



## Service Design Guidelines January 18, 2011

### SERVICE TYPES

- Local routes
  - Radial to downtown Raleigh
  - Crosstowns elsewhere
- Commuter routes
  - CAT expresses
  - TTA routes
- Neighborhood/Small Town Connectors
  - Includes C-Tran routes
- Activity Center Specials
  - R-Line
  - Most Wolfline routes
- General Public Demand Response
- Special Event Service

### CAPITAL ITEMS

- Transit Centers
- Park & Ride Lots
- Transit Priority Improvements
  - Primarily for commuter routes
  - Full BRT, i.e. dedicated lanes, are not being recommended
- Transit Emphasis Corridors
  - Major local transit corridors
- Streetside Amenities
  - Benches/shelters at heavily used stops
  - Additional sidewalks
  - Special downtown shelters; bulb-outs
  - New bus stop signs
- Buses
  - Different buses for different service types
- Maintenance Facility capacity
  - One maintenance bay for every 10-15 buses
  - Maximum facility size of 200-250 buses
- Replacements and refurbishment of facilities
  - 10-year cycle



- ITS items
  - Real time bus displays
  - Internet/smart phone applications
  - Mobile data terminals, automatic passenger counters
- Potential items
  - Streetcars
  - Automated People Movers (RDU, NCSU)
  - New transit roadway connections

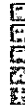
## OTHER ITEMS

- Marketing
  - 5% of operating expenses for emphasis campaign
  - 3% annual sustaining program
  - New branding campaign for CAT
- General service level reasonableness test
  - Typical urbanized area in 2000 with 500,000-1,000,000 population offered 0.83 annual revenue hours per capita; top 20% offered 1.03
  - For Wake County's estimated 920,000 residents in 2010, equates to 770,000 annual hours at average; 950,000 at top 20%
  - Areas over 1 million offered about 50% more service

## SERVICE GUIDELINES

### Local

- All local routes have headways decreased to at most 30 minutes peak, hourly midday
- Targeted performance level is 25 passengers/hour
- Headway decreased to 15 minutes if targeted passenger/hour can be met
  - Headways of 60, 30, or 15 minutes preferred to promote transferring (no 20-minutes); if headway less than 15 minutes, timing is not required
- All local routes have span of service increased to at least 14 hours weekdays
- Separate off-hour routes merged into principal routes
  - Principal routes can be modified to have turnbacks
- Routes operate on major thoroughfares with few deviations
  - Routes can/should deviate up to half-mile (5 minutes round trip) to access transit center/P&R lot; in select cases, up to 1 mile allowed
- Ideally routes are anchored on both ends by major transit location
- Located along densely populated (residential and employment) corridors
- Spacing should be no closer than half-mile except on approach to major transit locations
- One-way route length should not exceed 1 hour



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## Neighborhood

- Neighborhood routes serve smaller areas, such as sections of a city or small towns
- All neighborhood routes have headways decreased to at most 30 minutes peak, hourly midday
- Targeted performance level is 12 passengers/hour
- All neighborhood routes have span of service increased to at least 14 hours weekdays
- Routes can deviate off major thoroughfares
- Should not be used as connectors to major locations; better to extend local route
- Large, one way loops should be avoided
- One-way route length should not exceed 30 minutes

## Commuter

- All commuter routes have headways decreased to 15 minutes peak; midday service on a case-by-case basis
- Selected commuter extension routes may operate with 30 minute headways
- All commuter routes have span of service increased to at least 6 hours weekdays
- Routes converted to a point-to-point operation; operate non-stop to downtown or RTP except for
  - Routes approaching downtown from east stop at Wake Med en route
  - Routes approaching downtown from west stop at NCSU en route
  - Other major locations can be considered if parking is limited or has a fee
- Target 18 passengers/hour
- Fewer, larger lots is preferred over many, small lots

## Activity Center Specials

- Headway decreased to <10 minutes in both directions
- Distinctive buses used
- May be warranted in areas outside of downtown
- Target 25 passengers/hour weekdays
- One-way route length should be less than 30 minutes (20 minute preferable)

## Weekend

- Local Routes (radial & crosstown)
  - Targeted for 20 passengers/hour Saturday, and 15 passengers/hour Sunday
  - Typical local route carries 56% of weekday ridership on Saturday, 32% on Sunday
  - Existing Saturday service maintained if passengers/hour exceeds 15; existing Sunday service maintained if passengers/hour exceeds 10.
  - For every bus assigned to a route, 450 weekday passengers warrant Saturday service and Sunday service is warranted when Saturday ridership hits 325.



- Neighborhood routes (connectors, C-Tran, shuttles)
  - Targeted for 10 passengers/hour Saturday and 8 passengers/hour on Sunday
  - Typical neighborhood route carries 63% of weekday ridership on Saturday; 44% on Sunday
  - Existing weekend services maintained due to projected route changes
  - For every bus assigned to a route, 200 weekday passengers warrant Saturday service and Sunday service is warranted when Saturday ridership hits 150.
- Commuter routes (regional, express, park & ride)
  - Targeted for 15 passengers/hour Saturday and 12 passengers/hour Sunday
  - Typical commuter route carries 33% of weekday ridership on Saturday; 28% on Sunday
  - Existing weekend services maintained if Saturday passenger/hour exceeds 10 or Sunday exceeds 8
  - Routes that replicate rail lines targeted for weekend service additions
- Activity Center Specials (R-Line)
  - Maintained due to newness of service
- All routes (other than AC Specials)
  - Minimum span of service is 12 hours
  - Maximum headway is 60 minutes
  - Additional trips added if passenger/hour targets can be met
  - Sunday services are provided on all major holidays (4th of July, Labor Day, Thanksgiving Day, Christmas Day, New Years Day, Memorial Day)
  - Saturday service on lesser holidays (Friday after Thanksgiving, Christmas Eve (unless falls on Sunday), New Years Eve (unless falls on Sunday), MLK Day)

## CAPITAL DESCRIPTIONS

- Transit Centers
  - Locations where 3 or more routes come together
  - May or may not include parking
  - Should be significant statement in community
  - Off-street facility that covers platform and boarding doors; not just shelters on street
  - Should include real-time information
  - Includes operator layover location and restrooms; may include public restrooms
  - Should be spaced 15 to 30 minutes apart (~3-6 miles)
  - Should be 5-10 miles out from CBD
- Park & Ride Lots
  - Purpose-built location, but can be adjacent to shared land uses
  - Includes same passenger amenities as transit center, but focus is mostly for riders arriving via private vehicle
  - Desirable spacing is ~5 miles apart



- To justify 15-minute headway, need ~600 spaces
- Desirable distance from CBD (or RTP) is 10 miles; should be no closer than 5-7 miles
- Transit Priority Improvement
  - Focus is on commuter corridors, but can benefit local routes
  - Does not include dedicated lanes (full BRT), but should include transit signal priority, queue jumpers, bus operation on shoulders (BOS), etc
  - Some corridors may be temporary need until rail is implemented; other corridors may be longer term
  - May overlap with Transit Emphasis Corridors
  - Diamond lanes may be warranted in CBD if buses/hour exceed 30.
- Transit Emphasis Corridors
  - Local service corridors
  - Service offered every 15 minutes peak, 30 minutes midday or more frequently
  - Targeted objective is Small Starts requirement of 10/15 headways & 14-hour span
  - 7 day a week service
  - Sidewalks along length of corridor
  - Benches/shelters at all stops (5-7 stops/mile)
- General Streetside Improvements
  - Shelters at heavily used stops (35 daily boardings, 95<sup>th</sup> percentile; covers 63% of boardings; 72 total stops)
  - Benches at locations where shelters don't fit and where daily boardings > 13 (85<sup>th</sup> percentile; covers 80% of boardings; 159 additional stops)
  - Special benches and shelters installed at all downtown stops
- Buses
  - Standard, low-floor, 40-foot buses on most routes; with improved leg room
  - Smaller, 30-foot buses on neighborhood routes; potentially some cut-a-ways for small towns
  - 45-foot commuter coaches for commuter services including enhance amenities such as power outlets and Wi-Fi
  - Articulated buses not envisioned; better to increase frequency to get capacity (might be warranted on the heaviest routes, including Wolfline)