

JANUARY 22, 2019

# SERVICE CHOICES REPORT



## Executive Summary

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The Utah Transit Authority (UTA), in partnership with the Wasatch Front Regional Council (WFRC), the Utah Department of Transportation (UDOT), and Mountainland Association of Governments (MAG), is launching a new project. UTA Service Choices seeks to help the communities that UTA serves form a clear view on what priorities should determine how to plan bus service.

This study is short-term, focusing on things that can be accomplished in the next few years. The report focuses mostly on bus services because those services are relatively easy to develop or revise quickly. A separate process is considering longer range issues, such as rail development. However, the goals articulated by the public, stakeholders and elected officials through UTA Service Choices will be carried forward into future long-range plans.

Before we do any planning, UTA needs to hear from the public about what the priorities for bus service should be.

## What should UTA service be trying to do?

Public transit agencies are asked to serve many different goals at the same time. For example, people often mention one of these goals:

- Reduce traffic congestion on the busiest corridors.
- Reduce air pollution.
- Provide a 'permanent' service to stimulate dense development in urban centers.
- Provide an affordable transportation option for people with limited or no access to personal cars.
- Get workers to their jobs.
- Be available near the homes of everyone who pays taxes to support the service.
- Support future development opportunities.
- Connect clients to social service agencies.
- Get students to class.

UTA receives many different comments requesting changes to the service in order to pursue these goals, but UTA has a limited budget, so doing more of one thing can mean doing less of another. That's why we

need hear what your priorities are.

## Ridership or Coverage?

The many different goals of transit service can be sorted into two major categories: ridership goals and coverage goals.

**Ridership** means attracting as many riders as possible. When we do this, we also achieve these goals:

- Compete more effectively with cars, so that more people can travel down a busy road.
- Collect more fare revenue, increasing the share of our budget paid for by fares, assuming that fares don't change.
- Make more efficient use of tax dollars by reducing the cost to provide each ride.
- Improving air quality by replacing single-occupancy vehicle trips with transit trips, reducing emissions.
- Support dense and walkable development and redevelopment.
- Provide the most useful and frequent services to more people.

When we concentrate our most useful services in the places where the most people can take advantage of them, we do all of these things at once.

**Coverage** means being available in as many places as possible, even if not many people ride. When we do this, we also achieve these goals:

- Access for people without other travel options. This can include low income people, elderly people, and disabled people, among others.
- Providing some service to everyone who pays taxes to support UTA.
- Support for lower density development, such as new low-density suburbs around the edge of the region.

These goals lead us to spread service out so that everyone gets a little bit, which is different than what we do when we are seeking ridership.

Why not? **Spreading service out means spreading it thin.** If UTA buses need to go absolutely everywhere in the region, we have to run lots of routes. When we spread our limited budget over all those routes we can't afford to run very much service on each of them. That means those routes won't be very effective, because they won't run often enough, or late enough, to be there when you need them.

Ridership goals and coverage goals are both very popular. But no transit agency can pursue both goals with the same dollar, because the goals require very different kinds of bus networks. UTA, like every agency, has to decide how much of its budget it will spend pursuing ridership goals, and how much it will spend on coverage goals. There's no right or wrong answer to this question: It depends on what your priorities are.

This report, and this summary, are about helping you think about this choice.

## What does planning for ridership mean?

Suppose, for a moment, that we planned the network for high ridership. This network would seek to be useful to the greatest number of people. What would that mean?

When a store or restaurant opens in new town, it will often fail or succeed based on its location. You want to open your business in a place with many potential customers, where it will be easy for people to make the decision to come into the store and buy your products. This is why you so frequently see a fast food restaurant or coffee shop at the intersections of busy streets, and not tucked away in neighborhoods. These businesses know that their best markets are where many people are always passing by, and where its quick and convenient to stop in to pick up a cup of coffee or lunch.

When we're asked to plan for high ridership, we're being asked to think like a business; to identify the best markets with the most potential customers, where useful transit services can compete for the greatest number of trips. We'd concentrate cost-effective, useful service where lots of people can benefit.

## So, what is cost-effective, useful service?

To be cost-effective, transit needs to carry many people. It costs the same to send a bus out to drive 10 miles whether 1 person or 100 people ride it. If 100 people ride that bus, the cost to the public to provide each of those 100 trips is 1/100th of what we would spend on that single person.

When we say we want high ridership, we are also saying that we want transit to carry as many people as possible for each hour we pay someone to drive. To do that, the bus must be doing something useful and convenient for a lot of people!

## Useful Service Attracts High Ridership

Transit service can only attract riders efficiently if people find it useful for many different types of trips; if it provides freedom to move about the city or region. Where you can go determines what you can do: which jobs you can hold, which grocery stores you can shop at, who you can visit, which schools you can attend, and ultimately how well you are able to share in the opportunities your city can provide to you.

Transit that provides a high degree of freedom is frequent, so that you are never stuck waiting for a bus for long. It is reliable, so that you can be sure you'll make it to your shift or to your appointment on time. It is safe, so that you never have to feel that you are taking a risk by choosing to use it. Finally, it takes you where you need to go.

Useful transit is expensive. To provide high frequency and short waits, we have to pay for more drivers and more buses driving each route. To ensure reliability, we make investments in the design of transit streets and facilities to protect transit and buses from traffic congestion. For people to feel safe, we need highly-qualified, professional staff; vehicles and facilities that are designed to feel open and visible; and, stops and sidewalks that protect riders from cars. We have to focus these expensive elements of usefulness in places where the most people will benefit from them.

## Community Geometry

Where can the most people benefit from useful transit service? The key is the geometry of each community. That geometry determines whether many people will be able to use any service that we offer.

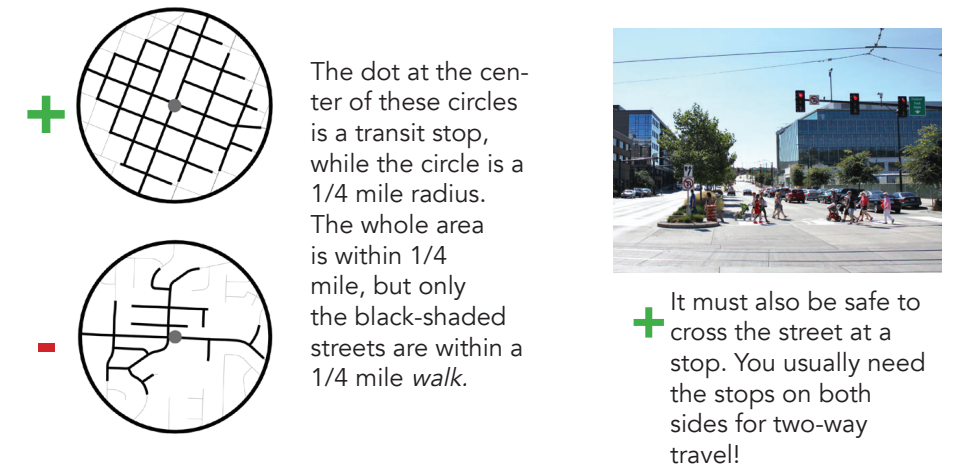
- Density - having many people nearby - is the single most important factor determining whether many people will choose to ride transit, but density alone does not make a strong transit market.
- The surrounding area must be walkable, since almost all transit trips begin and end with a walk to or from the stop.
- Transit streets must be linear, so that buses don't spend a lot of time driving circuitous paths that increase the cost of service and travel times.
- Finally, strong transit markets are in close proximity to other dense, walkable areas and important destinations, so that buses don't have to drive through long, low-demand stretches where few people are getting on or off.

## Four Geographic Indicators of High Ridership Potential

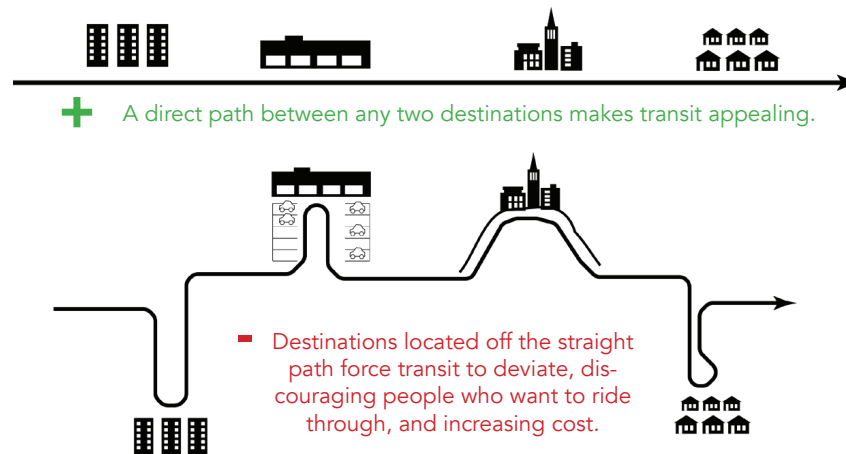
**DENSITY** *How many people, jobs, and activities are near each transit stop?*



**WALKABILITY** *Can people walk to and from the stop?*



**LINEARITY** *Can transit run in reasonably straight lines?*



**PROXIMITY** *Does transit have to traverse long gaps?*

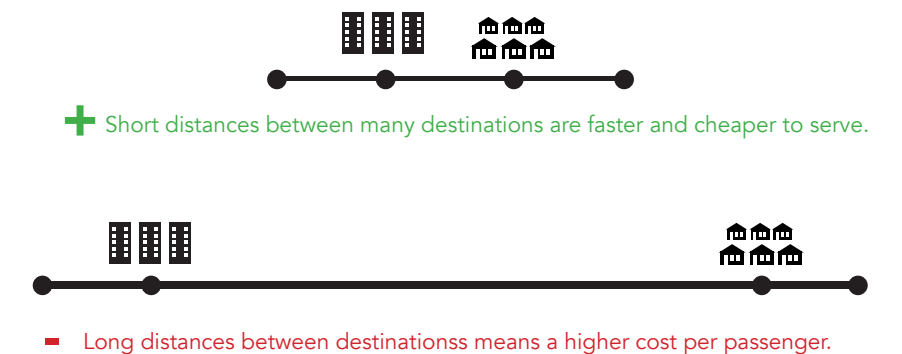


Figure 1: Community Geometry - Four Geographic Indicators of High Ridership Potential

These geometric indicators of high ridership potential are illustrated in Figure 1. Where you see a plus sign, this arrangement is better for transit, because it means more people can get to transit and transit can run more cost-effectively.

Does it sound like we're saying your neighborhood is good or bad? We aren't, but your community's geometry determines whether people can get to the service easily, and that determines how many people are likely

to find our service useful. If we are pursuing a ridership goal, we will send more service to places where these factors are positive, and less where they are negative.

So if your community's geometry isn't favorable for high ridership transit but you still want some transit to be available for any of the specific reasons described on the last page, you may want a coverage goal.

## Why are Coverage goals important?

Coverage services are not about ridership, they are about availability. For example, we might measure coverage as the percentage of the population that's within 1/2 mile of some service. The goal of coverage service is to make that number high, even if the result is low ridership.

When people demand coverage services, they usually give one of three reasons.

### Transportation Options for People Who Can't Drive

The first of these, "access for people who can't drive", is about what people often call the social service function of transit: a transportation option for people with few other choices, who are located in places where high-ridership service would not go.

This could include sites like senior living communities in suburban or rural areas, isolated lower-income communities with low vehicle ownership rates, and important destinations like community colleges or social service agencies that have chosen to build facilities in environments that are difficult for transit to serve efficiently. These are all places where some people need the service badly, but this doesn't mean that many people would use the service compared to higher-density areas that are more efficiently integrated into the rest of the transit network.

### Some Service for Everyone Who Pays

Everyone who pays taxes into UTA could reasonably expect some service in return. This is the second common argument for coverage services.

You could also argue that even people who don't have a bus route close to home are benefiting from UTA through reduced traffic congestion and other benefits to the economy.

Still, some people want service to everywhere that pays taxes, and this is a common reason for coverage services to exist.

### Supporting Future Development

The last reason is about the future. Sometimes, transit agencies are asked to offer a service today in places that are expected to develop in a way that will generate high ridership in the future. Developers of new neighborhoods often want transit to be there early, before there are many people, so that it is available right as people move in. This is a low-ridership service until there are enough people there.

### Do door-to-door or "flexible" services serve ridership or coverage goals?

You may have heard about new service concepts consisting of small vehicles that pick you up when and where you request them, rather than running fixed routes. You may hear these called "microtransit" or "TNC partnerships," where "TNC" (Transportation Network Company) refers to companies like Uber and Lyft.

The basic idea isn't new. Taxis have always responded to customer requests, and shared-ride demand-response services, often called Dial-a-Ride, have been used for decades by US transit agencies. Special services for the disabled, called paratransit, also work this way. UTA's Flex services are also a variation on the same idea.

Smartphone apps have made these service more responsive, so that they can be called on shorter notice. But the app doesn't change the fact that this kind of service carries very few people for every hour of a driver's time, compared to fixed route services.

If these services go to or near each person's door, they will have to follow a meandering path, making many stops that are not in a straight line. This limits the number of people a single vehicle can expect to serve, to no more than about 5-7 passengers per hour at the most efficient. Most UTA fixed routes carry more than 10 passengers per hour, and routes designed for ridership carry well over 20. The busiest UTA bus route carries 36 passengers per hour.

Small vehicles are also not much cheaper to operate. As with all transit with human drivers, the cost of providing these services are mostly the wages paid to the driver. So running small vehicles isn't cheaper unless you pay the driver much less.

Demand-responsive services are never high-ridership services by UTA standards. These service may be relevant in low-demand areas, but only as coverage services, where maximum ridership is not the goal.



## Dividing the Budget by Priorities

Every transit agency has to decide how much of its budget to spend on ridership goals as opposed to coverage goals.

Currently, about 55% of UTA bus service is designed to achieve ridership goals, and 44% to achieve coverage goals. The answer to the ridership/coverage question can be thought of as a point on a spectrum.

A network that was 100% ridership 0% coverage would have excellent service in places where the community geometry supports high ridership transit, but there would be little or no service anywhere else. A 100% coverage network would spread routes across the entirety of the service area, but because spreading it out means spreading it thin, these routes would not be very frequent, and as a result not many people would find them useful.

Any decision regarding the balance of service between the two goals must be made at the level of UTA's three main service regions, internally referred to as "business units". Each region consists of UTA's services operated within one or more counties:

- Northern Region - Davis & Weber Counties & Portions of Box Elder County
- Central Region - Salt Lake County & Portions of Tooele County
- Southern Region - Utah County

Figure 2 shows the existing split between ridership and coverage purposes of bus service in each of UTA's three geographic regions. In the northern region, comprised of Weber, Davis, and Box Elder counties, we estimate the split to be approximately 30% ridership and 63% coverage (with the remaining 7% duplicative<sup>1</sup> service). In the central (Salt Lake and Tooele Counties) and southern (Utah County), this number is closer to 60% ridership, 40% coverage.

The network design of each of the three business units is quite different, as are the implications of shifting the balance on the ridership-coverage spectrum. Because of this, public and stakeholder consultation will ask people about their opinion on the balance in the part of the region where they live.

1. By "duplication", we mean services that are at least in some degree redundant. For example, if two rush-hour express services operated along the same route, these two routes would be providing duplicative service.

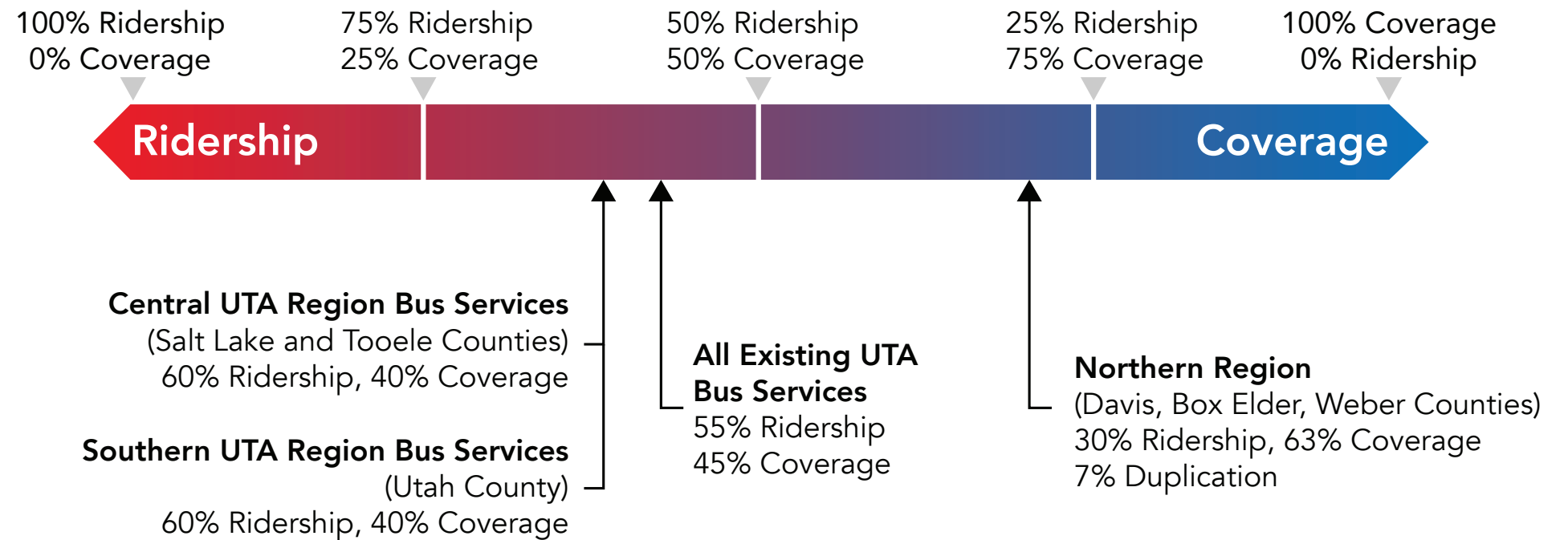


Figure 2: UTA existing services' ridership and coverage purpose

Perhaps today's ridership-coverage balance in each business unit is right for the future, or perhaps the community will value a shift in emphasis. The direction of that shift—either towards higher ridership or towards wider coverage—is a question for the public and stakeholders to discuss as part of this process.

## Two Questions for the Public

For these reasons, we have two questions that this study will ask the public to think about. These are hard questions, because they are about setting priorities.

**1. What should the balance between ridership goals and coverage goals be?** Divide 100% between these goals:

- a. **Maximizing ridership by providing high-frequency, useful services to dense places.** This will put more people near the most useful services, but the number of people across the region with access to transit may be reduced.
- b. **Maximizing coverage by extending lower-frequency services to reach more of UTA's service area.** This will increase the number of people across the region with access transit service, but reduce the number of people with access to frequent services.

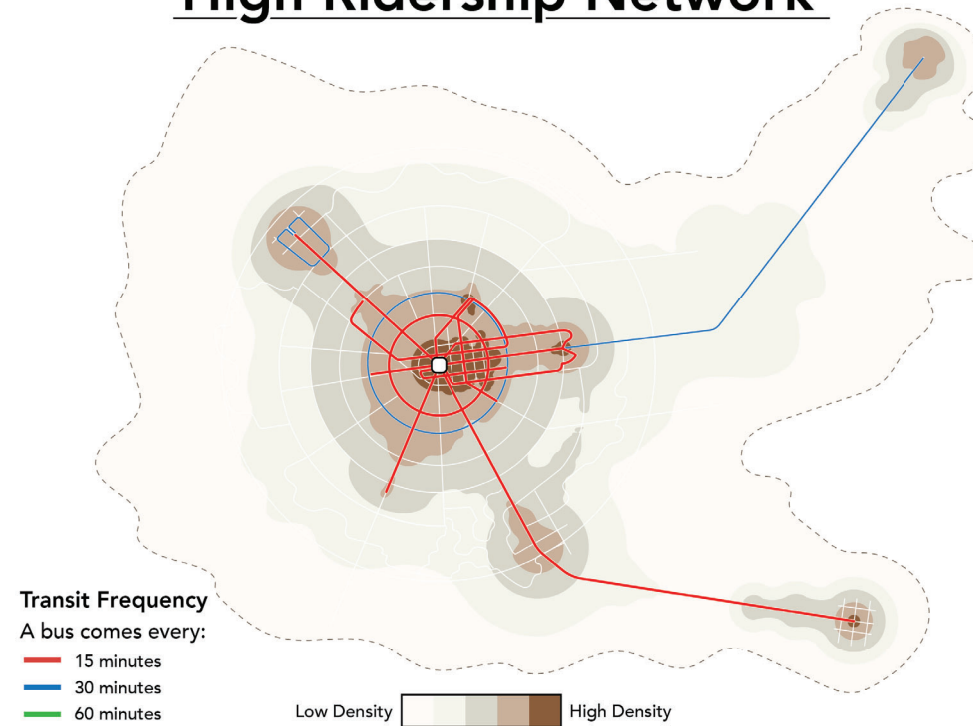
Figure 3 illustrates how transit networks designed to achieve either of these goals might look different using a fictional geography.

In this image, different shades of brown indicate different densities of development. The darkest brown areas are the densest parts of the region, where many people are in close proximity imagine a major downtown core business area, or a large university's campus and surround commercial and residential areas. Lighter shades mean larger residential lot sizes, less intense commercial development, and a lower overall level of travel demand.

In the High Ridership Network, high-frequency services are concentrated in the densest areas (shown with the darkest two shades of brown). Very little service is available outside of these dense markets, but inside of them, service is very useful, and most places accessible by transit can be reached by frequent services where you'll never be waiting long.

In the High Coverage Network, service is extended to much more of the developed area of the region, but at much lower frequencies. Only one route operates every 15 minutes. As a result, the number of people for whom some transit is nearby is much greater, but the number near very useful service that can compete with driving is much lower.

### High Ridership Network



### High Coverage Network

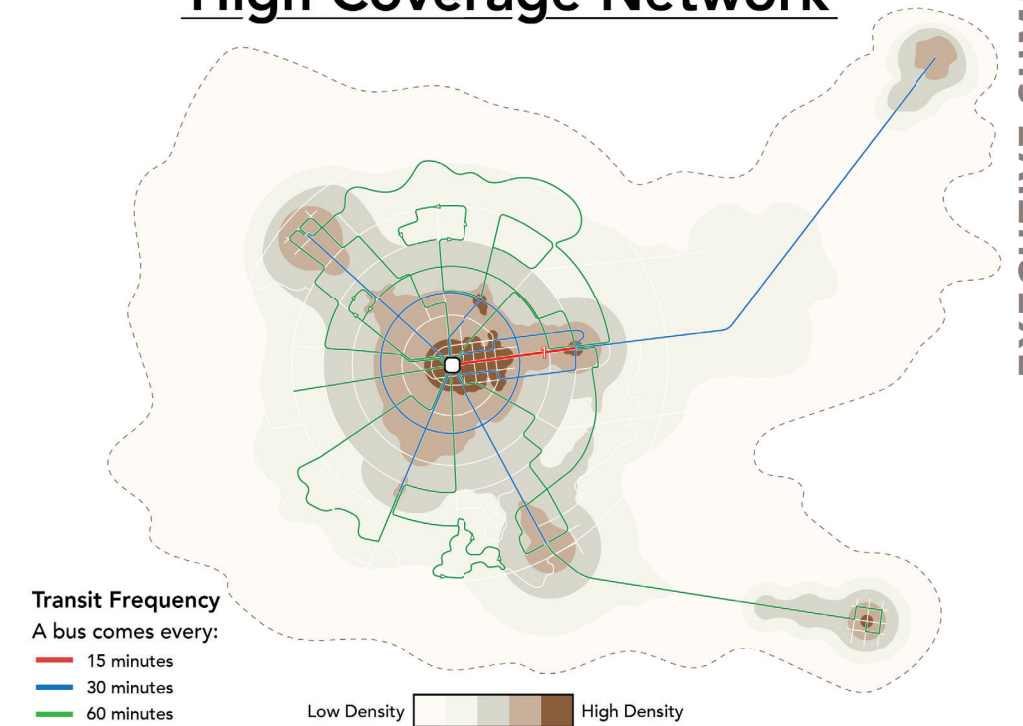


Figure 3: What do transit networks designed to for high ridership or high coverage goals look like?

## 2. If you think we should run coverage service, what goals for that service are most important to you?

- a. **Transportation options for people who can't drive.** This goal would cause UTA to put coverage services only in places where many people don't own cars -- especially places with large numbers of low income, elderly, or disabled persons.
- b. **Service to everyone who pays taxes.** If this is the goal, UTA would try to serve every part of its district, even where there are relatively few people who need the service.
- c. **Service to newly developing areas, where the community geometry will support ridership eventually.** If this is the goal, coverage service would focus on places where denser development is occurring.

The rest of this report fills in the details, but those are the questions. Once we know the community's priorities, UTA's Board of Trustees will provide direction on the tradeoffs to the agency's planning staff to design a Draft Network Plan based on these principles.

## Next Steps

The first phase in this project will gather input from the public and stakeholders about these critical questions. In June or July 2019, UTA's board will provide direction on these decisions, which will guide us as we draft the detailed plan later that year. That detailed plan would be the subject of a second round of public outreach. The earliest possible implementation date for changes resulting from this study is August, 2020.