as well as vehicles. We need to have an integrated, multi-modal, sustainably-designed transportation system that offers choices among modes.

- Legacy 2030 Update
**WHY IS AN URBAN CIRCULATOR NEEDED?**

The Urban Circulator supports the city’s vision for growth by **enhancing economic competitiveness** and **increasing mobility options** in the urban core. As such, these themes are the framework for project goals.

### PROJECT GOALS

<table>
<thead>
<tr>
<th>Enhance Economic Competitiveness</th>
<th>Increase Mobility Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Focus development and coordinate investments to maximize economic return and minimize sprawl</td>
<td>• Connect key destinations in urban core</td>
</tr>
<tr>
<td>• Encourage a mixture of uses including equitable and affordable housing</td>
<td>• Connect to local and regional transit to provide the “last mile” of service</td>
</tr>
<tr>
<td>• Protect and enhance the City’s distinct character</td>
<td>• Support existing communities and infrastructure</td>
</tr>
<tr>
<td></td>
<td>• Extend pedestrian connectivity</td>
</tr>
</tbody>
</table>

**ENHANCE ECONOMIC COMPETITIVENESS**

Winston-Salem is seeking a competitive edge for economic development, aiming to increase downtown densities, encourage new investment, and attract jobs. As part of a comprehensive development strategy, transit helps to focus growth in a sustainable, fiscally-responsible manner.

The city is ripe for this type of focused growth, and roughly 200 acres in downtown are being reclaimed to develop a new bio-medical campus known as Piedmont Triad Research Park. A wide range of employment, housing, and other uses are planned for the park and surrounding downtown area. Premium transit service would make the area more attractive to developers, helping to accelerate and focus growth.

**INCREASE MOBILITY OPTIONS**

An Urban Circulator could be a viable transit service circulating people to places within downtown and surrounding neighborhoods, supporting city efforts to develop downtown as a more vibrant and successful urban center. This transit service could connect:

- More than 11,000 Baptist Medical Center employees;
- An additional 20,000 employees and over 2,000 residents throughout greater downtown;
- Nearly 6,500 students attending Winston-Salem State University;
- Planned 6.1 million gross square feet of redevelopment space at Piedmont Triad Research Park;
- Downtown – regional business and arts center, home to special events venues;
- The Transportation Center, serving nearly 11,000 passengers per day; and
- Union Station, which is the planned destination for future commuter and intercity rail.

An Urban Circulator is not intended to be a regional transportation solution, but will instead function as a local mobility tool linking destinations within the central core of Winston-Salem. However, it also enhances regional connectivity as the “last mile of service” linking neighboring communities and regional transit services.
CONSIDERING BUS AND RAIL OPTIONS

Streetcars were specifically identified in the City’s *Downtown Plan* as a desired part of Winston-Salem’s transportation network. Both bus and rail technologies provide mobility benefits, but streetcars provide economic development and place-making benefits that have not been demonstrated with traditional buses. Existing streetcar lines in places such as Portland, OR; Tampa, FL; Little Rock, AR; Seattle, WA; and Kenosha, WI have proven that the certainty and “readability” of a fixed rail transit line makes them attractive to both customers and developers, supporting a vibrant urban environment. Urban Circulators complement other transit modes and can be an important part of an overall development and mobility strategy that integrates a variety of transit services.

Winston-Salem is now comparing the merits of streetcars and buses to identify the best way to shape the community by **enhancing economic competitiveness** and **increasing mobility options** as part of the overall effort to **grow smarter and better by managing future development**.

CONSIDERING ROUTE OPTIONS

Various transit route options have been identified based on the project goals, identified transit needs within the urban core, and public and stakeholder suggestions. Route options reflect current directional designations on one-way streets, although these designations may be re-evaluated in the future.

Access to Piedmont Triad Research Park (PTRP) could be provided by:
- 3rd St. at-grade railroad crossing;
- 4th St. at-grade railroad crossing; or
- 5th St. railroad underpass.

To access Union Station consideration will be given to:
- Access along or through PTRP to Rams Dr.; and
- 5th St to Martin Luther King Jr. Dr.

A couplet using 2nd St. and 4th St. is not effective due to the distance between the streets.

Through downtown, the following will be analyzed:
- 1st St. and 2nd St. operating as a two-way couplet;
- 4th St. and 5th St. operating as a two-way couplet; and
- 4th St. or 5th St. operating independently, with multiple possible connections between the pair.
GET INVOLVED!
Your feedback is needed to help us advance transit in central Winston-Salem. Please visit our website for up-to-date information on study progress, upcoming meetings, and other important information.

CASE STUDY: PORTLAND STREETCAR
- Rail-based streetcar travels in mixed traffic over a 4-mile route; original 2.4-mile route has been extended three times
- Fares same as local transit agency; “free rail zone” covers a portion of the route
- Service every 13 minutes between 5:30AM and 11:30PM most days (less frequent service during early and late hours)
- Has helped to stimulate $3.5 billion in new development (5 million square feet including 10,000 housing units)
- Density has increased over 40%
- Estimated to prevent 70 million miles of vehicle travel annually
- Spurred new streetcar manufacturing industry based locally

CASE STUDY: ORLANDO LYMMO
- Bus-based circulator travels in a dedicated lane and controls its own stoplights on 3-mile loop through downtown
- Connects to transit center and major downtown destinations
- Free service every 5-10 minutes
- Operates 6AM–10PM; extended hours until midnight on weekends
- System developed to allow people to “park once” and use transit to reach destinations
- Ridership increased dramatically after implementing enhancements such as a dedicated lane
- Cited as part of a larger redevelopment strategy for downtown

STUDY TIMELINE

ROUTE AND VEHICLE OPTIONS
- Spring 2012
- Summer 2012
- Fall 2012
- Winter 2012

ROUTE SELECTION
- Select a Route
- Select a Technology
- Refine Route

TECHNOLOGY SELECTION / ROUTE REFINEMENT
- Review and Adoption

LOCALLY PREFERRED ALTERNATIVE

FOR MORE INFORMATION VISIT WWW.WINSTONSALEMCIRCULATOR.COM
APPENDIX E3:

FACT SHEET #2
FACT SHEET #2

STUDY VISION AND GOALS

The vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development was established by the Legacy Comprehensive Plan. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

Winston-Salem is now comparing the merits of streetcars and buses to identify the best way to shape the community by enhancing economic competitiveness and increasing mobility options as part of the overall effort to grow smarter and better by managing future development.

SUMMARY OF INITIAL SCREENING

A range of route options through downtown Winston-Salem have been evaluated for their ability to meet the study’s goals. After hearing stakeholder feedback and reviewing the performance of each option, the refined route corridor shown on the back of this sheet has emerged as the most viable option, because it:

- Provides the best access to key attractions and advance the goals of the Legacy Comprehensive Plan;
- Provides an opportunity to complement existing bus service and to connect to the Transportation Center;
- Has great potential for development, accesses to undeveloped land throughout PTRP and underdeveloped areas with zoning that allows for increased density and a mixture of uses;
- Allows for good connectivity for future north-south extensions;
- Has the lowest potential for impact to historic neighborhoods.

In summary, the general corridor best connects existing businesses, cultural destinations and neighborhoods, while promoting future development and economic growth in desired areas. The corridor will now be further refined through more detailed analysis.

NEXT STEPS

Refine Options

- Perform ridership modeling to determine the potential users for streetcar or bus
- Evaluate traffic and parking impacts along the selected route

Conceptual Engineering

- Better define exact streets and station stop locations for the final alignment
- Find a suitable location for a potential vehicle maintenance facility
- Assess bridges and structures along the route for suitability
- Develop a more refined cost estimate

Financial Strategy

- Estimate the potential economic development impact of a transit investment
- Examine potential federal, state, local and private funding sources for construction and operations

October 2012

www.WinstonSalemCirculator.com
REFINING THE CORRIDOR

The corridor that has emerged is approximately 3 miles long and extends east to west through downtown Winston-Salem and surrounding neighborhoods, from Wake Forest Baptist Medical Center through downtown to Winston-Salem State University. Both streetcar and enhanced bus transit will be studied along this corridor. The route is being further refined in three locations:

- Determine the most appropriate alignment to service the BB&T Ballpark and Burke Street
- Identify the most favorable route alignment through downtown along 4th St., 5th St. or some combination of both
- Determine the best route alignment through PTRP

STUDY TIMELINE

- April 2012: Select a Route
- Summer 2012: Select a Technology
- Fall 2012: Refine Route
- Winter 2012/2013: Review and Adoption

- Initial Screening
- Stakeholder Input
- Conceptual Engineering
- Ridership Estimates
- Public Input

ROUTE AND VEHICLE OPTIONS

ROUTE SELECTION

TECHNOLOGY SELECTION / ROUTE REFINEMENT

LOCALLY PREFERRED ALTERNATIVE

October 2012
www.WinstonSalemCirculator.com
APPENDIX E4:

FACT SHEET #3
FACT SHEET #3 - ROUTE ALTERNATIVES

West End Alternatives

Two-way on Burke St.

Couplet using Burke St. and 1st / Peters Creek / Broad

Downtown Alternatives

EB via Broad / WB via Spruce

EB via Spruce / WB via Spruce

PTRP Alternatives

5th St / Research Park Blvd

Patterson / 4th St / Research Park Blvd

Patterson / 3rd St / Research Park Blvd

5th St / Patterson / 4th St / Research Park Blvd

5th St / Patterson / 3rd St / Research Park Blvd

December 2012

www.WinstonSalemCirculator.com
APPENDIX E5:

FACT SHEET #4
FACT SHEET #4

STUDY VISION AND GOALS
The vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development was established by the Legacy Comprehensive Plan. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

Winston-Salem is now comparing the merits of streetcars and enhanced buses to identify the best way to shape the community by enhancing economic competitiveness and increasing mobility options as part of the overall effort to grow smarter and better by managing future development.

“SELECTED” ROUTE

A 3.3-mile route would connect our major activity centers, improve transit and mobility, encourage development, and support future growth.

PROPOSED OPERATING PLAN

Hours of Service and Frequency (in minutes)

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday-Wednesday</th>
<th>Thursday-Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>5AM</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>7AM</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>9AM</td>
<td>10</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>11AM</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>1PM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3PM</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5PM</td>
<td></td>
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<tr>
<td>7PM</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>9PM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11PM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

www.WinstonSalemCirculator.com
TRANSPORT OPTIONS

STREETCAR

CHARACTERISTICS
- Uses rails embedded in the street
- Operates with automobiles in shared traffic lane
- Provides connections within a compact urban setting, not across a region
- Not intended for long-distance, high-speed travel
- Support neighborhoods as “walk extenders”
- Serves as district circulator and pedestrian accelerator
- Accelerates economic development and creates more livable, desirable places

POWER
- Powered by single wire above guideway
- Support poles placed every 120 feet
- Poles can be decorative or it may be possible to use existing poles

Portland opened the country’s first modern streetcar in 2001.

ENHANCED BUS

CHARACTERISTICS
- Upgrades local bus service by providing sleeker vehicles, substantial stations, unique branding, and other passenger amenities
- Operates with automobiles in shared traffic lane
- Can operate as urban circulator or regional connector
- Oriented more toward enhancing mobility options rather than accelerating economic development
- Has proven successful in attracting riders who would not otherwise use transit

POWER
- Powered by engine on bus
- Many enhanced buses are hybrid-electric
- No overhead infrastructure

The SWIFT bus rapid transit line in suburban Seattle uses distinct stations, upgraded buses, and branding to attract customers.

The streetcar project is anticipated to create **12,500 new jobs**, and spur **3,750+ housing units** and an additional **500,000 square feet of commercial space** (above the 2 million square foot baseline).

One-time cost: **$113 million**
Annual operating costs: **$3.4 million**
Streetcar ridership anticipated to be nearly **1,600 riders** per weekday in operating year 2017.

The enhanced bus project is anticipated to be similar to the do nothing scenario. The city is expected to see **8,000 to 10,000 new jobs**, **1,250 housing units** and **2 million square feet of commercial space**.

One-time cost: **$64 million**
Annual operating costs: **$1.5 million**
Enhanced bus ridership anticipated to be approximately **1,320 riders** per weekday in operating year 2017.
DEVELOPMENT BENEFITS OF STREETCAR

DEVELOPMENT TRANSLATES INTO INCREASED PROPERTY VALUES AND JOBS

WHAT HAS BEEN THE ECONOMIC IMPACT OF STREETCAR IN OTHER CITIES?

<table>
<thead>
<tr>
<th>City</th>
<th>Streetcar Infrastructure Cost</th>
<th>Development Investment along Route</th>
<th>Return on Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>$103.2 million</td>
<td>$3.5 billion</td>
<td>34 : 1</td>
</tr>
<tr>
<td>Little Rock, AR</td>
<td>$28 million</td>
<td>$400 million</td>
<td>14 : 1</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>$48.3 million</td>
<td>$1 billion</td>
<td>21 : 1</td>
</tr>
<tr>
<td>Kenosha, WI</td>
<td>$5.2 million</td>
<td>$150 million</td>
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</tr>
<tr>
<td>Memphis, TN</td>
<td>$104.3 million</td>
<td>$2 billion</td>
<td>19 : 1</td>
</tr>
</tbody>
</table>

WINSTON-SALEM’S DOWNTOWN COMPARES TO OTHER “STREETCAR CITIES”

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Employment</th>
<th>University Enrollment</th>
<th>Hotel Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winston-Salem*</td>
<td>8,918</td>
<td>20,000</td>
<td>6,442</td>
<td>828</td>
</tr>
<tr>
<td>Little Rock</td>
<td>1,942</td>
<td>21,323</td>
<td>0</td>
<td>1,896</td>
</tr>
<tr>
<td>Portland</td>
<td>20,564</td>
<td>110,684</td>
<td>16,781</td>
<td>3,910</td>
</tr>
<tr>
<td>Seattle</td>
<td>6,031</td>
<td>22,411</td>
<td>800</td>
<td>1,453</td>
</tr>
<tr>
<td>Tacoma</td>
<td>2,836</td>
<td>13,296</td>
<td>2,001</td>
<td>641</td>
</tr>
<tr>
<td>Tampa</td>
<td>1,603</td>
<td>10,358</td>
<td>1,125</td>
<td>1,328</td>
</tr>
</tbody>
</table>

Streetcar is projected to produce 12,500 new jobs in the City over 20 years, which is almost as many as currently employed by Wake Forest Baptist Medical Center.

More than 3,750 new households/housing units by 2035, over and above existing units as of 2010 would move into the area, supporting local businesses.

Nearly 500,000 square feet of new commercial development is expected to be generated by streetcar over 20 years.
MEETING THE STUDY GOALS

Enhance Economic Competitiveness

- Focus development and coordinate investments to maximize economic return and minimize sprawl
- Encourage a mixture of uses including equitable and affordable housing
- Protect and enhance the City’s distinct character

Increase Mobility Options

- Connect key destinations in urban core
- Connect to local and regional transit to provide the “last mile” of service
- Support existing communities and infrastructure
- Extend pedestrian connectivity

ECONOMIC DEVELOPMENT IS A DESIRED PROJECT OUTCOME

<table>
<thead>
<tr>
<th>Circulator Mode</th>
<th>Additional Housing Units</th>
<th>Additional Commercial Square Footage</th>
<th>Additional Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1,250</td>
<td>2 million square feet</td>
<td>8,000 - 10,000 jobs</td>
</tr>
<tr>
<td>Enhanced Bus</td>
<td>1,250</td>
<td>2 million square feet</td>
<td>8,000 - 10,000 jobs</td>
</tr>
<tr>
<td>Streetcar</td>
<td>Up to 3,750</td>
<td>Up to 2.5 million square feet + boost in PTRP</td>
<td>10,000 - 12,500 jobs + boost in PTRP</td>
</tr>
</tbody>
</table>

Streetcar tracks are viewed as permanent investment and more likely to attract development:
- Comfortable ride
- High-quality stations
- Improved sense of place
- Attractive vehicles

Enhanced bus can include a variety of infrastructure elements; development impacts increase as the level of investment increases.

ROUTE MUST CONNECT KEY DESTINATIONS AND SUPPORT EXISTING COMMUNITIES

- Many key destinations are within a 5 minute walk of the route
- Direct access to the Transportation Center provides a connection to WSTA and PART
- The circulator route follows an easy-to-understand, “readable” route

Conclusions:

Enhanced Bus | Streetcar
---|---
✅ | ✔

- Streetcar is needed to meet City’s economic development goals

Conclusions:

Enhanced Bus | Streetcar
---|---
✔️ | ✔️

- Both bus and streetcar meet basic mobility goals
- Initial success will support future extensions
APPENDIX E6:

FACT SHEET #5
STUDY VISION AND GOALS

The vision for Winston-Salem and Forsyth County to grow smarter and better by managing future development was established by the Legacy Comprehensive Plan. This vision includes a more balanced, sustainable transportation system, concern for the environment balanced with economic development, and strengthening of downtown as a community focal point.

Winston-Salem is now comparing the merits of streetcars and enhanced buses to identify the best way to shape the community by enhancing economic competitiveness and increasing mobility options as part of the overall effort to grow smarter and better by managing future development.

PROPOSED ROUTE

STREETCAR CHARACTERISTICS

- A 4.0-mile route would connect our major activity centers, improve transit and mobility, encourage development, and support future growth.
- One-time cost: $179 million (at full build-out)
- Annual operating costs: $4.3 million
- Expected to serve nearly 2,250 riders per weekday in operating year 2017.
- Anticipated to create 13,000 new jobs, and spur 4,000 housing units and an additional 600,000 square feet of commercial space (above the 2 million square foot baseline).
WHAT HAS BEEN THE ECONOMIC IMPACT OF STREETCAR IN OTHER CITIES?

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</tr>
</tbody>
</table>

DEVELOPMENT TRANS输TENS INTO INCREASED PROPERTY VALUES AND JOBS

Streetcar is expected to spur economic development, including an additional:
- 13,000 new jobs;
- 4,000 housing units; and
- 600,000 square feet of commercial space.

These numbers are in addition to possible development and employment gains expected with Innovation Quarter (formerly known as PTRP) alone.

LEGEND

Urban Circulator Alignment
Development Influence Zone
Development Potential

PROPOSED OPERATING PLAN
Hours of Service and Frequency (in minutes)

Monday Wednesday
7AM 10AM 11AM 1PM 3PM 5PM 7PM 9PM 11PM
Thursday-Friday
Saturday

Portland’s Pearl District
Before Streetcar
After Streetcar