Service Guidelines and Standards

Revised Summer 2015

Capital Metropolitan Transportation Authority | Austin, Texas

METRO

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INTRODUCTION

Purpose

The Capital Metropolitan Transportation Authority connects people, jobs and communities by providing quality transportation choices. Service guidelines and standards reflect the goals and objectives of the Authority.

Capital Metro Strategic Goals:

1) Provide a Great Customer Experience
2) Improve Business Practices
3) Demonstrate the Value of Public Transportation in an Active Community
4) Be a Regional Leader

Overview

Service guidelines provide a framework for the provision, design, and allocation of service. Service guidelines incorporate transit service planning factors including residential and employment density, land use, activity centers, street characteristics, and demographics. Design criteria include defining service attributes such as route directness, span, frequency, stop spacing, and passenger amenities. Service guidelines are to be used with some flexibility.

Service standards include methodology by which services are evaluated in terms of productivity and cost-effectiveness. Schedule reliability, load factors, and ridership performance help identify high and low performing routes. This methodology is to be applied regularly and rigorously. A series of corrective actions may be taken to address specific issues.

Update

Capital Metro staff will conduct a review of service guidelines and standards regularly in anticipation of each Service Plan Update to ensure alignment with goals, objectives, and resource availability. This allows an opportunity to revise content based on recent experience and best practices.

Service types

Throughout this document, a set of common group names are used to describe similar services. These groups are designed to permit evaluation of a given route relative to the performance of similar routes within the system. This approach avoids the difficulty of comparing routes with fundamentally different designs, purposes, and operating characteristics.

Service classification:

Core services	Route #'s	
Radial	1-99	Local stop service on primary corridors connecting to downtown Austin
Frequent	7, 300, 325, 331	High-frequency, high-ridership Radial or Crosstown routes
Limited/Flyer	101-199	Limited stop service on primary corridors
Feeder	200-299	Local stop service from low-density areas to connecting services
Crosstown	300-399	Local stop service on primary corridors that bypass downtown Austin
MetroRail	500-599	Limited stop commuter rail service
MetroRapid	800-899	High-frequency, limited stop service on primary corridors
Express	900-999	Long-distance limited stop commuter service
Special services	Route #'s	
MetroAirport	100	Limited stop service from downtown to Austin-Bergstrom Int'l. Airport
Ebus	410-419	Late-night/early morning safe ride service from entertainment district
Rail Connector	460-469	Service between rail stations and areas of employment or activity
Night Owl	480-489	Late night/early morning service on primary corridors
Senior	490-499	Midday service between senior housing and shopping and medical
UT Shuttle	600-699	Local and limited stop services between and within areas with dense UT population and the University of Texas campus

Services not covered in this document:

- Access-a-Ride - On-demand taxi service for Capital MetroAccess customers
- Rideshare - Carpool and vanpool service for registered customers
- Guaranteed Ride Home - Emergency taxi service for registered customers
- MetroAccess - Demand-responsive paratransit service complementary to fixed-route service provided in accordance with the Americans with Disabilities Act

SERVICE GUIDELINES

This section of the document includes guidelines for service design and allocation at the route and system level. Service guidelines are also utilized for the evaluation of potential service. The following guidelines outline basic concepts of where transit will work most efficiently and effectively when applied generally to the urban environment; however, situational deviations from these guidelines will likely occur when and where analysis and expert consensus deem necessary or logical.

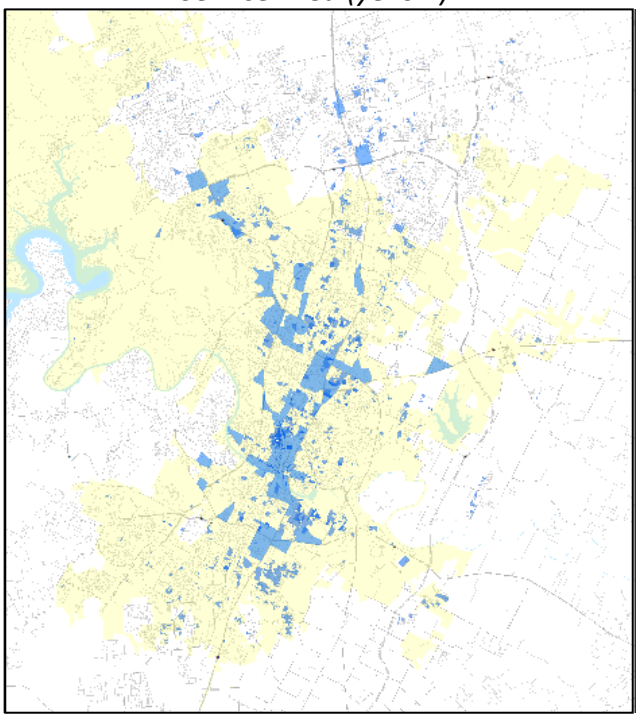
Density and service coverage

Residential and employment density are primary influences on transit demand. Service coverage guidelines reflect industry standards for minimum density needed to support cost-effective transit service.

Contiguous areas of the following densities are deemed transit supportive and should be prioritized for transit service within walking distance (¼ mile):

- Residential densities of 16 persons per acre or
- Employment densities of 8 employees per acre

Areas with transit supportive residential and/or employment densities (blue) and Capital Metro Service Area (yellow).



(Data from 2010 Census, 2007 CAMPO Employment Data Survey, and 2015 CMTA Service Area)

Land use

Transit demand is also heavily influenced by land use. Some land use patterns are more transit supportive than others. Mixed use, commercial, institutional, and high-density residential land uses are typically favorable. Low-density residential and industrial land use types are less likely to generate sufficient ridership to maintain cost-effective services.

Destinations and activity centers

Capital Metro should strive to serve multiple destinations. The strongest transit destinations include intense, all-day activity. Activity centers may be suitable for several transit services, depending upon ridership demand. Transit activity centers include major destinations and transit attractions such as large employment sites, educational institutions and universities, significant healthcare institutions and major social service agencies.

Areas with high residential densities should have direct transit service to appropriate destinations (e.g. Downtown Austin, the University of Texas, Austin Community College campuses, transit centers, and major retail centers).

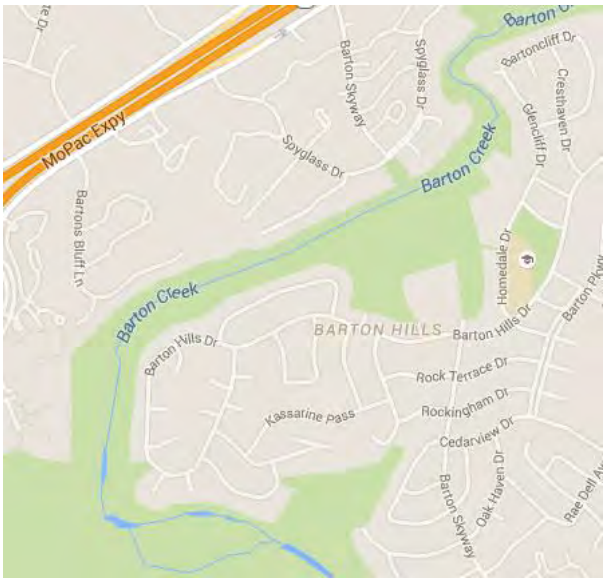
Commuter services, such as express bus, may be provided between park and ride facilities and major employment or activity centers, such as downtown Austin and the University of Texas. These services should operate primarily on highways with a limited number of stops to minimize travel time. If possible, these routes should take advantage of managed express lanes on highways in order to expedite service.

Street and sidewalk characteristics

Street and sidewalk characteristics are another important consideration, even in areas of high residential and employment density. Areas that have interconnected streets have a higher potential for transit use than areas that have fewer streets or have barriers to movement, like natural features or private property lines. Frontage roads tend to be unconducive to providing safe and effective transit service due to high vehicle travel speeds and lack of pedestrian safety infrastructure and amenities. Limitations in street network connectivity, poor pedestrian access, physical barriers, or any other conditions may make operating transit unsafe or unfeasible. Capital Metro shall partner with appropriate entities to improve pedestrian and bicycle access to proposed or existing service.

Well-connected street network

Poorly-connected street network



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Demographic and socioeconomic characteristics

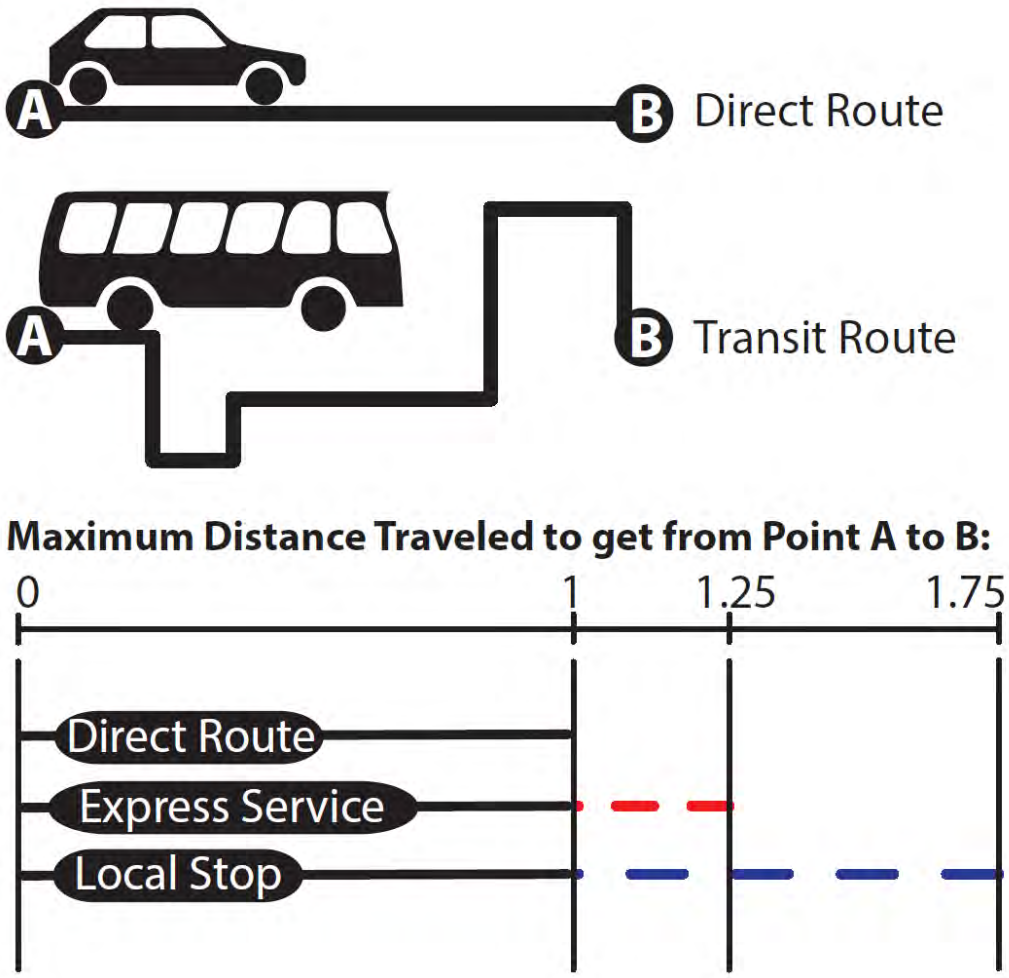
Many Capital Metro riders rely on transit as their lifeline to employment, educational opportunities, medical facilities, shopping, and other activities.

Capital Metro should pay particularly close attention to areas with the following characteristics *(see Appendix A for maps depicting these areas):*

- Households without access to an automobile exceeding 10% of total population
- Elderly population (65 years of age and older) exceeding 10% of total population
- Children/youth population (under 18 years of age) exceeding 25% of total population
- Average household income below 50% of regional median income

Route directness

Routes should be designed to operate as directly as possible to minimize travel time while maintaining access to key destinations. Bus routes should operate on arterial streets or transit lanes to maximize customer access and minimize impacts to adjacent land uses.

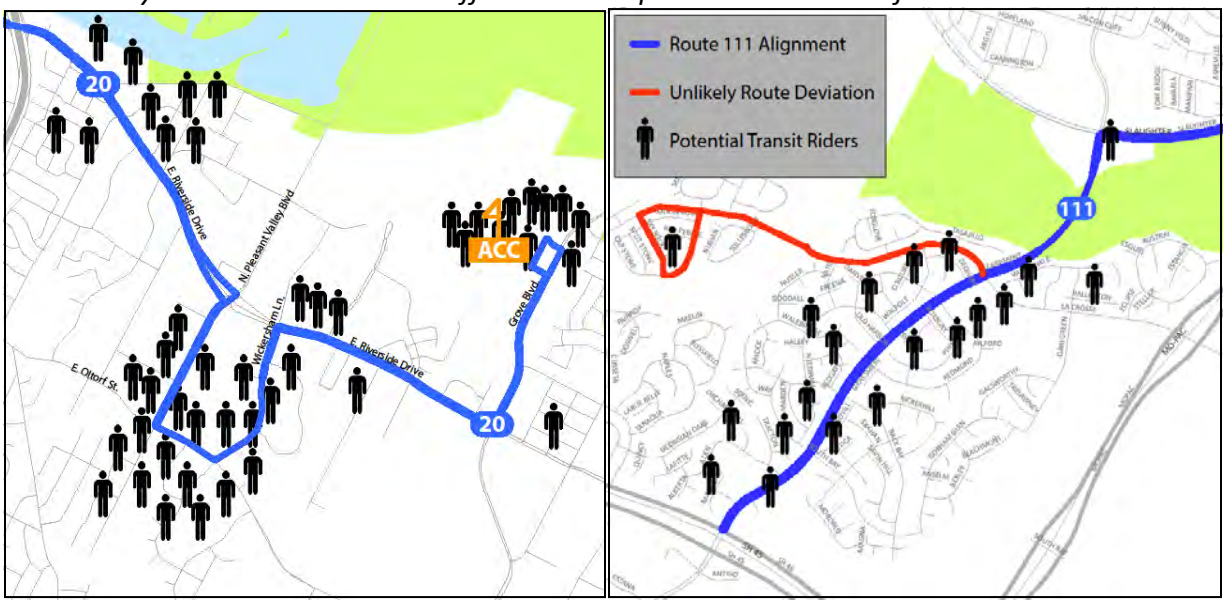


The distance between terminal points for local stop services should not exceed 175% of the shortest possible driving distance by automobile. The distance between terminal points for limited stop services should not exceed 125% of the shortest possible driving distance by automobile. Routes that exceed these guidelines should be evaluated to determine if more direct routings are possible. Some routes may exceed this standard when a selected path provides travel time advantages over a more direct routing.

Route deviation

Deviations off the primary alignment of a fixed route should be minimized whenever possible. However, routes may deviate off their primary alignment to serve major activity centers or provide coverage to areas with limited access. The additional time necessary for the deviation should not exceed five minutes, or 10% of the one-way travel time of the existing route without deviation. Deviations should result in an overall ridership increase. Routes should also strive to utilize existing transit prioritization infrastructure (e.g. transit-only lanes, corridors with transit signal priority, etc.).

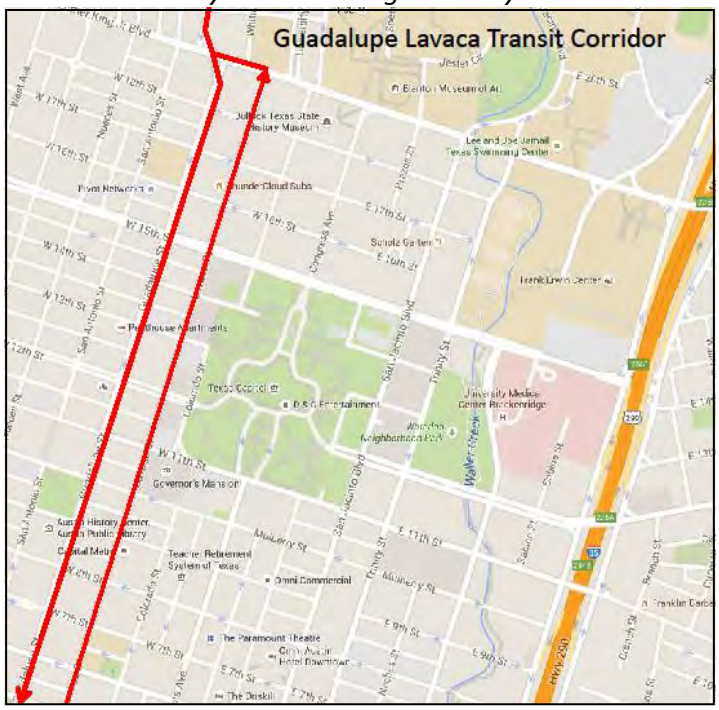
Ridership supports the route deviation of Route 20 (left), but deviating Route 111 (right) would likely not result in the most efficient and equitable allocation of transit resources.



Two-way service

Services should be designed to operate in two directions on the same street whenever possible in order to minimize passenger confusion and maximize service effectiveness. However, due to one-way street configurations, it may be necessary to operate a route on parallel streets. In such cases, efforts should be made to allow no more than a two block separation.

Two-way service along one-way streets



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Branching and short-turns

Routes should branch no more than once when serving areas of lower ridership potential. Vehicles along the trunk portion of the route should alternate branches. Branch portions of routes are subject to meeting all service guidelines such as minimum frequency and directness.

Routes may also include up to one short-turn, where some vehicles travel the entire length of the route and others turn around at a selected point. This treatment will be considered when routes experience a significant drop in demand at a certain point.

Route spacing

Parallel routes operating closely together have the potential to split service demand. Appropriate route spacing requires a tradeoff between walking distance and service frequency. The guideline for route spacing in areas outside downtown Austin is ½ mile. Special conditions may exist that require routes to operate within closer proximity such as terrain or barriers.

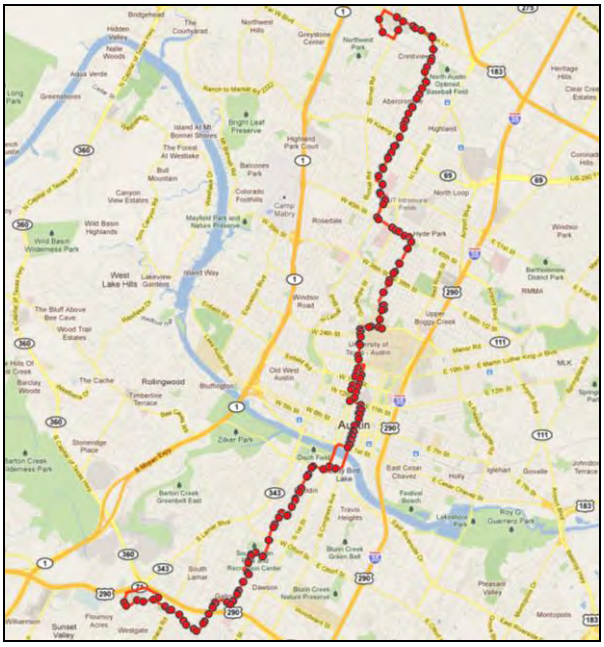
Route length

Routes should be the appropriate length to maximize ridership potential and minimize operational issues. Two routes serving different parts of the service area with a shared terminus, such as downtown Austin or a transit center may be linked together as one route in order to operate more cost-effectively. The two routes involved should be listed as a single route.

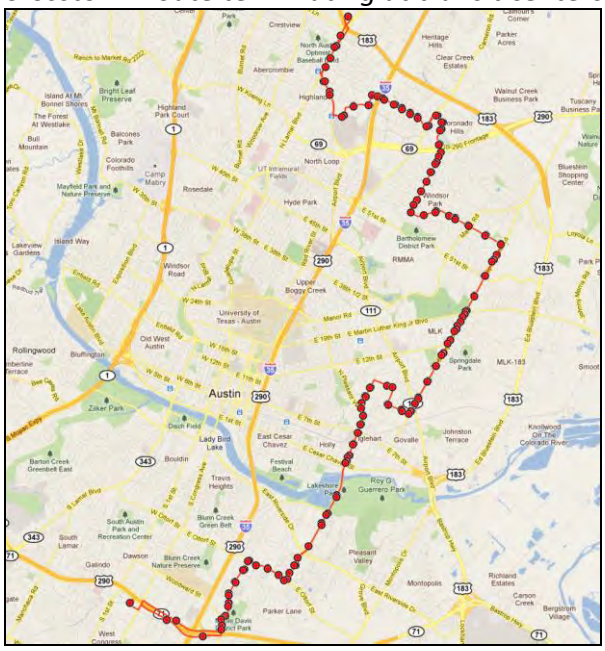
Route terminals

Designated route terminals shall ideally be considered at transit facilities, park and ride facilities, or activity centers. When such a facility does not exist, locations shall be reviewed for consideration based on safety, security, operator restroom availability, and impacts on adjacent land uses.

Radial routes linked in Downtown Austin



Crosstown route terminating at transit centers



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Service span

Service span refers to the hours that service is available. Service span guidelines vary by route type. Routes with high ridership activity may operate over a broader span of service.
Desired minimum service span:

Route type	Weekday	Saturday	Sunday
Radial	6am – 10pm	7am – 10pm	8am – 8pm
Frequent	6am – 10pm	6am-10pm	7am-9pm
Limited/Flyer	6am – 8am, 5pm – 7pm	Based on demand	Based on demand
Feeder	7am – 8pm	Based on demand	Based on demand
Crosstown	6am – 10pm	7am – 9pm	8am – 8pm
MetroRail	6am – 6pm	4pm – 11pm	N/A
MetroRapid	5am – Midnight	6am – Midnight	7am – Midnight
Express	6am – 8am, 4pm – 6pm	N/A	N/A
MetroAirport	6am - 11pm	6am - 11pm	8am – 11pm
Night Owl	Tu.-Fri. 12am – 3am	12am – 3am	12am – 3am
UT Shuttle	7am – 11pm	N/A	2pm – 11pm

Service frequency

Service frequency has a major influence on transit ridership. Frequent service is costly to provide but is valued by regular and occasional customers.

Due to the expense of providing frequent service, frequency is based upon existing or potential demand, translating into variations in frequency throughout the day. Clock headways (frequency intervals of 15, 20, 30, 40, or 60 minutes) are preferred as they are easier for passengers to remember and can help facilitate better transfer connections between routes.
Desired minimum frequencies:

	Weekday				
Route type	Peak	Midday	Night	Saturday	Sunday
Radial	30	60	60	60	60
Frequent	15	15	20	30	30
Limited/Flyer	20	-	Based on demand	Based on demand	Based on demand
Feeder	40	60	Based on demand	Based on demand	Based on demand
Crosstown	30	60	60	60	60
MetroRail	40	60	-	40	-
MetroRapid	15	15	20	30	30
Express	20	-	-	-	-
MetroAirport	30	30	30	30	30
Night Owl	N/A	N/A	60	60	60
UT Shuttle	20	20	40	-	60

Other special routes (e.g. Senior, Rail Connector, and Ebus) will be provided based on demand.

Bus stop spacing

Bus stop spacing is based on several factors including customer convenience, ridership demand, and service type.

Customer convenience involves a tradeoff between proximity to stops and bus travel time. Closely spaced stops reduce customer walking distance but result in slower bus speeds. Few stops spaced further apart increase walking distance but result in faster, more reliable service.

Sufficient ridership demand is necessary to support the investment of stops. Specific service types such as limited stop, rapid, and express require increased stop spacing to maintain higher speeds, while radial and crosstown services have frequent stops to maximize ridership potential and convenient access to local activity centers and/or residences.

Recommended minimum distance between bus stops:

Area type:	*Ideal stop spacing range (min-max):*
Regular local stops in Downtown or on arterial streets	800 – 1,600 feet
Suburban and other low-density areas	1,200 – 2,500 feet

Stops serving downtown Austin or major activity centers should be spaced more than 800 feet apart. For reference, the average block size in downtown Austin ranges between 350 and 450 feet, so this essentially means a bus stop may occur every other block for local stop services. Regular local stops on arterial streets should be spaced every 800-1,200 feet. In suburban and other low-density areas, stops may be spaced over 1,200 feet apart.

Bus stop placement

Bus stop placement involves a balance of customer safety, accessibility, and operational efficiency. All stops should be fully accessible with a concrete landing and access to sidewalk or pathway. Bus stops should be compatible with adjacent land use and minimize adverse impacts on the built and natural environment.

Bus stops should optimally be placed at intersections to maximize pedestrian safety; however, infrastructure considerations that can affect bus stop placement may include: right-of-way availability, cost of installation and maintenance, potential future changes to stop location, City, County, State or Federal laws and regulations, or other operational reasons.

Near-side and far-side stops are generally preferred over mid-block stops. Specific ridership generators may determine the placement of a bus stop.

Near-side stops allow passengers to board and alight closer to intersection crosswalks, which may facilitate better transfers. Near-side stops also eliminate the potential of alighting passengers waiting through a red light.

Far-side stops are preferred at intersections in which buses make left turns and intersections with a high volume of right turning vehicles. Far-side stops are also preferred on corridors with transit signal priority. Far-side stops encourage pedestrians to cross behind the bus.

Mid-block stops should be considered when pedestrian crosswalks are present. If pedestrian crossings are not present, Capital Metro will work with appropriate entities to address the potential of installing treatments like flashing pedestrian beacons to accommodate this issue. Mid-block stops may be the only option at major intersections with dedicated turn lanes.

Infrastructure considerations for bus stop placement include lighting, topography, and roadside constraints such as driveways, trees, poles, fire hydrants, etc.

Bus stop amenities

Bus stop amenities improve customer comfort, convenience, and safety. They also have the potential to increase ridership. Bus stop improvements should promote system-wide equity.

Bus stops generating at least 50 daily boardings qualify for a shelter. Shelters may be considered for stops with at least 25 daily boardings provided that it meets at least 3 of the following criteria:

- Adjacent major activity/employment centers
- Adjacent hospitals or social service agencies
- Adjacent apartments with 250+ units
- Adjacent schools
- Route intersections
- Service frequency greater than 30 minutes

Bus stops generating at least 15 boardings per weekday qualify for a bench. All bus stops with shelters or benches should also have a litter container. Other stops may have a litter container installed upon request.

Bike racks may be installed at stops in areas of high demand or in concert with other local entities.

Circumstances that might preclude installation of amenities at a stop meeting threshold warrant are as follows:

- Amenities would threaten pedestrian or operational safety
- Adequate right-of-way is not available
- Regulations enforced by City, County, State, or Federal government
- Service to the location is subject to potential changes
- Installation and maintenance costs are excessive
- Other circumstances that would negatively impact operations or service

Bus stop signage should contain route name, number, direction and destination, Capital Metro customer service phone number, and website address. Detailed schedule and route information should be provided at major boarding locations and transfer points. All signage should also contain the unique bus stop ID number and instructions about how to look up real-time information pertaining to buses that serve that particular stop using the mobile app, texting functions, or the online trip planner.

MetroRapid Stations vs. Bus Stops:

MetroRapid transit station amenities include:

- Cantilever transit shelter with MetroRapid branding
- Real time arrival display
- Aluminum seating and lean bars
- MetroRapid specific route maps for routes departing from station

In general, MetroRapid stops should be placed on the far-side of the intersection to accommodate transit signal priority, which is outfitted on all MetroRapid buses to date.

When possible, nearby bus stops can be consolidated to MetroRapid stations in order to make best use of the existing infrastructure and also improve customer convenience.

Transit Centers and Park & Rides:

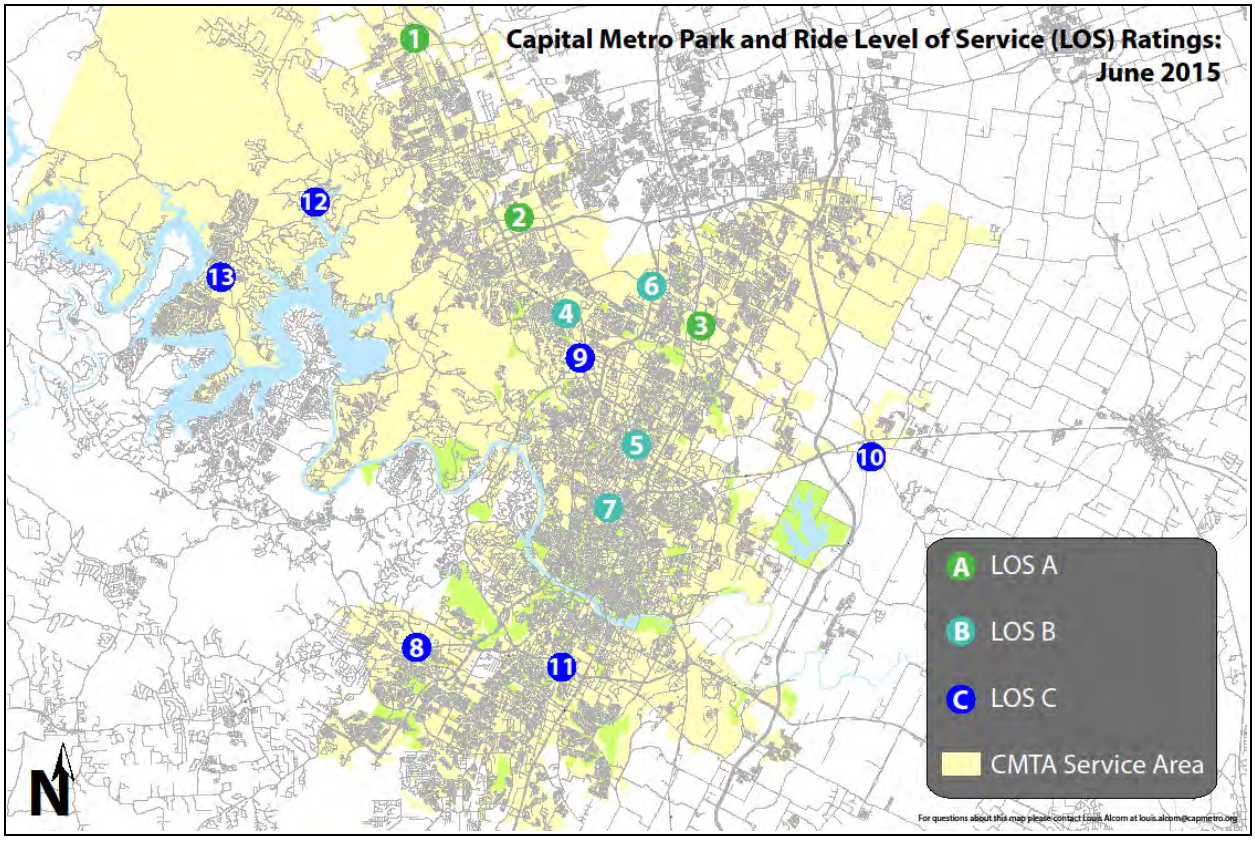
In order to accommodate travel in peripheral, usually more suburban or rural areas, Capital Metro has followed the strategy of developing park and ride facilities, with the intention of attracting commuters within a five mile radius to use our transit services. Capital Metro provides transit services to 14 existing park-and-ride facilities in the region. Small park-and-ride facilities (under 200 spaces) are related to rural or outlying suburban communities with flexible bus service or MetroExpress. Mid-size facilities (200-400 spaces) are related to closer-in urban and suburban locales with MetroExpress, MetroRapid, and/or several fixed-bus routes. The large commuter parking lots (400+ spaces) are related to suburban activity centers with

MetroExpress and several fixed-bus routes or related to suburban residential areas with MetroRail and multi-modal bus services.

Level of Service (LOS) classifications help to generate rough order-of-magnitude cost estimates for future park-and-rides. LOS classifications were determined in direct relation to park-and-ride lot capacity. For the following classifications, amenities incorporated into transit facilities should be directed to meet safety, security, comfort, and convenience needs. *(Reference Appendix B for the following documented in tabular form):*

- LOS A: A park-and-ride lot with 400 or more parking stalls. This facility may serve different modes, such as bus. Light rail, or commuter rail. Amenities consist of an enclosed climate-controlled facility from 1,250 square feet to 1,800 square feet in size, security personnel or facility attendants, water fountains, vending equipment, information kiosks, single use restroom for attendant and operators, extensive lighting, landscaping to enhanced surroundings, signage and graphics, and additional seating areas with shelters/canopies at bus positions.
- LOS B: A park-and-ride lot with 200-400 parking stalls that generally serves one mode of transportation (bus) or varying route types (feeder and express routes). Amenities include an enhanced shelter (lighting, heating/ventilation and windscreen protections, and integrated seating for 12 or more customers and additional seating areas outside sheltered areas. Security at these facilities could incorporate and on-site security officer, but in most cases emergency services are provided on an on-call basis and with frequent facility site surveillance. An emergency call box, lighting for parking areas, and enhanced lighting at bus loading and unloading areas could be incorporated to enhance security. A facility with this parking capacity could require more than one bus position. Landscaping and other site enhancements are limited. Other amenities may include call boxes, vending machines located outside the sheltered area, and system and route information.
- LOS C: A park-and-ride lot with up to 200 parking stalls. In most cases, these facilities are served by one express route and generally transfer activity is limited or non-existent. Amenities consist of one or two canopies with integrated benches. Additional seating areas can be implemented, if required. Landscape enhancements are minimal. Newspaper racks and other publications racks are the extent of the vending equipment/concessions serving these facilities. Public telephones and system information are also provided.

#	Park and Ride Facility	Level of Service (LOS)	Parking Capacity	Opening Year
1	Leander Station	A	619	2007
2	Lakeline Station	A	485	2004
3	Tech Ridge Park-and-Ride	A	476	2006
4	Pavilion Park-and-Ride	B	348	1992
5	North Lamar Transit Center (NLTC)	B	268	1986
6	Howard Station	B	200	n/a
7	Triangle Park-and-Ride	B	200	2005
8	Oak Hill Park-and-Ride	C	181	n/a
9	Great Hills Park-and-Ride	C	127	2011
10	Manor Park-and-Ride	C	70	2011
11	South Congress Transit Center (SCTC)	C	32	2008
12	Lago Vista Park-and-Ride	C	16	Over 15 years ago
13	Jonestown Park-and-Ride	C	13	Over 15 years ago



Capital Metro conducts vehicle count surveys at its park-and-ride facilities to determine occupancy levels, identify trends, and assess future needs. The seasonal surveys typically take place during one week in the fall (September – November) and one week in the spring (March – April). The time of year is chosen based on transit industry standards to target "normal" travel periods, excluding non-holiday months, winter weather months, and summer vacation months. The survey methodology typically involves two or more days of vehicle counts during the chosen week to produce an average occupancy. As a result the two seasonal averages are produced each year to help identify trends. Once a facility reaches the industry standard average occupancy range (70-85%), plans for expansion are developed in accordance with the following policies.

Park & Ride Planning Policies:

Existing Facility Policies

1. Capital Metro will conduct bi-annual (fall and spring) seasonal surveys for each park-and-ride facility's occupancy in order to track overall utilization.
2. Capital Metro will investigate future expansion options for any park-and-ride facility has achieved
80% occupancy for three consecutive seasonal surveys.
3. Capital Metro will investigate potential solutions to improve utilization for any park-and-ride facility that has less than 60% occupancy for three years in a row.
4. Capital Metro will investigate potential re-use or redevelopment of any park-and-ride facility that has less than 40% occupancy for five years in a row.
5. Capital Metro will evaluate the utilization of existing park-and-ride facilities every five years during its Service Plan update process.

Future Facility Policies

1. Capital Metro will consider potential future park-and-ride facilities every five years during its Service Plan update process.
2. Capital Metro will evaluate the costs and benefits of future park-and-ride facilities, including user benefits and ridership impacts, proposed along a high-capacity transit corridor during the corridor-level study, environmental review process or through an independent planning process.
3. Capital Metro will coordinate with affected jurisdictions on proposed park-and-ride facilities during the corridor-level study, environmental review process or independent planning process.
4. Capital Metro will coordinate with other regional transportation providers for input on purpose and need, goals and objectives, and financial resources necessary to construct and service future park-and-ride facilities. These providers may include City of Austin, Capital Area Metropolitan Planning Organization (CAMPO), Central Texas Regional Mobility Authority (CTRMA), Texas Department of Transportation (TXDOT), and Capital Area Rural Transportation System (CARTS).

SERVICE STANDARDS

Capital Metro strives to allocate resources equitably and efficiently. Service standards describe the methodology by which services are evaluated and modified. Routes and schedules should be evaluated tri-annually following each service period. Evaluation criteria include schedule reliability, load factors, ridership productivity, and cost effectiveness.

Schedule reliability

On-time performance is a critical measure of the quality and reliability of services. Buses are considered on-time if they depart a designated timepoint between 0 seconds earlier or 6 minutes later than scheduled.

Buses should never depart a timepoint ahead of schedule unless operators are given explicit permission to do so. Permission to depart early should only be provided for destination stops on limited stop or Express services during peak travel hours.

Under normal circumstances, system-wide on-time performance should exceed 90% at end of line locations, and 75% at timepoints along the route. Services that fall below the guideline should be examined to determine the factors behind schedule adherence problems, which may include running time problems, traffic conditions, construction, or other issues.

Load factors

Load factors reflect the ratio of passengers to total seated capacity. Load factors vary by route type and time of day. Consistent overcrowding on buses may indicate the need for improved frequency or increased capacity. Load factors should not exceed the following thresholds:

Maximum load factor standards

Route type	Peak hours	Off-peak hours
Radial	140%	120%
Crosstown	140%	120%
Frequent	140%	120%
Limited	140%	120%
Feeder	140%	120%
Express/Flyer	100%	100%
MetroRail	140%	120%
UT Shuttle	140%	120%
MetroRapid	140%	120%

Ridership productivity and cost-effectiveness

Productivity standards are used to evaluate ridership and cost-effectiveness of each route. Routes are assessed by type, allowing comparison with peer services. Ridership data is collected by on-board automatic passenger counters present on nearly 100% of Capital Metro's bus services.

All service types are evaluated based on the average number of riders per revenue hour. Direct, commuter-based services such as Express and MetroRail may also be evaluated based on the average number of riders per trip, as route and passenger trip length may vary significantly.

In order to generate a relative comparison metric, a rating is generated by comparing average riders per revenue hour on each individual route to a cumulative value of average riders per revenue hour indexed by service type. Routes performing below 66% (lowest-performing routes) are classified as probationary and require corrective action. At the opposite end of the scale, ratings above 133% (highest-performing routes) may indicate the demand for additional service or capacity.

The table below is an example of ridership productivity ratings for a specific route type:

		Riders per revenue hour		Operating Cost Per Passenger
Route	Riders	Average	Rating	$/boarding
300 Govalle	5,813	37.3	143%	$3.52
311 Stassney	1,205	27.9	107%	$4.98
320 St. John's	2,620	26.9	103%	$4.51
323 Anderson	1,044	17.5	67%	$6.90
325 Ohlen	1,674	28.5	109%	$4.54
331 Oltorf	2,649	34.0	130%	$4.00
333 William Cannon	1,576	19.3	74%	$6.69
338 Lamar/45th	827	16.8	64%	$6.96
350 Airport Blvd.	2,317	26.5	102%	$4.82
383 Research	1,526	17.9	69%	$6.69
392 Braker	458	12.9	50%	$10.11
All crosstown routes	21,709	26.1	-	Average: $5.79

In addition to peer service comparison, all non-special services should exceed the following minimum thresholds for route productivity:

- Weekdays: 15 riders per service hour
- Weekends: 12 riders per service hour

Cost-effectiveness indicators measure the operating cost per passenger. Passenger subsidy and operating cost per passenger boarding for each route should be calculated and assessed each service period.

Potential corrective actions

Poor-performing services failing to meet minimum productivity standards may be considered for a series of potential corrective actions, including schedule adjustments, route modifications, or elimination.

Schedule adjustments including frequency and service span reductions can improve productivity and cost effectiveness with minimal negative impacts.

Route modifications can help improve productivity and cost effectiveness in many cases. Ridership should be closely examined at the stop level to identify unproductive segments or service gaps. Route extensions or minor realignments may improve access to destinations. Route consolidations or short-turns may reduce duplicative or excess service.

Service elimination may be considered if ridership is consistently underperforming with minimal likelihood for sufficient future growth. All alternative means of maintaining service should be considered before proposing elimination. Elimination does not preclude restoration of service at a later time; however, proven ridership demand must exist before such a step is considered.

Service alternatives may be considered in low-density areas with moderate ridership potential. Demand-responsive service may carry a small passenger market more cost-effectively than traditional fixed-route bus service. Vanpool may be a suitable alternative for feeder or connector service. Park and ride facilities at peripheral transit centers or hubs may be the only cost effective solution to serving lower-density areas with fixed-route transit infrastructure.

New and altered services

The evaluation of new service proposals will take place as proposals are received or needs identified. Ridership and cost projections for new and altered services should be prepared whenever service changes are proposed. New services should meet minimum standards within one year. Staff may make fine-tuning adjustments during this period. New services are implemented on a trial basis, with the length of the trial period determined at the time of implementation.

Service change process

Service changes allow an opportunity to modify existing route alignments, schedules, bus stops, and facilities. New services are also developed through this process. Service changes occur tri-annually to coincide with University of Texas and Austin ISD calendars. Typically, major changes are implemented in August and minor changes are implemented in January and June.

The service change process spans 6-9 months from initial planning to implementation. Each route is reviewed 6 months after implementation.

Proposal development

- Service analysis
- Initial concepts
- Review of customer and operator input
- Concept refinement and cost estimates
- Title VI and ADA review
- Initial proposals
- Community outreach (riders, general public, advisory committees, etc.)
- Public meetings
- Proposal revisions

Board process

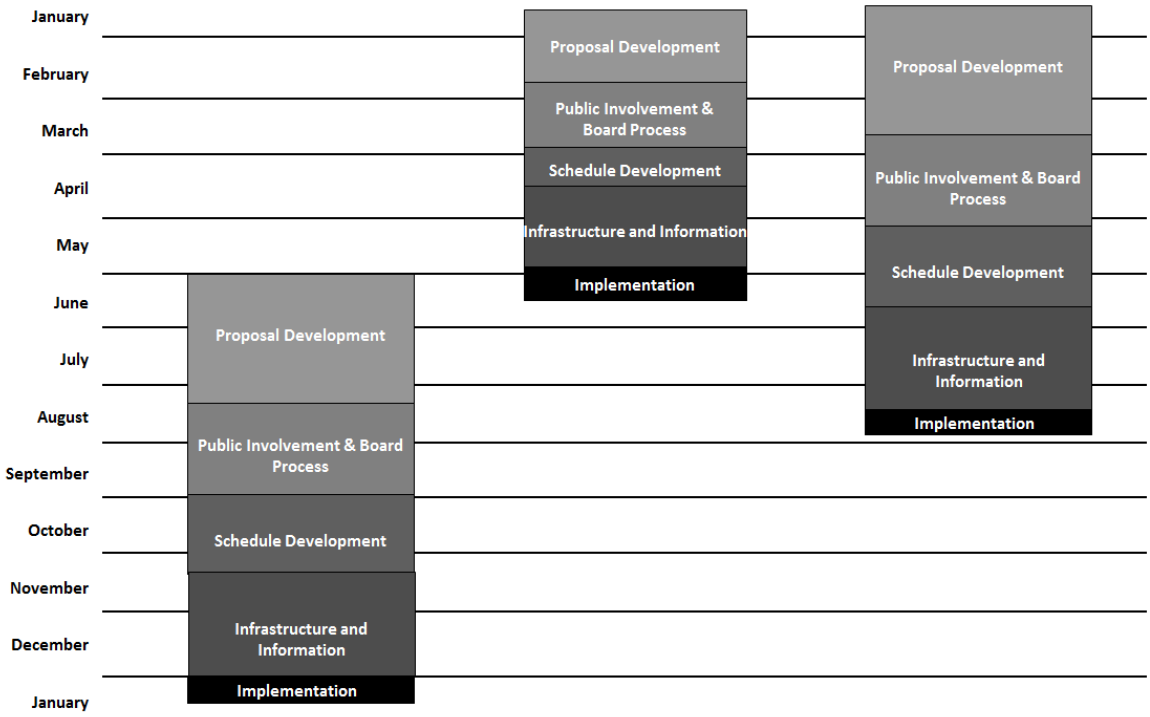
- Board committee review
- Public hearing
- Final recommendations
- Board decision

Implementation preparation

- Schedule development
- Operator work assignments
- Marketing and communication materials
- Capital upgrades (vehicles, facilities, stops, etc.)
- Information technology updates

Implementation

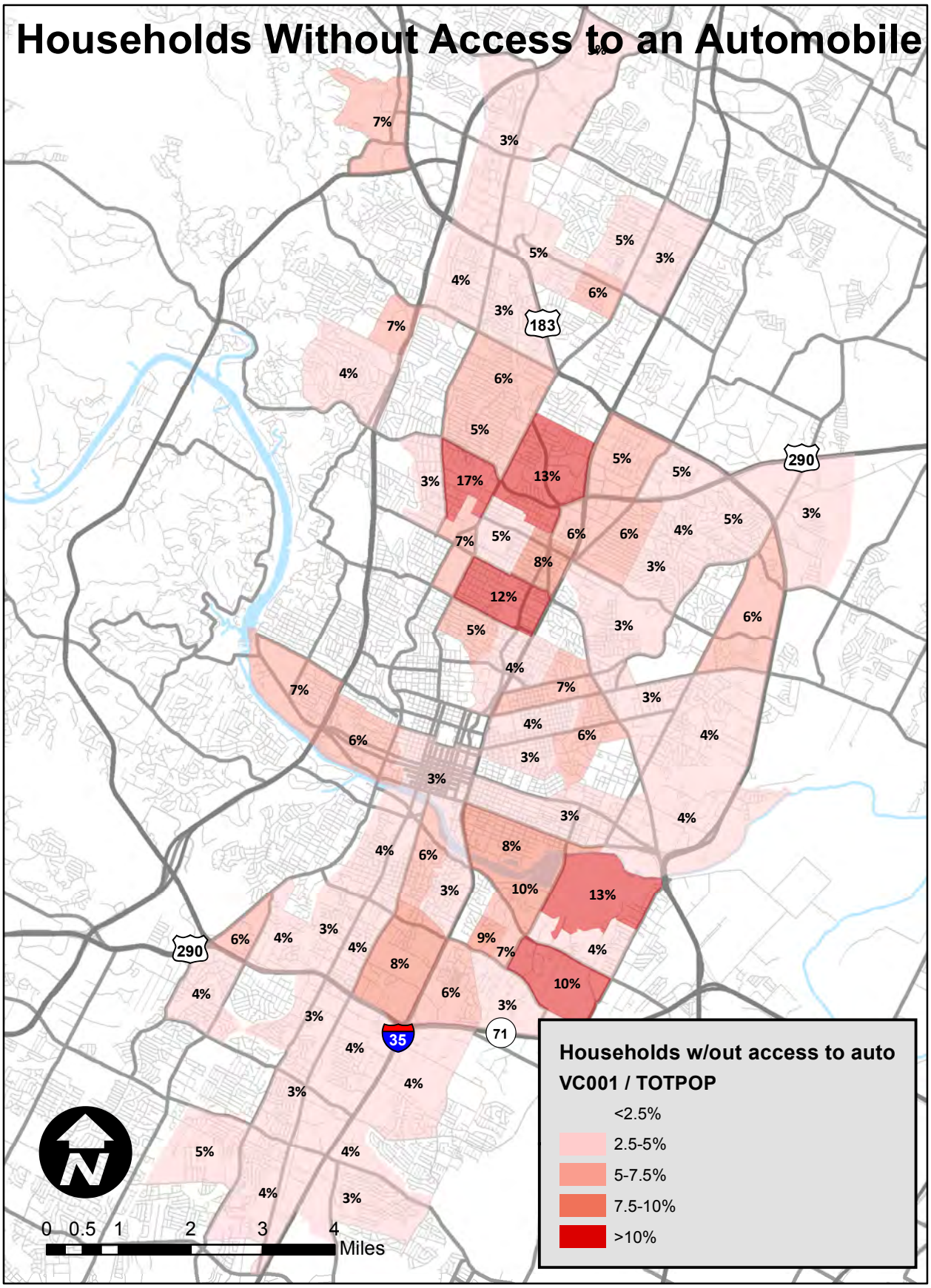
Capital Metro Service Change Timelines



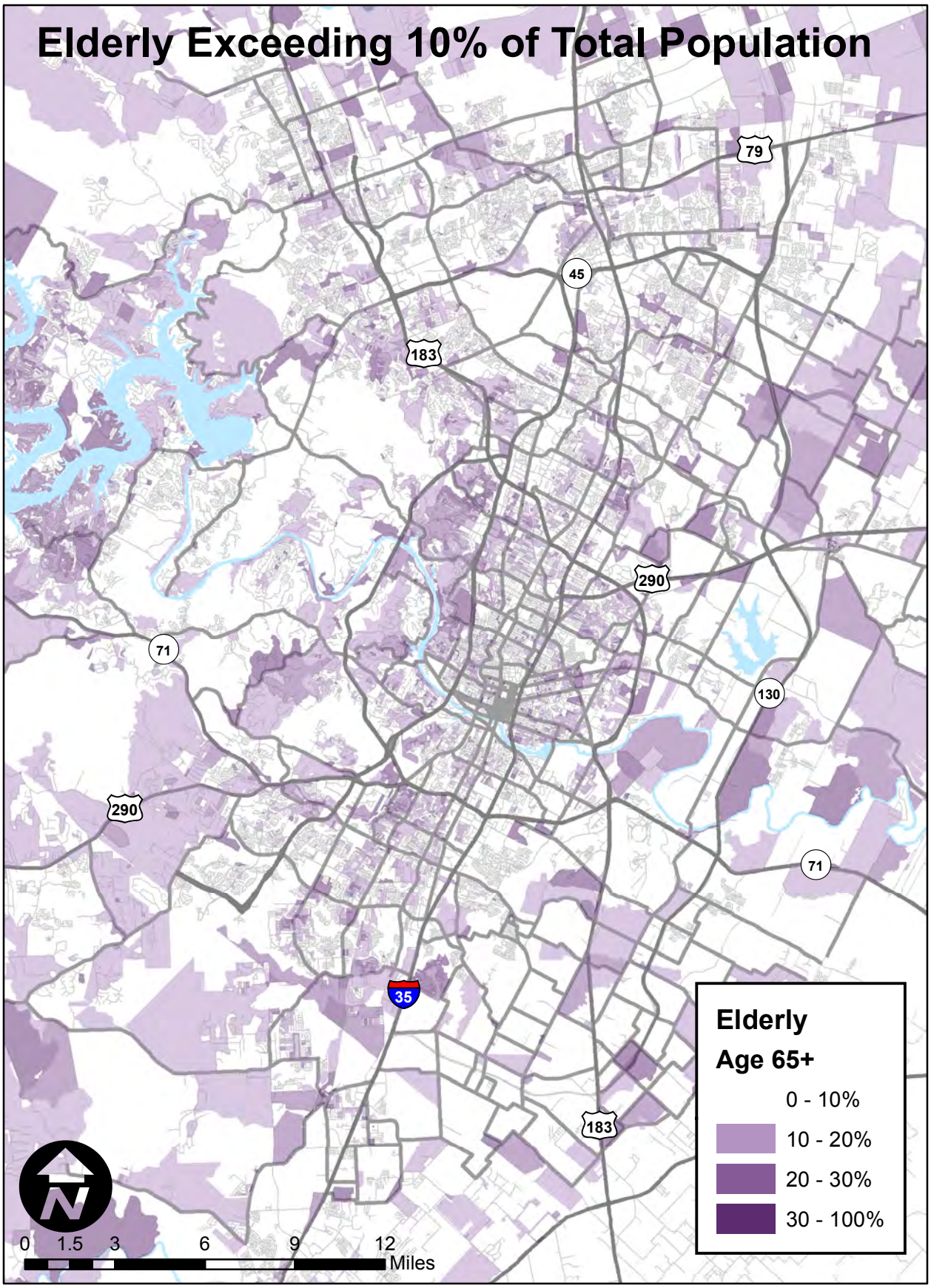
RESOURCES

AC Transit Board Policy No. 550: Service Standards and Design Policy
Capital Metro Park-And-Ride Assessment Report (April 2015)
Capital Metro ServicePlan2020
Capital Metro Transit-Ready Development Guide
Capital Metro Service Guidelines and Standards – Revised November 2011
Central Ohio Transit Authority – Standards for Service Design
King County Metro – Service and Facility Guidelines (2013 Update)
Miami-Dade Transit – Service Standards
Regional Transportation District (Denver) – Service Standards
San Diego Metropolitan Transit System Policies and Procedures (June 2013)
Spokane Transit – Service Design Standards
TCRP Report 100 – Transit Capacity and Quality of Service Manual
TCRP Report 19 – Guidelines for the Location and Design of Bus Stops
Tri-Met – Bus Stop Guidelines
TriMet's Service Guidelines Framework (Adopted: January 2014)
Victoria Transport Policy Institute – Land Use impacts

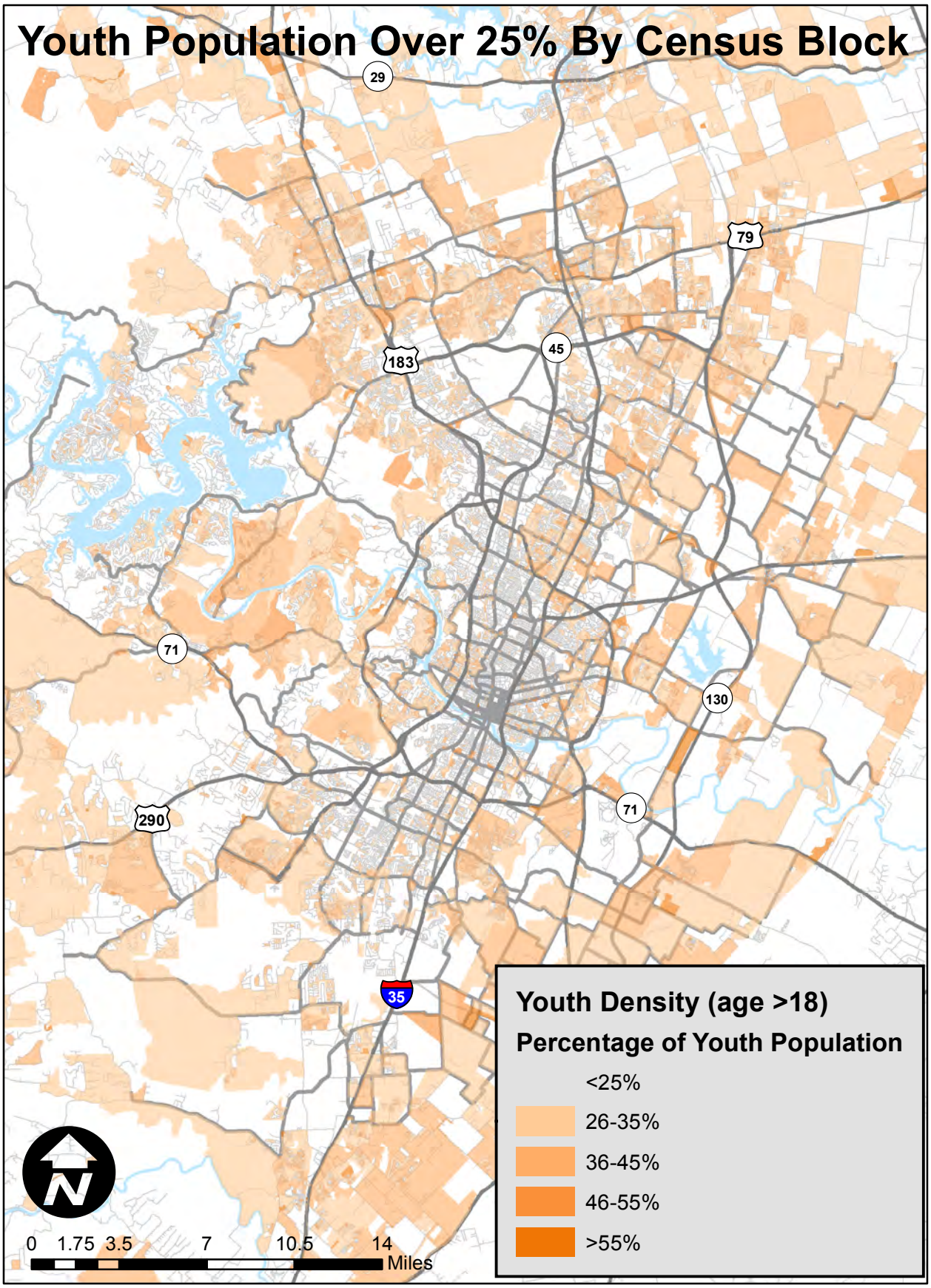
Appendix A1


Households Without Access to an Automobile
183
290
290
35
71
0 0.5 1 2 3 4
Miles
Households w/out access to auto
VC001 / TOTPOP
<2.5%
2.5-5%
5-7.5%
7.5-10%
>10%

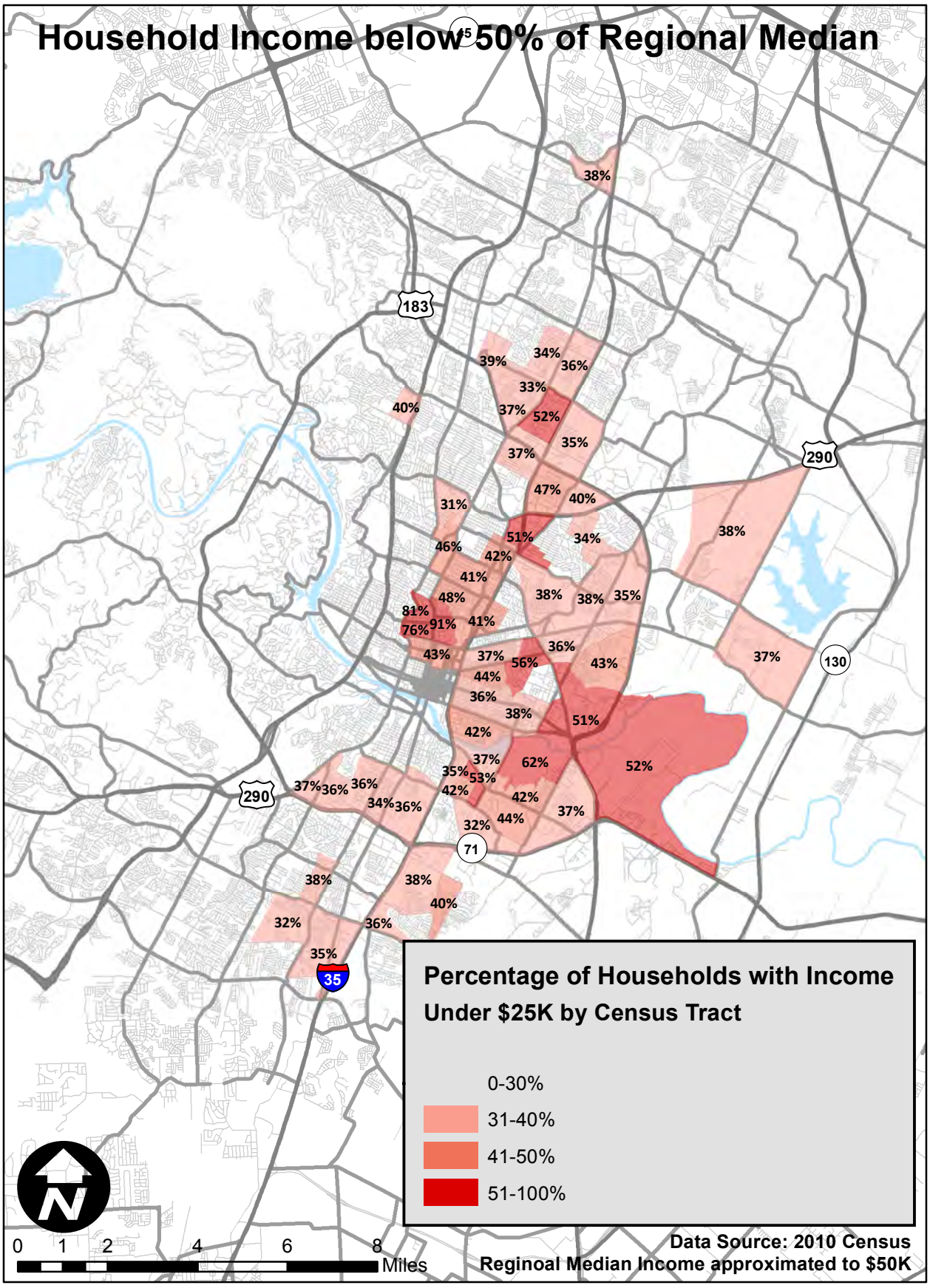
Appendix A2


Elderly Exceeding 10% of Total Population
79
45
183
290
71
130
290
71
35
183
Elderly
Age 65+
0 - 10%
10 - 20%
20 - 30%
30 - 100%
N
0 1.5 3 6 9 12
Miles

Appendix A3


Youth Population Over 25% By Census Block
29
79
183
45
71
130
290
71
35
Youth Density (age >18)
Percentage of Youth Population
<25%
26-35%
36-45%
46-55%
>55%
N
0 1.75 3.5 7 10.5 14
Miles

Appendix A4


Household Income below 50% of Regional Median
Percentage of Households with Income Under $25K by Census Tract
0-30%
31-40%
41-50%
51-100%
0 1 2 4 6 8 Miles
Data Source: 2010 Census
Reginoal Median Income approximated to $50K

Appendix B1

Level of Service Rating	# of Parking Stalls	Modes	Customer Shelter Type	Type of Landscaping	Extensive Lighting	Enclosed climate-controlled facility	Security Personnel or Facility Attendants	Water Fountains	Vending Equipment	Information kiosks	Additional Seating areas with shelters and operators	Single use restroom for attendant	On-call security officer	Emergency call box	System and Route Information	Newspaper racks and other publications racks
LOS A	400 +	Bus, Light rail, commuter rail, etc.	May include an enclosed climate-controlled facility. Enhanced shelter with lighting, heating/ventilation and windscreen protections, and integrated seating for 12 or more customers	Enhanced landscaping and site amenities	Present throughout facility	X	X	X	X	X	X	X	X	X	X	X
LOS B	200-400	Bus (varying route types)	Enhanced shelter with lighting, heating/ventilation and windscreen protections, and integrated seating for 12 or more customers	Limited landscaping and site enhancements	Present in parking and bus loading areas				X				X	X	X	X
LOS C	< 200	Bus (typically express only)	1-2 canopies with integrated benches	Minimal landscaping and site enhancements	Not present										X	X