TARC 2025:
Moving Forward Together

Volume II: Network Concepts Report

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1: Introduction

What is *TARC 2025: Moving Forward Together?*

In *TARC 2025: Moving Forward Together*, we are working with the community to change the TARC transit network to be able to meet the Louisville community's goals and priorities in the face of serious upcoming financial challenges. This effort is one of the core TARC approaches to proactively address its looming fiscal cliff and maintain a reliable and effective regional transit system.

Why is TARC 2025 Needed?

TARC is facing serious financial problems. We need to act now if we want to keep transit relevant to Louisville's life and economy, and to keep it sustainable in the long term. TARC 2025 is an important opportunity to redesign Louisville's transit network to update and innovate service to better match the current and future needs of the Louisville region.

TARC's fiscal challenge comes from several intersecting factors:

- **A limited local funding mechanism:** The Jefferson County occupational tax funds transit, but it hasn't changed its rate in 50 years, while the region's development patterns and travel patterns have changed considerably.
- **Higher costs to serve everyone:** As development has grown outwards, transit has needed to cover longer and longer distances to serve new residents and jobs, which increases the cost to run transit. The costs of paratransit have also grown due to increasing distances, and due to the aging of the population.
- **Minimal state support** in comparison to peer agencies**.**
- **National trends:** In the past few years, transit agencies nationwide have faced financial shortfalls. This is because ridership and fare revenues have gone down while the wages needed to attract and retain transit workers have gone up.
- **The expiration of emergency funding:** The problem of falling revenues and rising costs was temporarily addressed by special funding from the federal government during the COVID-19 pandemic.

TARC is planning ahead for what to do as it reaches the end of that temporary federal funding. This means taking action in multiple ways, which includes the transit service, assets, and the organization. This redesign of the transit network is one of the actions TARC is taking to right-size its costs, and is focused on transit service.

We are working directly with the community to figure out how to make the transit network fit within a smaller budget, while reflecting community priorities. **Hard choices will need to be made, and your opinion about those choices matters.**

What is a Network Redesign?

In this bus network redesign, we are considering changes to **where transit goes**, and **how often it comes**, and **what times it is available.** If funding for transit goes down, then the network will need to be cut in all of these ways. We are gathering input from the community about how to make those difficult choices and changes.

At the end of this process, TARC will have a plan for networks at two different funding levels:

- One network will show a big reduction in bus service, matching the expected revenues from TARC's main sources of funding.
- The other network will show how transit could be made more reliable and useful if more funding were found.

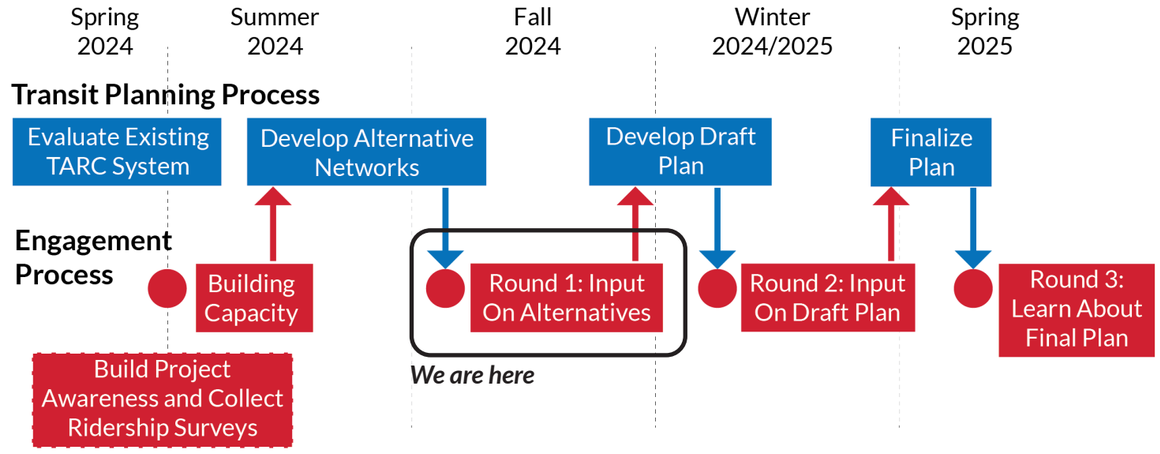


Figure 1: The timeline for developing and deciding on changes to the TARC network, ready to implement by 2026.

When Will This Happen?

TARC is acting fast to minimize disruption to our passengers[1]. **TARC intends to implement the TARC 2025 recommendations by January 2026.** The diagram above illustrates the timeline.

This network redesign has multiple phases:

1. In Spring 2024, we engaged with stakeholders, transit riders, and the overall community to ask about **general priorities and choices**. The input we received through conversations and surveys helped us prepare for this second phase of community input.
2. Now, in Summer 2024, we are presenting the community with **alternative Network Concepts** to show what a completely different TARC network could be like. A major public engagement effort will gather input from many different people all around the region.
3. Feedback on the Network Concepts will guide us in the third phase, when we create a **Draft Plan**. The Draft Plan will contain two networks, as described earlier – one with a big reduction in service to match the reduction in funding, and the other with more service.
4. We will **gather community feedback** about the Draft Plan, with another major public engagement effort in early 2025. On the basis of that feedback the TARC Board will decide which network to implement, and the plan will be finalized.
5. TARC expects to **implement the changes between August 2025 and January 2026**. Implementation will include extensive public engagement to familiarize the public with TARC's new network.

1 As of June 30, 2024, TARC has implemented emergency service cuts that do not change where existing routes go, but reduce the number of trips. This emergency change will provide some continuity with the old network as we complete the TARC 2025 process.

TARC's Fiscal Challenge

How Did We Get Here?

Many factors have combined to cause this situation.

A Fiscal Gap: Figure 2 shows TARC's operating funding deficit. The red line is operating expenses, and the blue line is operating revenue. For the last several years, the red line has been higher than the blue line: expenses exceeded revenues, which means a funding deficit. This has many causes:

- TARC's small local funding source.
- Minimal state support for service.
- Reduced fare revenue due to lower ridership.
- Growth in the wages needed to attract and retain transit workers.
- Growth in paratransit expenses.
- Expiration of emergency federal funding from the COVID-19 pandemic.

Physical Causes of Higher Costs: TARC has been under a physical, geometric pressure, that no technology can solve. The urban and suburban area has grown outwards in the past few decades. This means it is more expensive to serve—because longer distances must be crossed to reach passengers. It also means that each person in those new-growth areas is less likely to use transit—because they live and work in places where transit cannot be as useful as a car. **Compared to previous decades, TARC now has to spend more to reach each potential passenger.**

COVID-19 Pandemic: The pandemic led to a drop in TARC's ridership, which fell 53% between 2019 and 2022. This reduced the amount of fare revenue TARC collects from riders. Aside from the fiscal impact of the pandemic, it also changed people's travel habits and patterns. But even before the pandemic, commuting patterns in the U.S. were changing. This network redesign is an opportunity to reorient towards people's new travel patterns and schedules. We have fewer people traveling during rush hours, more people traveling in the middle of the day, and more people working during evenings and weekends than in past decades.

Service Cuts on the Horizon

The cost of transit service is mostly affected by labor costs (such as the wages and benefits for drivers and supervisors). It is less affected by the size of the bus or the cost of fuel.

This means that a good way to estimate service cost is to count the time a bus and driver are out on the road. This is called "service hours." One bus operating on a route, picking up and dropping off people for one hour, has spent one "service hour." The service hours required by a route depends on its length, frequency, speed, and how much of the day and week it operates.

Figure 3 shows the total service hours provided by TARC from 2013 to 2023. TARC has made an effort to maintain consistent service levels, which have declined only slightly since 2019. However, as shown by the dashed line in Figure 3, **service will need to be reduced approximately 50% by 2026 in order to fit within funding**.

To imagine what a 50% cut will mean, you can:

- Look at the network map and imagine 2 out of every 4 routes disappearing entirely, or...
- Think about a bus that comes every half hour, but imagine it coming every 60 minutes. Who can afford to wait that long? Or...
- Look at a bus schedule and imagine service disappearing for over 3 entire days of the week.

Each of those cuts is a way that TARC could reduce its service by 50%. Cuts this severe will be very noticeable to the community.

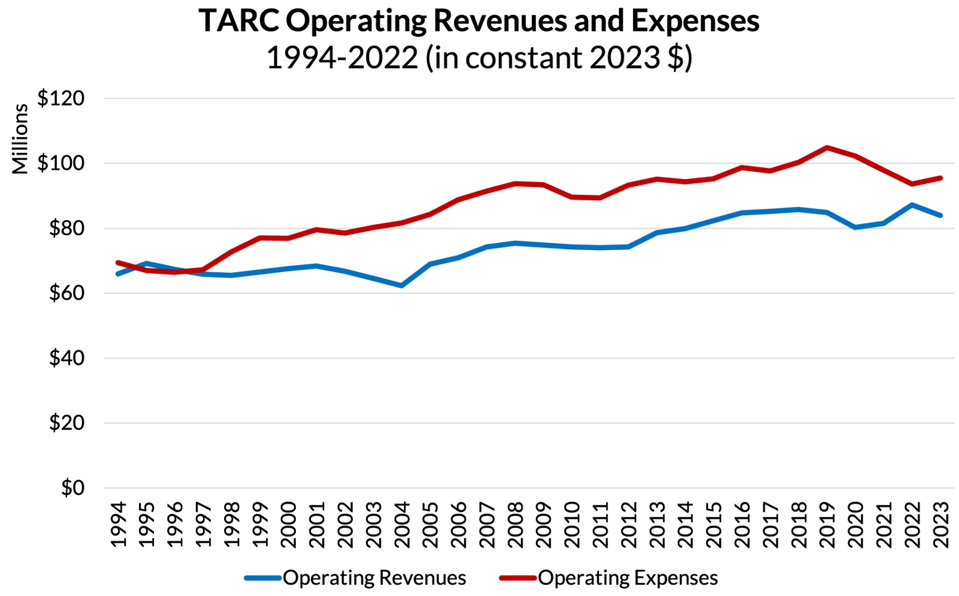


Figure 2: TARC operating revenues have been lower than operating expenses since 1995.

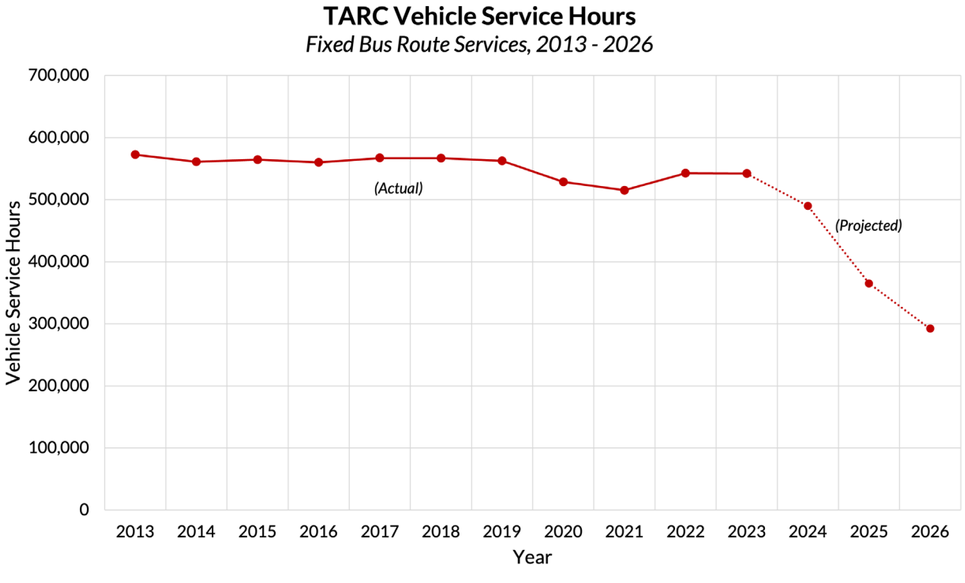


Figure 3: TARC has kept service levels fairly consistent over the past decade. Its impending fiscal challenge implies large and painful reductions in service, of about 50%.

Key Choice: How Should TARC Invest its Limited Resources?

With the constraints on how much service it can offer, TARC must start a conversation with the community about what goals to prioritize.

Transit's Many Goals

Transit can serve many different goals. Within a limited budget, it is not possible to maximize all of transit's goals at the same time. Reasonable people will disagree about which goals are most important. Examples include:

- **Economic:** Transit can give workers access to more jobs, businesses access to more people, and students access to education and training.

- **Social:** Transit can meet the needs of people who are in situations of disadvantage, providing lifeline access to services and jobs.

- **Congestion Mitigation:** Transit can allow for continued economic growth beyond what congestion would limit.

- **Environment:** High transit use can reduce greenhouse gas emissions, and local impacts of air and noise pollution.

Some of these goals are achieved by getting large numbers of people to use transit. For example, transit can only mitigate congestion and pollution if many people take the bus rather than drive. Transit has an impact on the economy when it helps large numbers of people access work or education. We call these **ridership goals** because they are achieved not by the mere *presence* of transit, but by *high ridership* on transit.

Other goals are achieved by making transit available across a large area, regardless of its use. A route may serve an area with few residents, and as a result it gets little use, but for that small number of people it can be a crucial lifeline.

Low-ridership transit can be important as a form of social inclusion. It may also fulfill political or social obligations, for example by getting service close to every taxpayer or into every district. We call these types of goals **coverage goals** because they are achieved by *covering areas* with service, regardless of ridership.

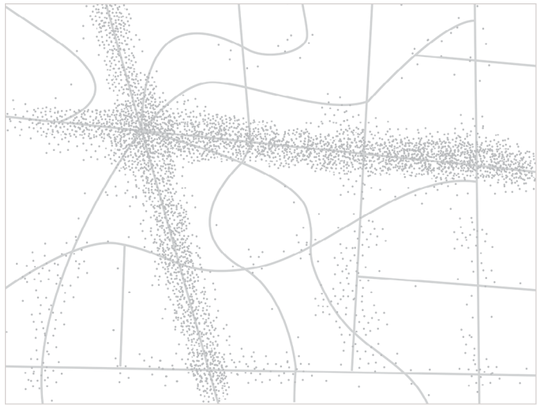
Ridership and Coverage Goals Conflict

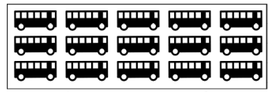
Within a limited budget, if a transit agency wants to achieve more of one of these goals, it must achieve less of the other. This trade-off comes from simple geometry, and no amount of technology or creativity can make it go away.

Here is an illustration of why geometry forces us to wrestle with this trade-off. In the fictional neighborhood at the top of Figure 4, the little grey dots are homes, jobs and other buildings. The grey lines are roads. Most of the activity in the neighborhood is concentrated around two main roads. The transit agency has only 18 buses and drivers to operate routes in this area. What routes should they run?

If the transit agency wants to maximize coverage, it will spread out services so that every street has a bus route. This means 11 different routes, as in the network at bottom-left. But all 11 routes will be *infrequent*, requiring long waits even where the most people live and work.

A transit agency that wants to maximize ridership, on the other hand, will focus service where the most people live and work, where walking to bus stops is easy, and where they can operate straight and fast routes. Concentrating their 18 buses into few routes makes those routes very frequent—a bus is always coming soon, where the most people live and work. This results in a network like the one at bottom-right.





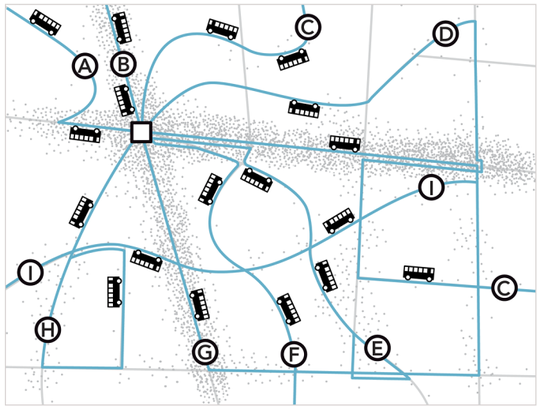
Imagine you are the transit planner for this fictional neighborhood. The dots scattered around the map are people and jobs.

The 18 buses above are the resources the town has to run transit.

Before you can plan transit routes, you must first decide:

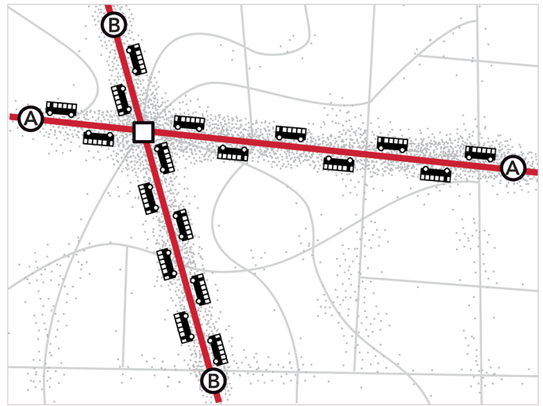
What is the purpose of your transit system?

If you maximize coverage...



...the 18 buses are spread around so that there is a route on every street. Everyone lives near a stop but every route is infrequent, so waits for service are long. Only a few people can bear to wait so long, so ridership is low.

If you maximize ridership...



...all 18 buses are focused on the busiest streets. Waits for service are short but walks to service are longer for people in less populated areas. Frequency and ridership are high but some places have no service.

Figure 4: Comparing an imaginary town, if transit were run with the goal of providing a little service near everyone, to the same town if transit is run with the goal of maximizing frequency and ridership.

An agency can pursue ridership and provide coverage within the same budget, but the more it does of one, the less it must do of the other.

Key Choice: Should We Invest in More Resources for TARC?

Most people value ridership *and* coverage goals. Few people realize that these goals trade-off against one another. They sometimes expect their transit agency to maximize both at the same time, or to find some "optimal" balance based on objective criteria.

The truth is that reasonable people can disagree about how to balance ridership and coverage goals. The right balance depends on the community's values, and why people want to have a transit system in the first place.

A bus network redesign isn't just about changing routes to account for new developments, or data, or technology—though that is part of it. It is also about updating the network to match community values. The question of how to balance pursuing high ridership with providing wide coverage is one of the most important choices in a network redesign, and it's a choice not for technical experts but for the local community.

Getting the transit network right for Louisville may increase people's feeling that they understand and believe in what transit does for the region. But **the community also needs to consider whether there is enough service in the system.** As noted on page 6, distances between people and jobs have grown much longer since the tax level for TARC was set in 1974. That physical reality increases the amount of service TARC needs to deploy to serve people where they are. If the region grows but the service level stays low, transit will naturally become less and less relevant to the life of the region.

Investment and Relevance

The chart in Figure 5 compares Louisville's peer cities with regards to two different measures: how much service they deploy relative to their population (on the horizontal axis), and how much ridership they get relative to their population (on the vertical axis). We can see a correlation between the two facts. **The more service an area invests in, the higher its ridership is likely to be.**

These peers aren't transit-oriented paradises. They include medium-sized regions with small historic cores and large suburbs, like Cincinnati (OH), Indianapolis (IN), Memphis (TN), Richmond (VA), and New Orleans (LA). They also include the slightly smaller Knoxville (TN) and Spokane (WA), and a medium-sized low-density Canadian city, Hamilton (Ontario), for comparison.

This relation between offering service and getting ridership is meaningful. People can't ride bus service that doesn't exist. If people want transit to be relevant to the life of their region, the first step is to invest in service.

Investment and Transit Goals

Louisville could actually improve transit frequencies and increase transit ridership without investing in more total service. However, such a shift towards a ridership goal would require a shift *away from providing coverage*. It would require cutting low-ridership services to re-allocate that service to places with more people, and this would leave some areas with no service at all. There is no way around this basic geometric fact.

If the region wants to increase transit frequency, transit usefulness, and transit ridership, there are two ways that can be done:

- Cut low-ridership routes and reallocate that service, leaving some areas with no coverage, or...
- Supply more transit service, so that existing coverage can stay while frequencies are improved on routes with high ridership potential.

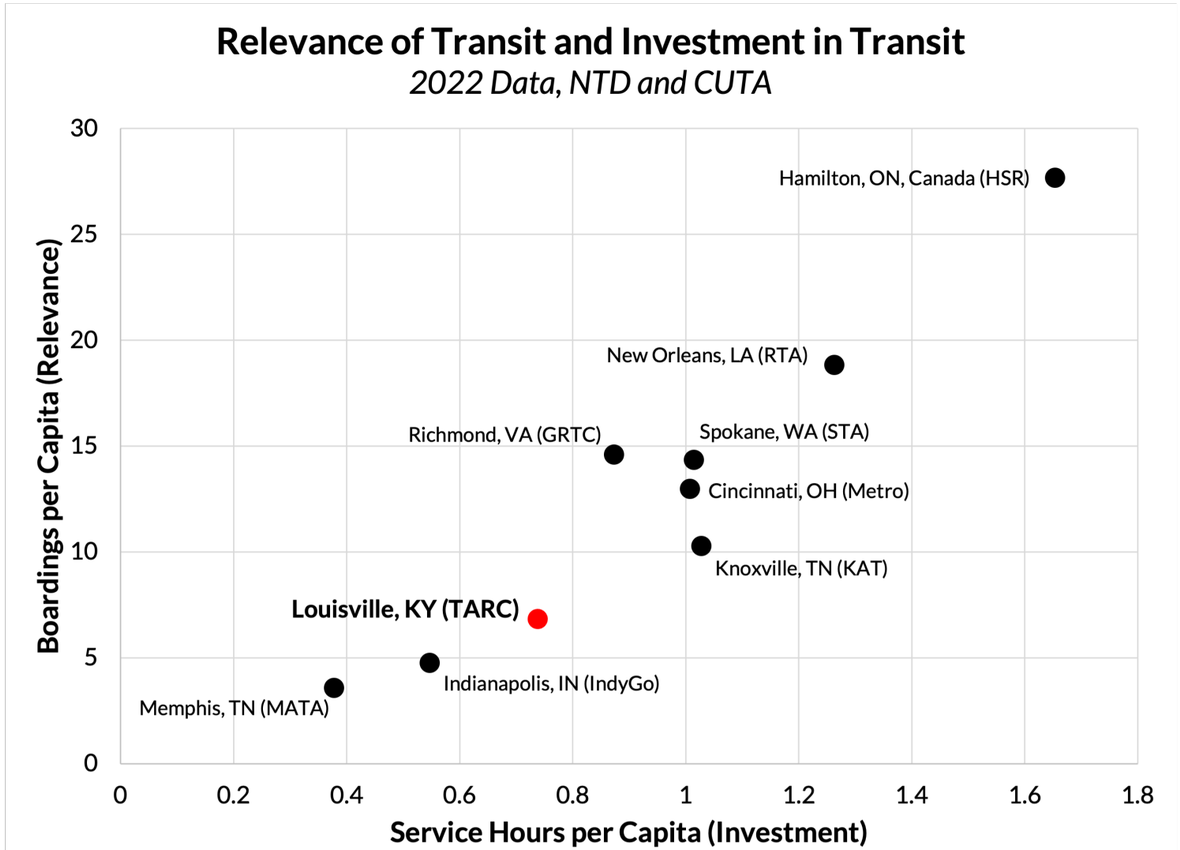


Figure 5: Service Hours per Capita (Investment) and Boardings per Capita (Relevance) for Louisville compared to peers shows the principle of "if you invest, they will ride".

When there is new revenue available for transit, ridership can be increased without cutting coverage. A growing resource pot protects the community from having to make painful trade-offs between competing, but closely-held, values.

Additional funding would protect existing riders and the community from painful service reductions, and help position the system for future growth.

What We Heard About the Key Choices

In April 2024, the TARC 2025 team conducted a customer satisfaction survey of TARC riders as well as a sample of the general population[1]. As part of this survey, we asked people to respond to questions that related not only to the ridership-coverage trade-off, but also their priorities and preferences for the transit network.

These questions were based on abstract choices, while the specific Concepts in this report demonstrate these choices in the real context of the TARC network.

Service Trade-offs

We can express the question of prioritizing high ridership in contrast to wide coverage in various ways, in terms of transit service and network design. The results of these trade-off questions for respondents overall, and the breakdowns for riders and non-riders are shown in Figure 6.

Frequency vs. Coverage

A large majority of respondents (72%) preferred the more useful, frequent service in places with most opportunities (jobs and schools), at the expense of some areas not having any service. The alternative was service that is every one to two hours, so that everyone has some service, but very few people having frequent service. Both current TARC riders (75%) and non-riders (71%) had similar responses to this question.

Walking vs. Waiting

Another way to think about the question of ridership and coverage is to think specifically about whether a person would prefer to:

- Walk a bit further to a bus stop which has high-frequency service, or
- alk to their current bus stop that is nearer, but it only has a bus every hour or two.

Like in the frequency vs. coverage question, a large majority (76%) of respondents preferred walking a bit further to get to more frequent service. These proportions were similar among current riders (72%) and non-riders (77%).

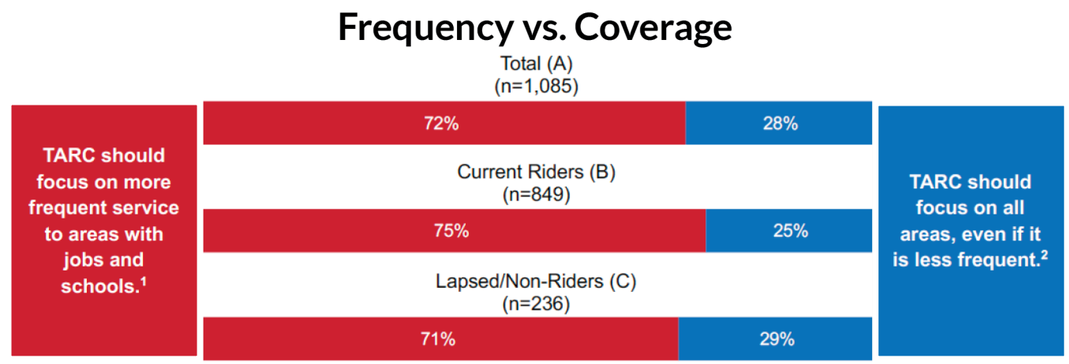
Transfers vs. One-Seat Rides

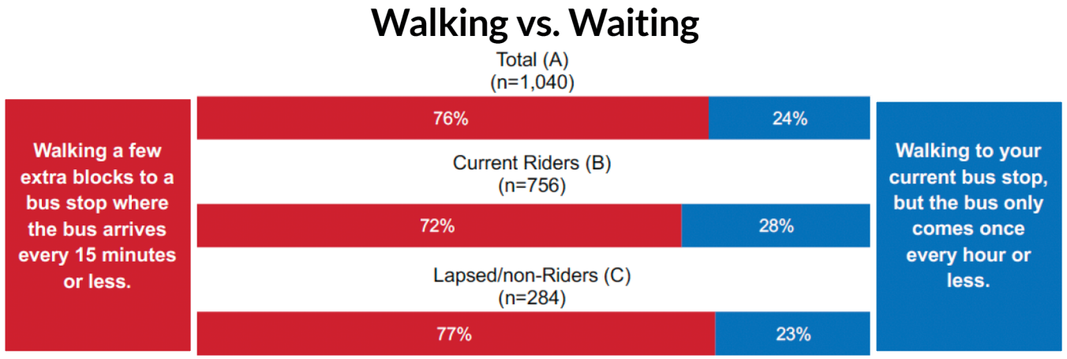
The choice between connections and complexity is another way to think about the ridership-coverage trade-off. When service is concentrated into frequent routes, it is more likely that you may have to transfer from one route to another. But because waits are short, your overall trip can often be shorter.

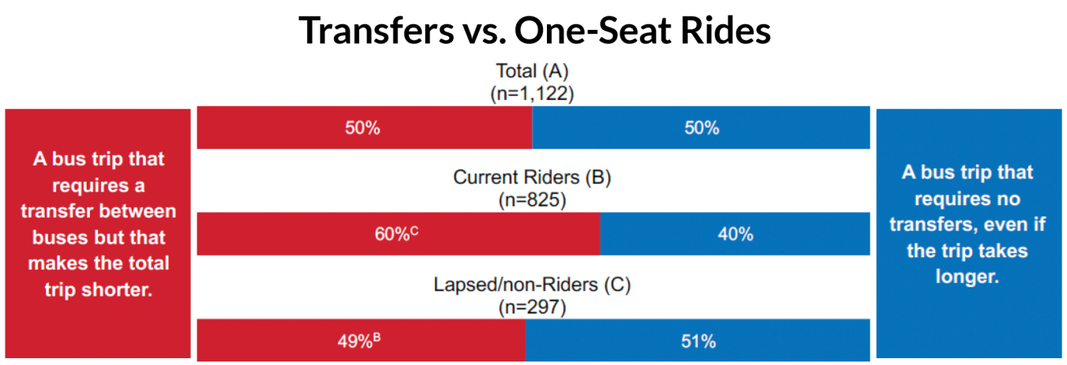
It is possible to design a complex network that is more likely to connect you to destinations on a single route without needing to transfer. But in that case, service is spread out and spread thin across many routes, so they cannot be as frequent.

There was almost an even 50-50 split among the respondents between those who preferred a shorter trip with a transfer, and those who preferred one-seat ride (no transfers) on a longer trip. Current riders were more likely to prefer a connective network (60%), while a very small majority of non-riders (51%) preferred one-seat rides.

Figure 6: Responses to survey questions about transit service trade-offs that relate to the ridership-coverage trade-off. From top to bottom: concentrating frequency vs. wide coverage; longer walks to frequent service vs. longer waits for closer service; and a shorter trip requiring a transfer vs. a longer trip on a single bus.







1 For every question, the overall responses are aggregated by weighing the responses of riders and non-riders by their share in the overall population in Louisville, and not just as a portion of the responses. Transit riders are very small proportion of Louisville's population. So the overall results are often much more similar to the responses of non-riders than those of riders. This is particularly the case when riders and non-riders answer in very different ways.

Investment Priorities

We also asked respondents about value choices and priorities for investing transit resources to achieve specific goals of transit. In particular, respondents were asked about whether TARC should focus service to communities in need (for example, where people have low incomes or don't have reliable access to a car), or spread service equally to all communities, regardless of need.

Figure 7 shows the breakdown of responses to this question. A large majority of respondents overall (80%) believe TARC should focus service towards areas where there are more people who may have a need for transit service. However, riders were much more evenly split on this question compared to non-riders, with 56% preferring this option, compared to 83% of non-riders.

Priorities with More Resources

We also asked people which improvement in service they thought would benefit them the most, among a list of several potential improvements.

The priorities that riders focused on were very different from those that non-riders focused on. **40% of riders preferred more frequent service** as their top priority for improvement. This was followed by **19% of riders preferring more reliable service.** Those two options were the top priorities for the majority of riders. 10% of riders said they prefer service to more places, 9% said their top priority was longer hours of service, while 7% each preferred lower fares and better bus stops. Better sidewalk connections and more direct service (with fewer transfers) were the top priorities of only 3% of riders each.

Among non-riders, 28% preferred service to more places. This was followed by **19% of non-riders who preferred more frequent service** as their top priority (compared to 40% of riders). **Another 17% of non-riders preferred more investment in direct service with few transfers.** These three options were the top priority for a majority of non-riders. These were followed, in order, by more reliable service (12%), better sidewalk connections (10%), better bus stops (7%), longer hours of service (6%) and finally lower fares (2%). Figure 8 on the bottom right summarizes peoples' responses to the question of their top priority for service improvement.

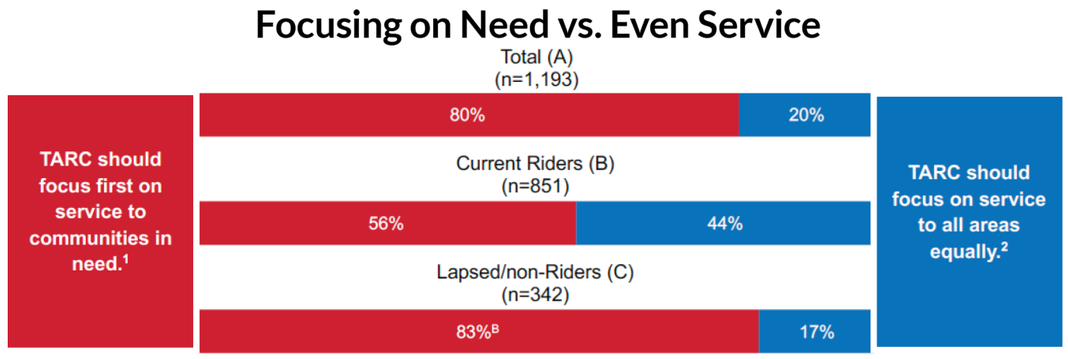


Figure 7: Responses to the question of focusing service to communities in need vs. spreading service equally to all areas.

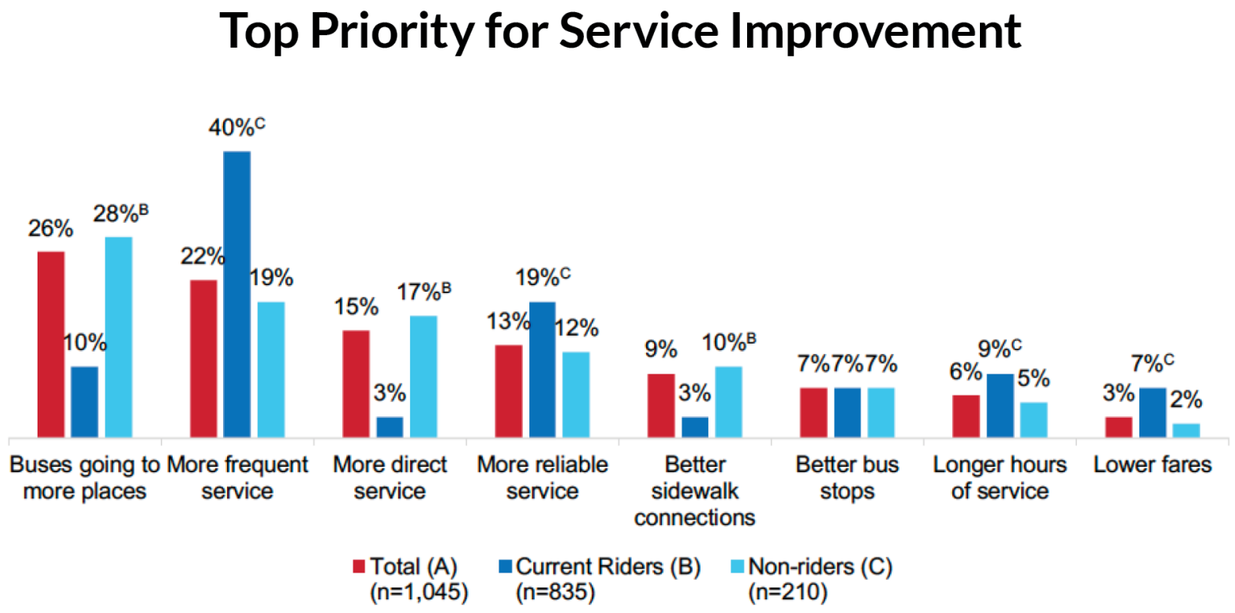


Figure 8: Responses to the question of what is the top priority for service improvement.

What are the Network Concepts?

This report presents **three Network Concepts that show the range of possibility for the future of the TARC network.** These Concepts are a particularly clear way to think about the key choices that we face while designing a transit network in the real context of Louisville.

The Constrained Concepts: Ridership and Coverage

The Ridership Concept and **The Coverage Concept** illustrate two ends of the spectrum, between prioritizing high ridership and wide coverage. They address the question "How should TARC invest its limited resources?"

The Ridership and Coverage Concepts are intentionally very different from one another, so that people can see how a move in one direction or the other would affect bus services they care about, and how that affects the outcomes of change in service.

These two Concepts are designed with around 50% fewer service hours compared to the Spring 2024 network to account for the impending fiscal challenge. Together they show the painful outcomes of service cuts when TARC's resources are severely constrained if nothing changes in the way TARC's operations are funded.

The Growth Concept

The Growth Concept addresses the question "Should we invest in more resources for TARC?" It shows what TARC could look like if additional funding for service was available. The Growth Concept doesn't make a specific ridership-coverage trade-off choice: additional resources can let us design a network that maximizes service in areas of high ridership potential while maintaining most of the existing coverage.

The Growth Concept has approximately 12% more service hours than the Spring 2024 network. We are not identifying specific revenue sources at this point. The Growth Concept is meant to show a hypothetical but reasonable scale of increased funding from TARC.

Range of Possibilities, Not Proposed Options

None of the Concepts are meant to be an either-or proposition. They are meant to show the range of possibilities in a spectrum. At this stage, the most important word to remember is **"if".** Figure 9 on the right summarizes how:

- The Ridership Concept illustrates what might happen **if** the community chose to invest its constrained future resources fully towards fulfilling ridership goals.
- The Coverage Concept illustrates what might happen **if** the community chose to invest constrained future resources fully towards fulfilling coverage goals.
- The Growth Concept illustrates what might happen **if** the community chose to invest in more resources for TARC operations.

No Preferred Concept

At this stage, the TARC 2025 team is not proposing specific changes to the TARC network. The public conversation about the Concepts will help guide the development of a Draft Plan and then a Final Plan.

These are Concepts, not Proposals.

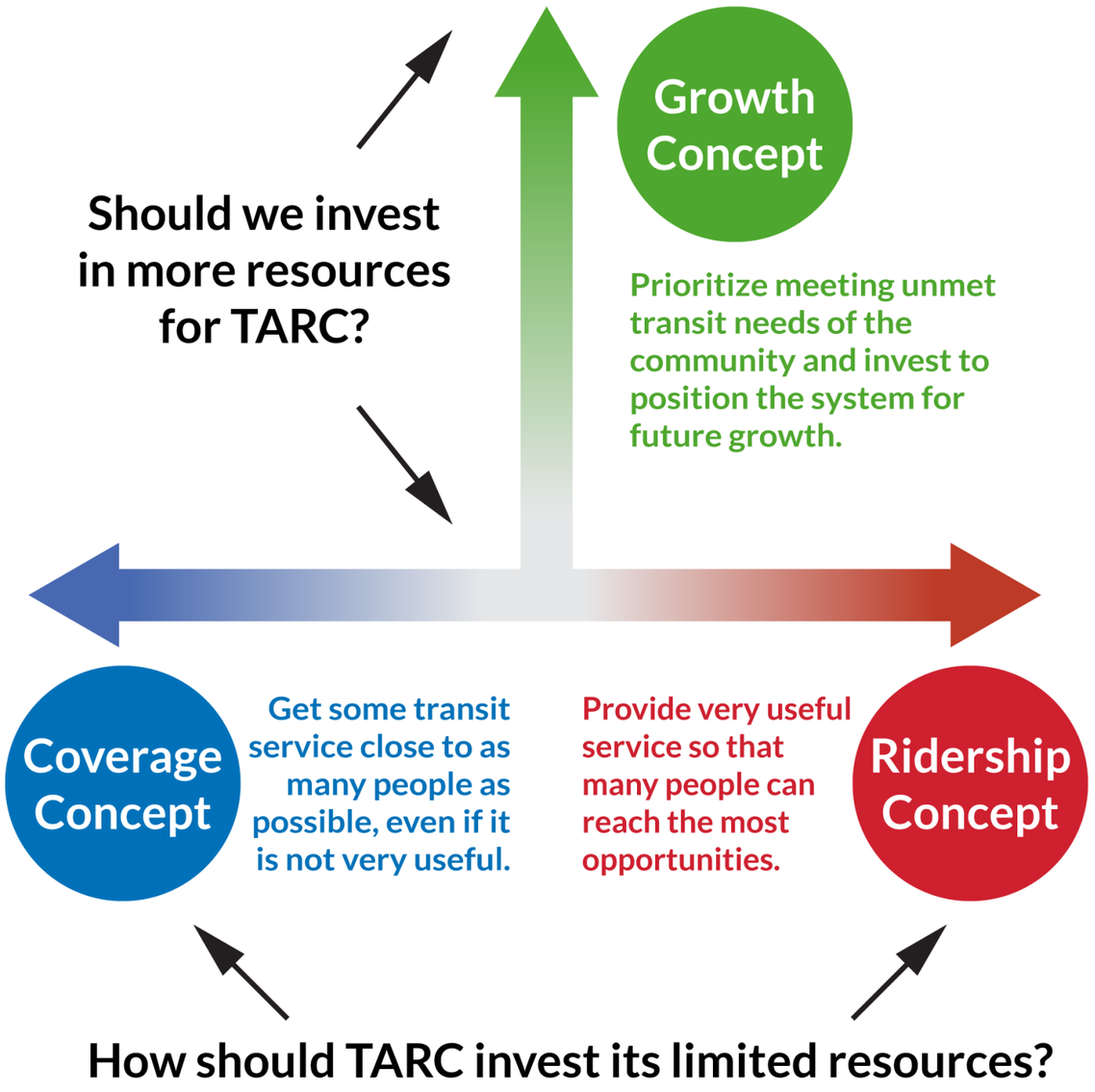


Figure 9: Space of decisions for transit choices for the TARC Network. The Ridership and Coverage Concepts show two contrasting ways to invest constrained resources. The Growth Concept shows what the TARC network could look like with additional funding.

Focus on the Big Picture

These Concepts have not been refined to the point that they would be ready to implement, because **the purpose of the Concepts is to illustrate choices at a high altitude.**

Based on public feedback to the Concepts, we will develop a Draft Plan and then a Final Plan, and details will be clarified during implementation of the TARC 2025 Final Plan.

In general, these Concepts are intended to be complete descriptions of the predominant midday pattern of services, and how frequencies change throughout the day and week.

They are not meant to detail:

- Local routing details such as turnarounds, particularly in Downtown and near future transit hubs
- Minor deviations affecting a few trips
- Timetables: The Concepts identify frequencies for each period of the day, but an actual schedule will include a transition from one frequency to another
- Any changes to TARC3's Paratransit service levels or coverage. TARC 2025 is focused entirely on TARC's fixed route bus network

Some of these details will be added during implementation, but doing so now, at this conceptual stage, would be premature.

Assumptions About Specialization

These three Concepts are primarily meant to think about two specific questions: how TARC should invest its limited resources, and whether we should invest more in TARC service. To keep this process focused on those two questions, we made some assumptions while designing the networks, based on TARC's financial and operational realities.

The current TARC system's services are spread thin across many specialized routes, which were implemented over time to address specific requests from a few members of the community. **With 50% less service, TARC cannot afford a complex network of specialized services.**

Transit resources can be efficiently used when transit can connect diverse sets of people and opportunities, not when it tries to serve specific groups of people with specialized services. In all three Concepts, routes can connect areas that may not be on the same route in today's TARC network. But there are many other ways to think about specialization that are reflected in our assumptions while designing these Concepts.

Less Duplication

One of the outcomes of a very specialized network is that in many areas, there are many overlapping routes on the same streets, which don't form a legible network. We have designed the Concepts to reduce duplication as much as possible. Most corridors have at most one or two routes on them. In many cases where routes overlap, we tried to take advantage of overlapping service by explicitly designating those segments as more frequent. **This "trunk-branch" structure is key to understanding the Concepts,** and is explained on the next page.

Connections Over Complexity

One of the ways TARC's network has become complex over the years is by responding to people's requests for "crosstown" or "orbital" services that don't go into Downtown. Crosstown service can be useful when it is frequent, or so far from Downtown that it's quicker to wait for a crosstown bus than it is to transfer in Downtown on frequent "radial" routes.

In the Constrained (Ridership and Coverage) Concepts, there are very few if any crosstown service patterns, because we can neither afford the level of frequency that would make it useful (in Ridership), nor prioritize crosstown coverage at the expense of radial routes (in Coverage). The Growth Concept, for example, has one frequent crosstown route. It greatly adds to the usefulness of that network both because it is frequent, and quite far from Downtown.

Very Little Peak-Only Service

"Peak" or "Rush Hour" service is a specialized service type whose demand has dramatically declined after the COVID-19 pandemic in many cities. Even before the pandemic, TARC's ridership across the day was much more level and did not match the peaked service TARC provided.

Providing lots of service specifically when office workers commute to and from work is expensive for transit agencies. Peak service needs extra buses which need to be driven out of and into garages twice a day, and agencies have to pay to maintain them. Peaking also results in extremely inefficient operator shifts, which increases labor costs. In every Concept, almost every route has a single, flat frequency throughout most of the day.

No Local Circulators

While a Circulator service can be useful in certain contexts, it has to be extremely frequent in order to be worth riding, over just walking somewhere. The frequency levels required to provide that value, however, are very expensive to support. With the upcoming fiscal cliff, **TARC cannot run frequent circulators without corresponding cuts in service elsewhere.**

Stop Spacing Assumptions

Particularly in the inner urban core of Louisville, TARC bus stops are very close together, sometimes once every block. This means that a frequent, useful route (like Route 23 on Broadway, for example) has to pick up and drop off people almost every block, which makes it really slow.

One of the ways to make frequent transit even more useful is to intentionally have stops spaced wider from each other. People have to walk a little further to get to transit, but the route can be much faster and get you much further in the same amount of time.

In the Ridership and Growth Concepts, we have assumed a stop spacing of around every two blocks (at most every quarter mile) along segments with buses every 15 minutes. The Coverage Concept has very few frequent segments (and very little frequency overall), so we have not assumed a major change in stop spacing.

Downtown Connections

A key part of transit's usefulness is the ability to make easy connections between routes, so that riders have access to areas beyond just the route near them. In all three Concepts we are assuming a transfer point within Downtown Louisville where multiple routes can meet so that riders can make transfers easily and with timed connections.

This transfer point could be at one of many locations within Downtown. Importantly, it would need space where many buses can meet and wait for 5-10 minutes every 30 minutes or 60 minutes. The need for a hub where multiple buses can meet Downtown is greatest in the Coverage Concept, where more routes are running at lower frequency and therefore routes need to be timed to meet so that waiting times to transfer can be minimized.

How to Explore the Concepts

Reading Concept Maps

In every network map in this report, **color means frequency** at midday on weekdays:

- **Red** means buses every 15 minutes (or better).
- **Purple** means buses around every 20 minutes.
- **Deep blue** means buses around every 30 minutes.
- **Light blue** means buses more than every 30 minutes, up to every 45 minutes.
- **Green** means buses more than every 45 minutes, up to every 60 minutes.
- **Thicker tan** lines have more than 60 minutes between buses.
- Thinner tan segments have very limited bus trips, or do not operate during the middle of the day.

Route Branching

In every network map, there are some routes which share a significant common segment, and are grouped together. It is possible to coordinate buses on these routes, so that these **branch routes** can provide a higher frequency on that **common trunk segment.** We show these trunk segments with the color of the combined frequency, and the branches at their lower frequencies. **The trunk segment is a combination of the branches, not a separate route.** Figure 10 on the right shows an example of branching in the Coverage Concept with Routes 4C and 4D.

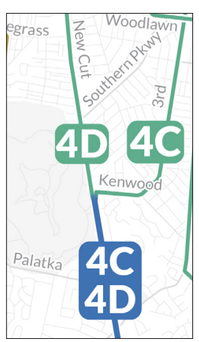


Figure 10: Routes 4C and 4D are hourly branches (green) that combine to offer 30 minute frequency (deep blue) along New Cut Road south of Kenwood Drive.

Short Lines and Long Lines

When the same route number changes color after a certain point, it means that some trips only run in the **more frequent "short line"** segment and turn back at that point, while other trips continue at **lower frequency to serve the "long line".** An example in Route 4 in the Ridership Concept is shown in Figure 11.

Figure 11: Route 4 is every 15 minutes (red) between Downtown and Central Avenue along 4th Street in the Ridership Concept, but only every other trip continues beyond at a 30 minute frequency (deep blue).

Route Numbering

In all three Concepts, routes in some areas may have a different number than the routes that run in that area today. **The route numbers in an area may also be different across the three Concepts.** They may also have similar numbers as today's TARC network.

Often, branch routes in the Concepts have the same numeric prefix, and are distinguished from each other by the suffixes "A", "B", "C", or "D", like in the example in Figure 10[1]. Alternatively, some routes in a trunk-branch set may have different but close-by numbers. For example, in the Coverage Concept, Routes 72 and 73 each have a frequency of every 120 minutes (tan), but combine to offer a 60 minute frequency (green) from Broadway in downtown Louisville to Court Ave in downtown Jeffersonville.

1 In the maps of the Spring 2024 TARC Network on page 17 we do not show branch numbers with specific suffixes. This is because TARC currently does not have officially designated suffixes for branches. The existing branching patterns are also often very complicated.

Reading Frequency Charts

It is also important to understand **when during the day a route is running and what frequency.** For each Concept, we have provided charts that show the frequency of service for each route over the span of a day. Every row in the chart is a route. We show trunk and branch routes together, with the higher trunk frequency highlighted at the top, and each smaller row underneath showing the individual branch routes' frequencies.

Each colored "cell" in a row corresponds to the frequency on the route during that hour of the day. **The colors denote the same frequency categories as in the network maps.** We show frequencies and hours of service separately for weekdays, Saturday, and Sunday. A snippet of the frequency chart for the Ridership Concept is shown in Figure 12 below.

Figure 12: Snippet of the frequency chart of the Ridership Concept showing how the frequency for the branch Routes 1A and 1B, and for their combined trunk segment, changes in the mornings.

Maps of the Ridership Concept

Ridership Concept

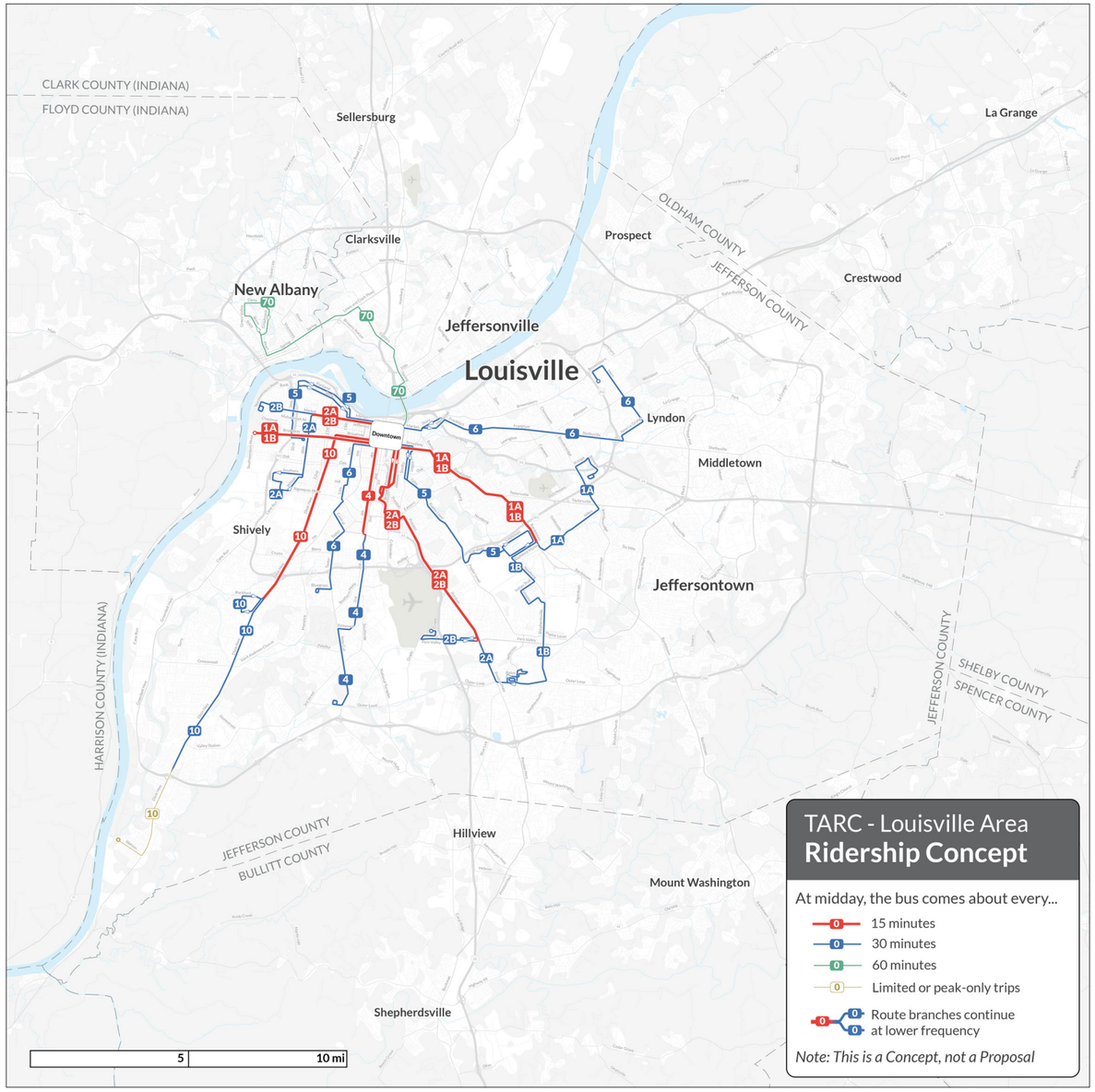


Figure 13: The Ridership Concept in the Louisville Area, with routes color-coded by frequency.

Figure 14: The Ridership Concept in the urban core of Louisville.

Maps of the Coverage Concept

Coverage Concept

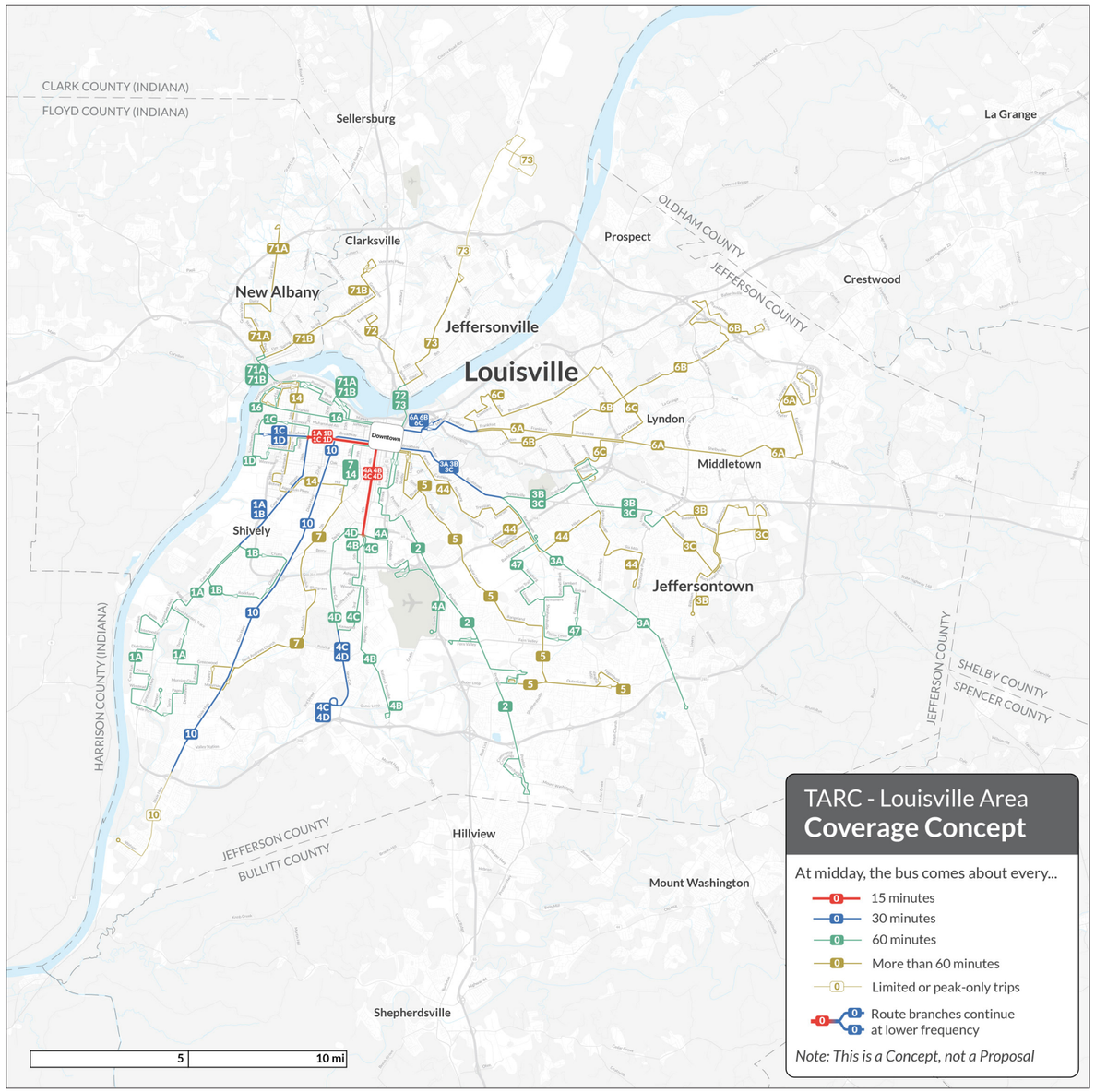


Figure 15: The Coverage Concept in the Louisville Area, with routes color-coded by frequency.

Figure 16: The Coverage Concept in the urban core of Louisville.

Maps of the Growth Concept

Growth Concept

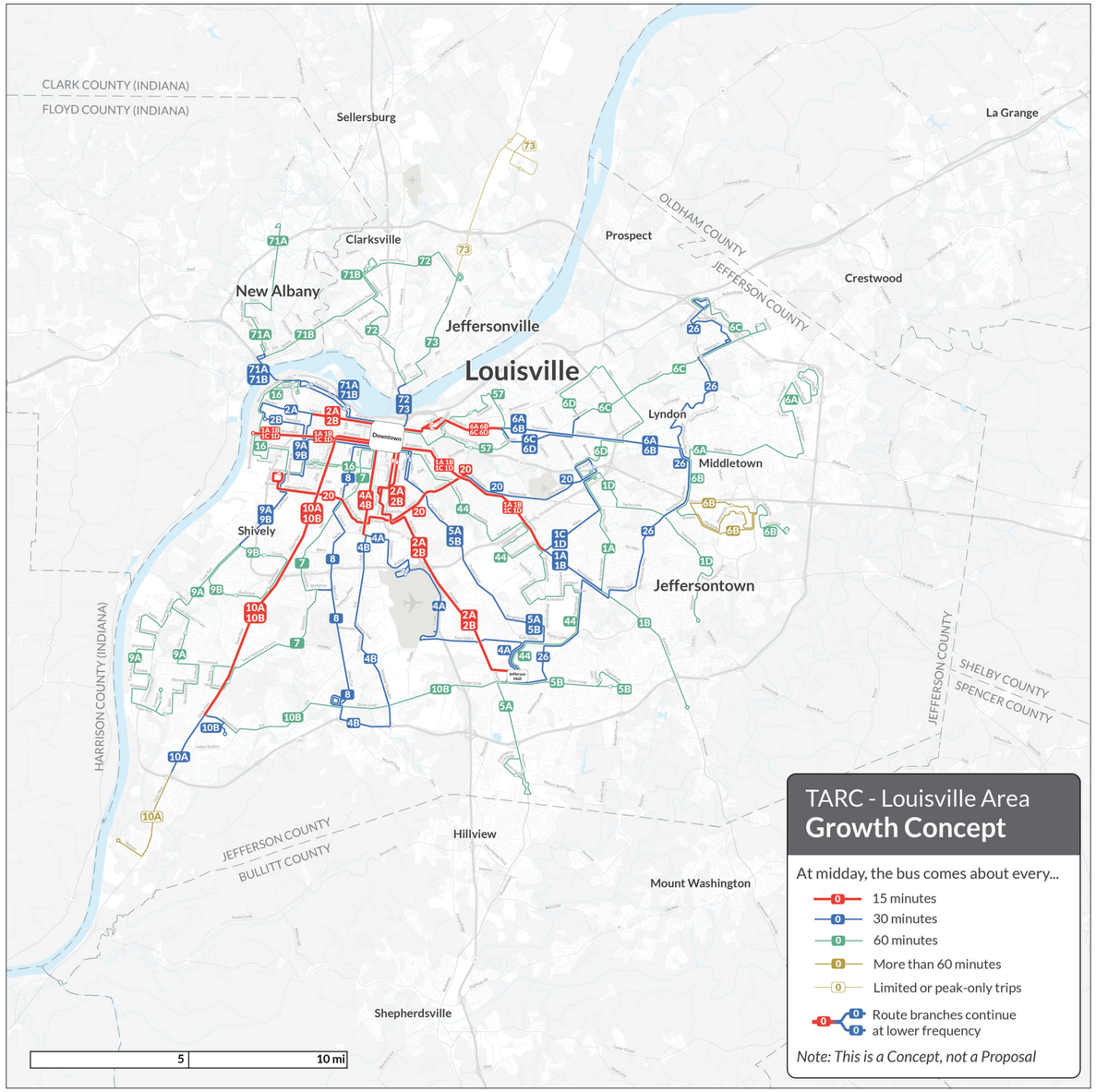


Figure 17: The Growth Concept in the Louisville Area, with routes color-coded by frequency.

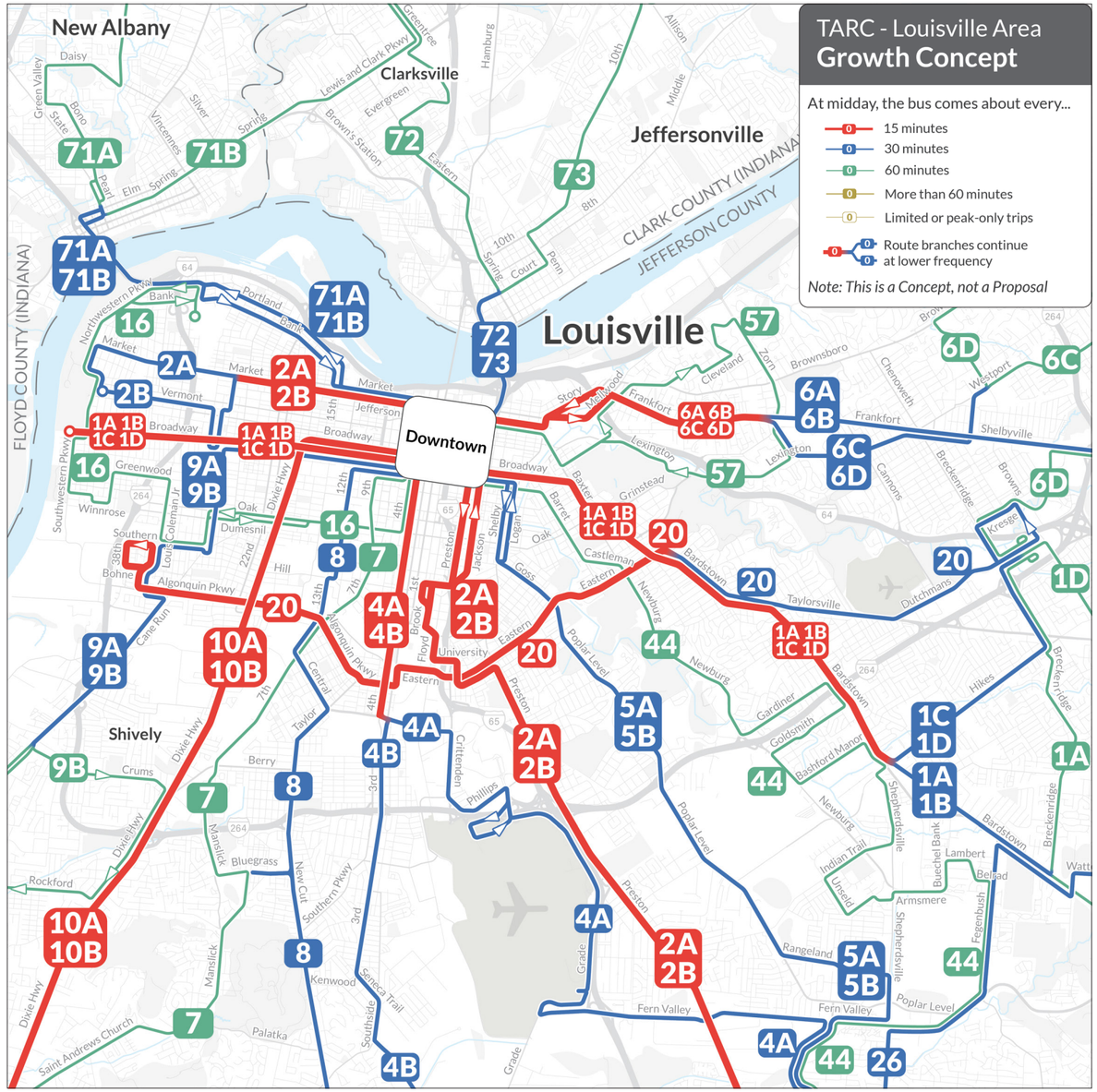


Figure 18: The Growth Concept in the urban core of Louisville.

Maps of the Spring 2024 TARC Network

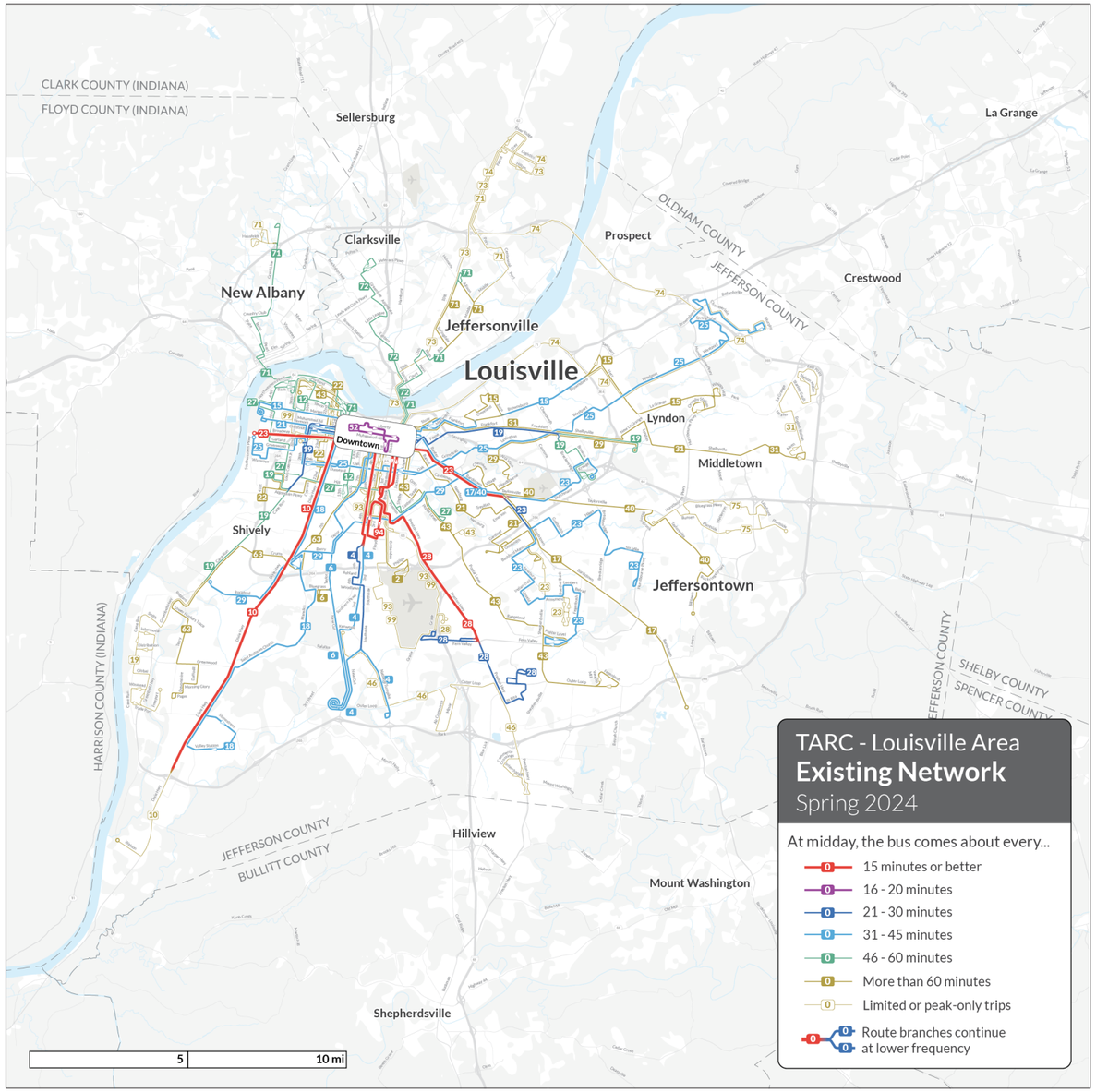


Figure 19: The Spring 2024 TARC network with routes color-coded by frequency.

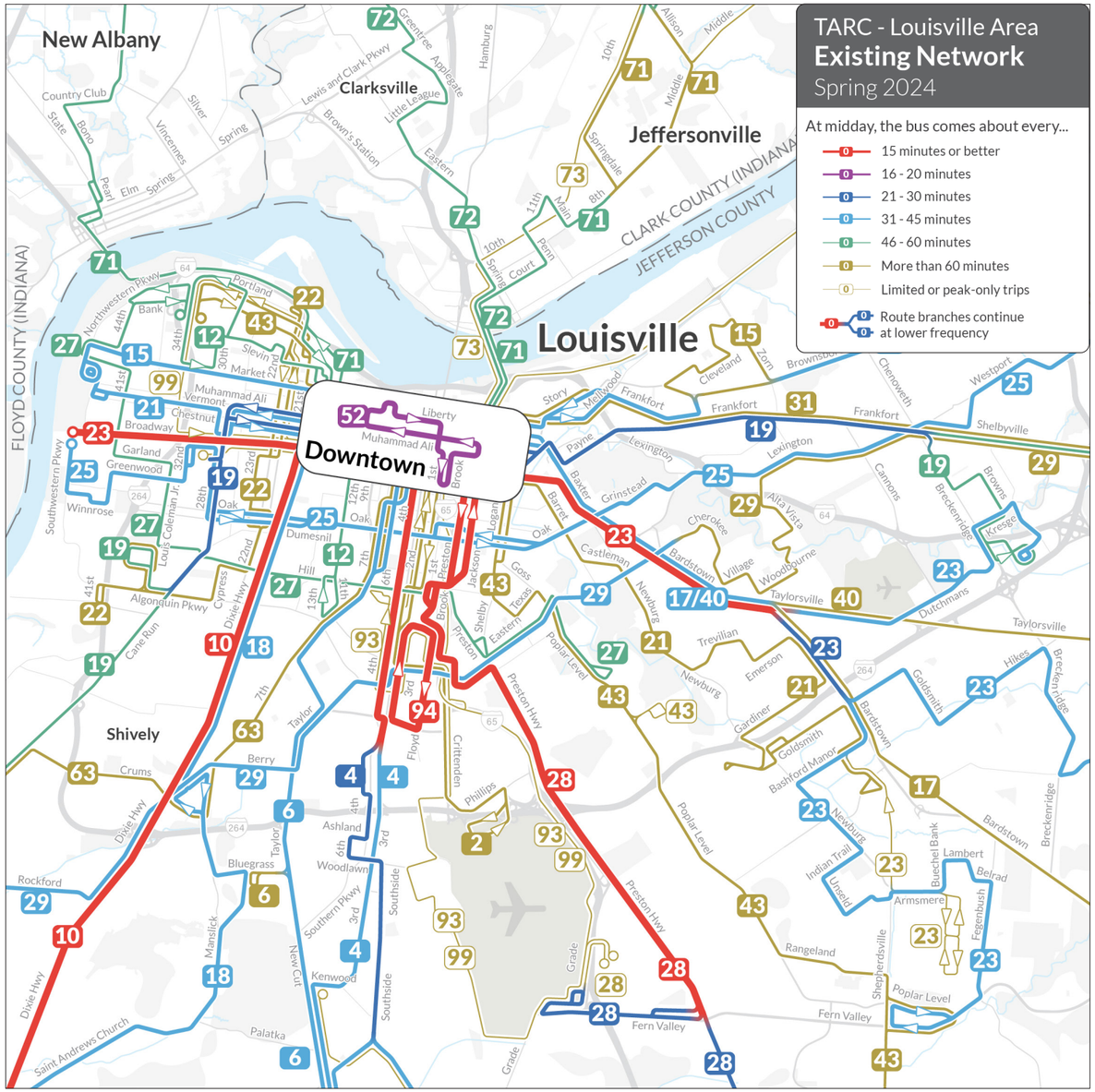


Figure 20: The Spring 2024 TARC network in the urban core of Louisville.

Comparing Outcomes of the Concepts

A useful way to think about changes in transit service is to think about:

- **Access:** How many jobs and opportunities people could reach in a reasonable time, and
- **Proximity:** How many people and jobs are near transit, even if it isn't very useful.

These measurements are not forecasts. They do not need to make assumptions about how culture, technology, prices or other factors will change in the next few years. These are simple arithmetic measures that combine existing distance, time, population, and job data to show the potential of each Concept and how they each differ from the Spring 2024 TARC network[1].

Both these measures tell us about the contrasting goals that transit can help achieve in a community. If you want to get some transit service close to as many people as possible, you would maximize proximity. **Proximity is a measure of coverage goals.**

Proximity by itself does not tell us how useful transit is as an option, only that it is available nearby. The more opportunities and jobs people can reach in a given amount of time, the more useful transit can be to them. People only ride transit when it is useful. So **access is a measure of ridership goals.** If you want to maximize how many people find transit useful and potentially ride transit, you would maximize access.

How Access Measures Usefulness

People will choose to ride transit if they find it useful to get to their destination. High transit ridership results when transit is useful to large numbers of people.

A helpful way to illustrate the usefulness of a network is to visualize where a person could go by transit and walking, from a given location, in a given amount of time.

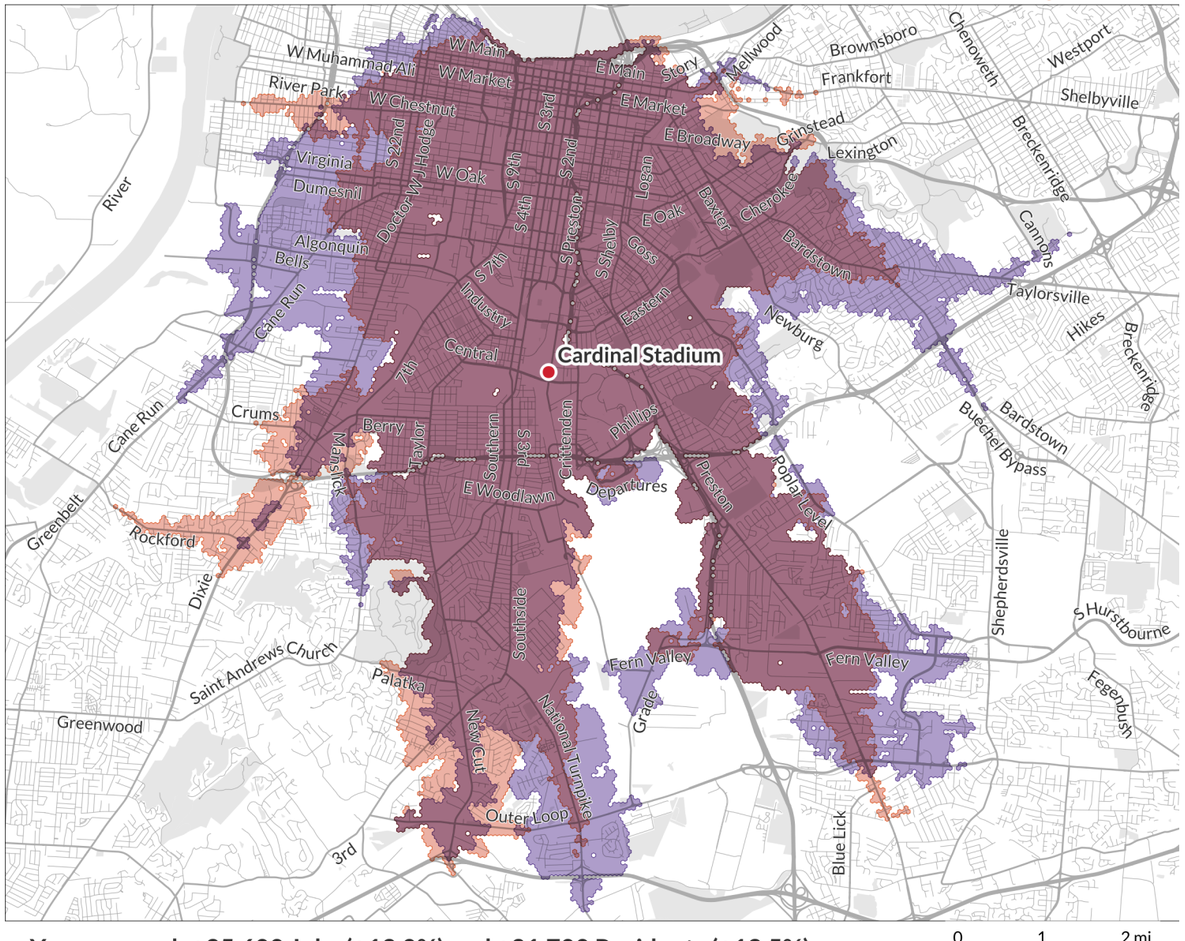
The map on the right shows someone's access from Cardinal Stadium in 60 minutes, at midday on a weekday in the Growth Concept, compared to the Baseline Network. The technical term for this illustration is an **Isochrone.** A more useful transit network is one in which these isochrones are larger, and many more destinations are inside the isochrone, so that each person is likely to find the network useful for more trips.

In this comparative isochrone map, the darker maroon represents areas that are reachable today and remain reachable in the Growth Concept. Areas that are newly reachable are in purple, and areas that are no longer reachable are shown in orange. **We can run the same analysis across Jefferson County to calculate overall change in access in each Concept.** Those results are summarized on the next page and explained in detail on page 37 and page 49.

When thinking about access, remember that frequency counts. More frequency means less time spent waiting, which means being able to get further in a given amount of time. The 60 minute travel time in the isochrones includes the time spent in walking to the bus stop, waiting for the bus, riding the route, waiting and riding time for any further transfers, and to walk from the stop after getting off the last bus.

In the **Growth Concept,** how far can I travel from **Cardinal Stadium**

within 60 minutes, at midday on weekdays?



You can reach +25,600 Jobs (+12.0%) and +21,700 Residents (+12.5%)

0 1 2 mi

Figure 21: An isochrone shows how far someone can go, in a given amount of time, by walking and riding transit. This isochrone map from Cardinal Stadium shows the change in access to jobs and residents within 60 minutes in the Growth Concept, compared to the Spring 2024 TARC Network.

1 In this challenging time where things may rapidly change, it is useful to have a "baseline" network that can serve as a reference point for changes. We compare the outcomes of the Concepts to the TARC Network in Spring 2024, which is when we began the TARC 2025 process. As such, our baseline for comparison in this report does not include the June 30, 2024 service cuts, which were implemented when we were compiling this report.

Change in Access to Jobs in the Concepts

We can add up the job access from each location across Jefferson County. While doing that, we can also consider how many people live in each location. That tells us how many jobs an average resident of Jefferson County can reach, in each Concept.

The chart on the right shows how average job access changes in the three Concepts, for all Jefferson County residents and for specific groups of residents. The grey bars are the jobs accessible in the Spring 2024 network, the red bars are the jobs accessible in the Ridership Concept, the blue bars are the jobs accessible in the Coverage Concept, and the green bars are the jobs accessible in the Growth Concept.

Comparing the Concepts

Residents have a smaller loss in access to jobs in the Ridership Concept (around 8,700 or 13% fewer jobs), and a big access loss in the Coverage Concept (around 26,200 or 38% fewer jobs), compared to the Spring 2024 network.

The Ridership Concept is designed to minimize access loss. So even with 50% fewer resources, residents only have a 13% loss on average. The Coverage Concept is designed to preserve some transit service to almost everyone served today, so it has to sacrifice usefulness and access.

The Growth Concept substantially increases job access. Residents can reach around 13,700 or 20% more jobs on average, within 60 minutes. It has 12% more resources, but they are invested in both focused ridership-oriented service and better service across the Louisville area. This network is not designed specifically to maximize access and yet achieves a 20% improvement over the Spring 2024 network. There is also a substantial improvement in evening and Saturday service in the Growth Concept that is not visible in outcomes measured during the middle of a weekday.

Access Change for Specific Groups

We can also measure these outcomes for specific groups of people. In both the Constrained Concepts (Ridership and Coverage), Residents living in Areas of Persistent Poverty, Low-Income Residents, Households without Cars, and Residents of Color, all have proportionally lesser loss in access when compared to Jefferson County residents overall.

In the Ridership Concept, people in these groups can get to 9%–11% fewer jobs, compared to 13% fewer jobs for residents overall. In the Coverage Concept, the access loss for these group ranges from 32% to 34%, compared to the 38% loss in access for Jefferson County residents overall.

This difference is because of geography: people in these groups tend to be more often located in areas which have more jobs nearby or in places which are easier to serve with transit. So with limited resources, it is slightly easier to preserve job access for the people in these groups.

In the Growth Concept, these groups of residents have proportionally lower increases in job access within 60 minutes, compared to residents overall. This is because the Growth Concept tries to invest in better service across the entirety of TARC's service area without making specific ridership-coverage choices. So people who live in areas which already have high transit access (compare the grey bars for each group to the first grey bar) see more modest improvements in the Growth Concept.

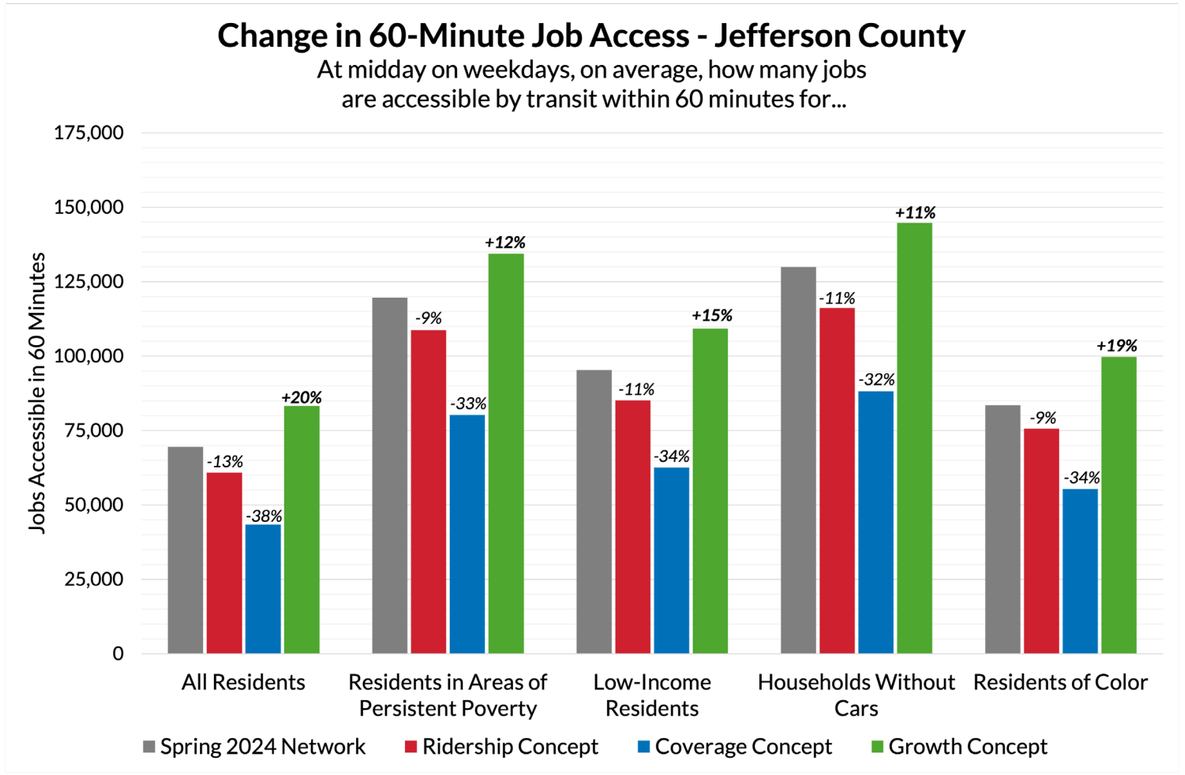


Figure 22: Change in access to jobs by walking and transit within 60 minutes at midday on a weekday in the three Concepts, compared to the Spring 2024 network.

The Ridership Concept preserves as much access as possible with service cuts.

The Coverage Concept sacrifices usefulness and access for preserving coverage.

The Growth Concept improves access to jobs across Jefferson County by 20%

Change in Proximity to Transit in the Concepts

The chart on the right shows the coverage provided by TARC services in Spring 2024, compared to the coverage provided by all three Concepts, at midday on a weekday. Each group of bars is the portion of residents, jobs, or a particular group of residents within Jefferson County that are near transit (that is, they have transit coverage). The overall coverage is divided into coverage by transit of particular frequencies at midday. That tells us a bit more about how many people and jobs are near service that is useful.

Proximity to Any Service

Within the fiscal constraints, the Coverage Concept is designed to minimize loss in how many people and jobs are near transit. Around 26,000 residents in Jefferson County (3%) are no longer near transit in the Coverage Concept, while 204,600 residents (26%) are no longer near transit service in the Ridership Concept. 25,400 jobs (or 4% of all jobs) in the Coverage Concept, and 175,400 (29%) jobs in the Ridership Concept no longer have any transit near them.

In the Growth Concept, 1-2% fewer people and jobs in Jefferson County are near transit than in Spring 2024, but almost all of the people and jobs near transit have a route which comes every 60 minutes or better. This is a much higher portion than in either of the Constrained Concepts or the Spring 2024 network. The slight loss in proximity is because we don't invest in specialized and peak-only services, which got transit close to 3% of people and 8% of jobs in Jefferson County in Spring 2024.

Proximity to Frequent Service

The Ridership Concept is designed to focus frequent, useful service where most people and jobs are. It preserves and slightly adds to the number of people and jobs which are near frequent service (red bars), compared to the Spring 2024 network. The portions of people and jobs near frequent transit are much lower in the Coverage Concept compared to the Spring 2024 network: 9% fewer people and 19% fewer jobs in Jefferson County. Many people and jobs are near transit that comes at best only every 60 minutes, as seen in the large green and tan bars.

The Growth Concept can provide frequent transit in many new areas, so the red bars are much bigger than either of the Constrained Concepts or the Spring 2024 network. Around 42,600 more people and 34,400 more jobs (6% for both) have frequent service in this Concept.

The Ridership Concept preserves proximity to frequent transit but sacrifices overall proximity.

The Coverage Concept preserves overall people and jobs near transit, but not near frequent transit.

The Growth Concept substantially improves transit service almost everywhere, and brings frequent transit close to 42,600 more people and 34,400 more jobs.

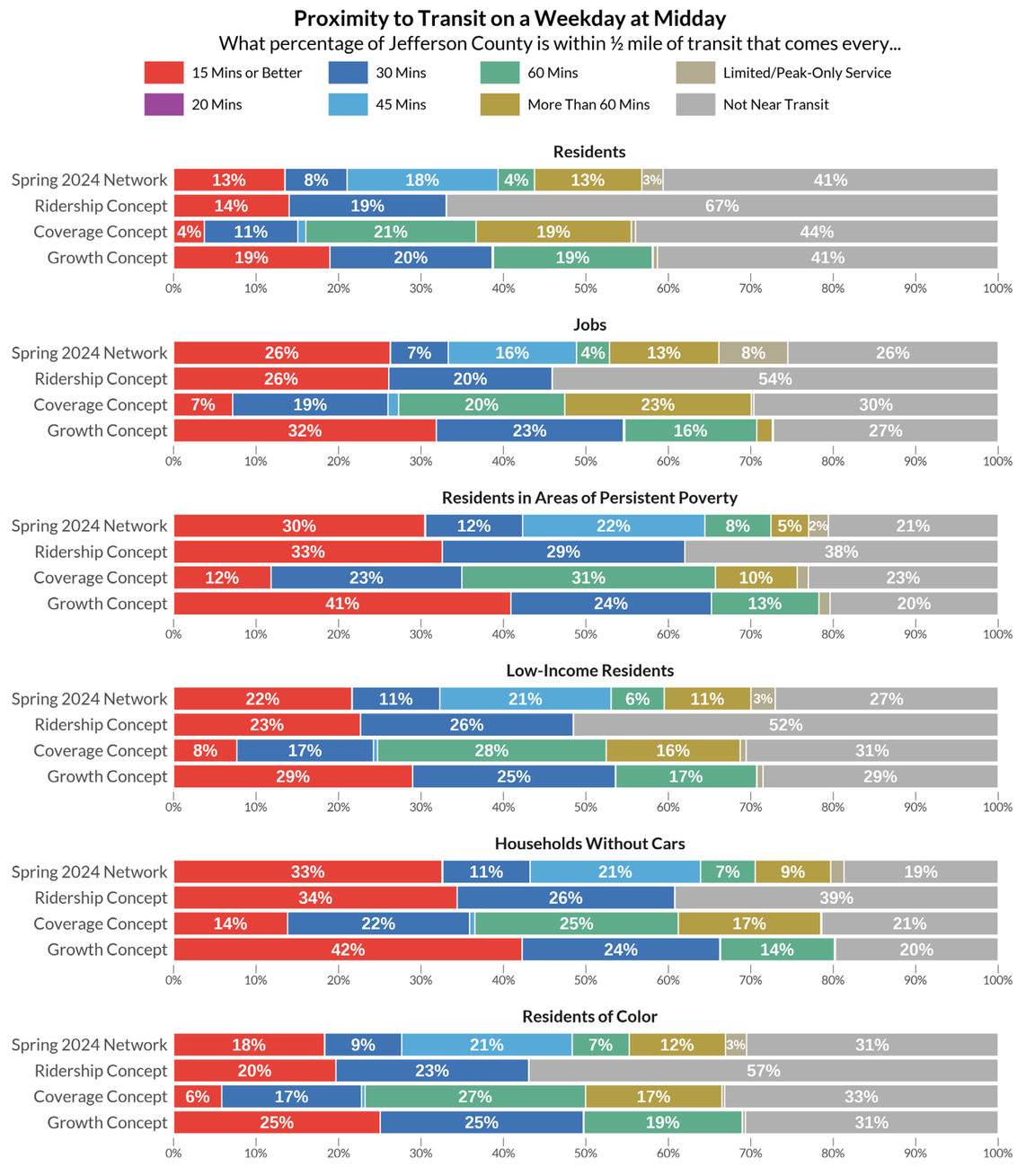


Figure 23: Proximity of people and jobs to transit by the frequency of service at midday on a weekday, in the Spring 2024 Network, Ridership Concept, Coverage Concept, and the Growth Concept.

Change in Outcomes for TARC Riders

We can estimate how job access and proximity outcomes would change for current TARC riders in each of the Concepts. Although we do not know the exact start and end point of any person's journey when they decide to ride the bus - we do know how many boardings take place at each TARC stop on average across a typical day.

Change in Access

Figure 24 shows how job access changes at midday on weekdays for riders under the Spring 2024 network and each of the three Concepts. In reality, each rider's access within 60 minutes would change depending on what time of day they start their journey. Access at midday represents the service available most of the day. We can get an **overall sense of change in access for TARC riders** by aggregating the access change from each stop and weighing it by the boardings at that stop.

In the Ridership Concept, riders can get to 11% fewer jobs within 60 minutes, compared to the Spring 2024 network. In the Coverage Concept, they can get to 31% fewer jobs. In the Growth Concept, riders can get to 11% more jobs on average. The patterns of relative change in job access within 60 minutes for TARC riders are similar to patterns of access change for residents overall, described on page 19.

Change in Proximity

Figure 25 shows the change in proximity of TARC boardings to transit during midday on weekdays, for the Spring 2024 network and the three Concepts.

In both the Coverage Concept and the Growth Concept, almost every TARC boarding is still at or nearby a stop with some transit service: there are minimal sections indicating boardings not near transit. 15% of TARC's boardings are not near any transit service in the Ridership Concept.

Change in Proximity to Frequent Service

70% of TARC's ridership in the Spring 2024 network is at stops which have frequent service during midday. This is despite the fact that the frequent routes and segments only cover 13% of residents in Jefferson County. This underscores how important frequency is to usefulness and thus to ridership.

With the Ridership Concept, 65% of TARC boardings are at or near bus stops which have frequent service at midday. Only 28% of boardings are at or near stops with frequent midday service in the Coverage Concept. 70% of TARC boardings are at or near stops with frequent midday service in the Growth Concept.

Almost 84% of TARC boardings are at or near stops with service at least every 30 minutes in the Ridership Concept, which is better than the 79% in the Spring 2024 network. With the Growth Concept, 92% of TARC boardings are at or near stops with service every 30 minutes or better.

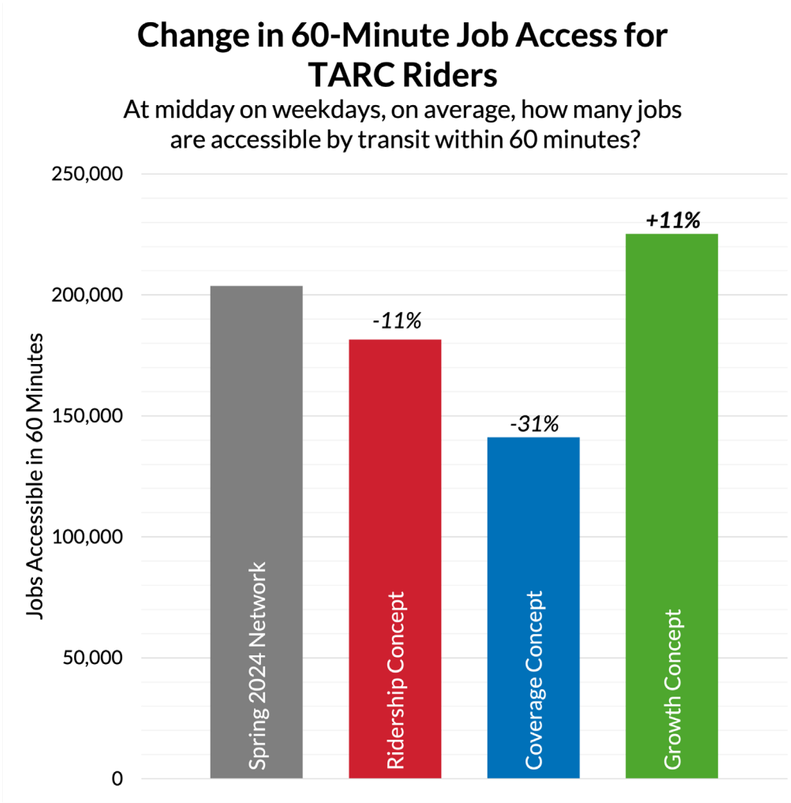


Figure 24: Change in access within 60 minutes for TARC riders at midday on weekdays.

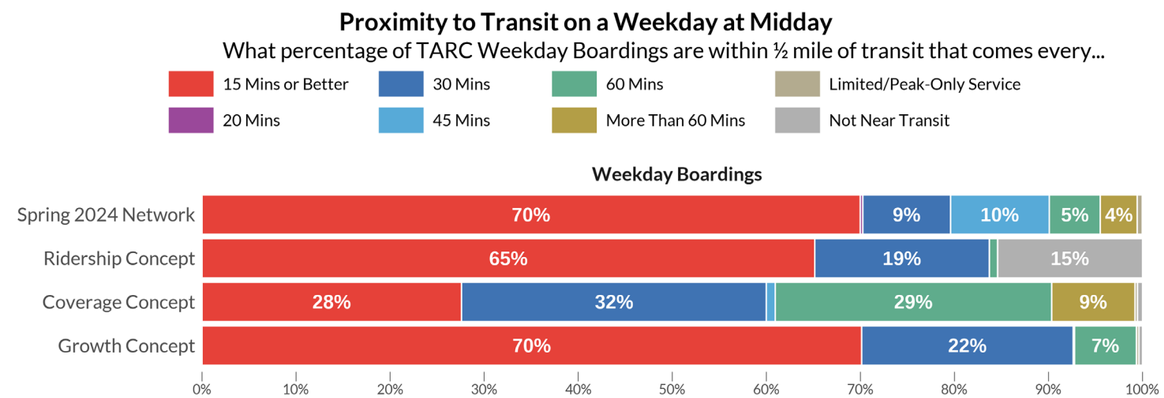


Figure 25: Change in proximity of boardings to transit at midday on weekdays.

What Else is in This Report?

The remainder of this report describes the three Concepts and their outcomes in detail.

The Constrained Concepts and Their Outcomes

Chapter 2 introduces the Ridership Concept and the Coverage Concept, which provide two contrasting ways to invest constrained TARC resources. **The balance between opposing value choices that these Concepts illustrate cannot be decided without your input, and there is no technically "better" network.**

For both Concepts, we provide maps, a detailed description of the routes, and tables of frequency of each route over the span of the day and week.

In Chapter 3, we present three ways to think about the impacts of reducing service: isochrones, access, and proximity. These outcomes measure the usefulness of transit (isochrones and access), and whether transit is close to people and jobs, regardless of usefulness (proximity). Which outcome is more important to you depends on your priorities for TARC. This chapter compares these outcomes for both Constrained Concepts to the Spring 2024 TARC network.

The Growth Concept and its Outcomes

In Chapter 4, we present the Growth Concept, which provides a vision for what TARC could look like if it had additional stable funding for service. Like for the other two Concepts, this chapter also has maps, a detailed description of services, and charts of frequency by route across the day and week.

In Chapter 5, we present sample isochrones in the Growth Concept, and compare the access and proximity outcomes for all three Concepts.

Next Steps

This Network Concepts Report is the basis for the upcoming round of engagement that will begin at the end of July.

We will gather your input through an online survey and in-person surveying, stakeholder meetings, and other engagement events. Details on the latest event and the online surveys will be available at:

www.ridetarc.org/tarc2025

Future phases of engagement will include

- Draft Plan Phase where we will present recommendations for a new TARC network in a fiscally constrained scenario, and in a scenario with additional funding.
- Final Plan Phase where TARC will present the final plan, explain how we got to the recommendations, and describe when new routes and services will be implemented.

We hope you will engage with TARC 2025 so that we can all move forward together.

2: The Constrained Concepts: Ridership and Coverage

The Ridership Concept

Ridership Concept

The map on the right shows the predominant daytime frequency on each route in the Ridership Concept. A map of the Ridership Concept in the broader Louisville Area is on the next page.

The Ridership Concept **concentrates TARC's limited resources into frequent, useful service near the most people and jobs,** where transit can run in direct, linear paths. Except for service in Indiana, no route has a frequency worse than every 30 minutes.

Because the Ridership Concept focuses on frequent, useful service, it cannot provide transit service in every place TARC serves today, particularly when there is 50% less service. But **wide coverage is not the goal that the Ridership Concept is designed for.**

Preserved Frequency

The Ridership Concept **maintains frequency on most of TARC's current frequent corridors** (shown in red on the maps), and expands frequent service to some new areas.

Routes 1A and 1B combine to provide 15 minute frequency on Broadway and Bardstown Road all the way from Shawnee Park in the West to Bashford Manor Lane in the East. The existing Route 23 has 15 minute service along Bardstown Road only as far east as Taylorsville Road.

Routes 2A and 2B provide 15 minute service along Preston Highway from Downtown all the way south to Fern Valley Road, similar to the existing Route 28. These routes continue through Downtown into West Louisville, and provide new frequent service along Market Street as far west as 28th Street.

Route 4 along 4th Street is similar to the existing Route 4. Its frequent segment is between Downtown and Central Avenue. This is very slightly shorter than the existing network, in which Route 4 splits into its less frequent branches at Harlan Avenue.

In the Spring 2024 network, further south between Harlan Avenue and Kenwood Drive, Route 4's branches were on different streets, but they were very close to each other. In that network, someone in this area could plan to walk to different stops but still catch a bus coming every 15 minutes. In the Ridership Concept, people in this area can only get a bus every 30 minutes (deep blue) on 3rd Street.

The frequent segment of Route 10 along Dixie Highway is significantly shorter than today. Route 10 in the Ridership Concept is every 15 minutes only between Downtown and Rockford Lane. Every other trip ends there and the rest continue south to/from Valley Station at a 30 minute frequency. This is the only route on Dixie Highway, so in the Ridership Concept, Route 10 would stop at some of the stops which are currently only served by Route 18 and not Route 10.

Limited Coverage on 30 Minute Routes

Branches and Long Lines of the Frequent Corridors

Route 1A continues after Bashford Manor Lane along Hikes Lane to Breckenridge Road and ends at the hospitals along Kresge Way and Dutchmans Lane. This maintains parts of what the existing Route 23 does in this area, but in a more simple and frequent manner.

Route 1B continues along Bashford Manor Lane, Newburg Road, Unseld Boulevard, and then along Shepherdsville Road all the way to Outer Loop before ending at Jefferson Mall. This area is currently only has a Route 23 branch that is very circuitous and only runs every 45 minutes. The

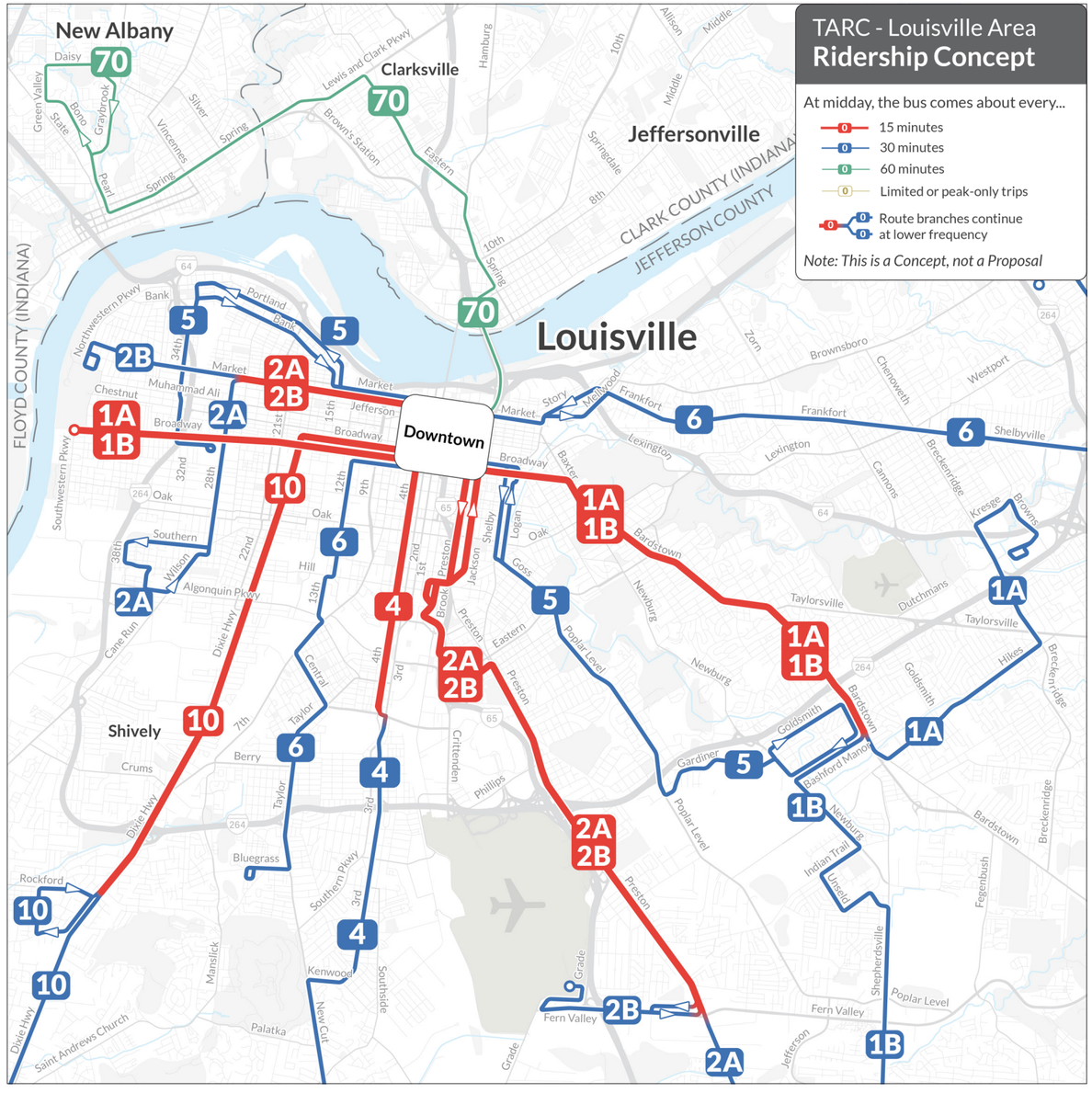


Figure 26: The Ridership Concept in the urban core of Louisville.

Ridership Concept

existing Route 43 along Shepherdsville Road is also infrequent.

South of Fern Valley Road, Route 2A continues along Preston Highway to Outer Loop and ends at Jefferson Mall. It does not deviate into Okolona like the existing 30 minute branch of Route 28. In West Louisville, Route 2A continues south along 28th Street and ends in Park Duvalle.

Route 2B continues to UPS Worldport via Fern Valley Road like the other branch of the existing Route 28. In West Louisville, Route 2B continues along West Market Street and ends near the north entrance of Shawnee Park.

Route 4 continues south of Central Avenue with a frequency of every 30 minutes along 3rd Street, Kenwood Drive, and New Cut Road, and ends at the Walmart on Outer Loop.

Half of the trips on Route 10 end at Rockford Lane, while the other half continue along Dixie Highway to Valley Station every 30 minutes. In the morning and afternoon peak periods, those trips start and end at Valley Village, serving Watson Lane (shown as a thin tan segment).

30-Minute Routes

Route 5 in West Louisville starts at Nia Center, serves 34th Street, the Kroger by 35th Street, and then serves Portland in a Bank Street-Portland Avenue couplet similar to Routes 43 and 21 today on its way to Downtown. This area has a very complicated network of infrequent routes, and Route 5 is a simple, linear, 30 minute route that provides many of those connections.

Route 5 continues through Downtown along Broadway and then serves the South Shelby Street-Logan Street couplet, Goss Avenue, Poplar Level Road, Gardiner Lane, and then ends at Bashford Manor Mall using Goldsmith Lane and Bashford Manor Lane. This area is currently served by Route 43 and parts of Route 21. In the Ridership Concept, this area also doesn't have crosstown "orbital" routes like the existing Routes 25, 27, and 29.

In eastern parts of Louisville, Route 6 provides service from the new VA Hospital near Crossgate, along Herr Lane, New La Grange Road, Shelbyville Road, Frankfort Avenue, and East Market Street to Downtown. This area is served currently by Route 19 every 30 minutes and various infrequent segments of Routes 15 and 31.

Route 6 continues through Downtown along Broadway to 12th Street, through Parkway Place on 13th Street, then along 7th Street Road, Central Avenue, and Taylor Boulevard, and ends at the UofL Mary and Elizabeth Hospital. This area is served currently by the infrequent Route 6 which also covers 6th Street, and Route 12, which doesn't go into Downtown. In the Ridership Concept, this area won't have crosstown "orbital" routes like the existing Routes 25, 27, and 29, or a one-seat ride to the Outer Loop Walmart.

Service in Indiana

As in Kentucky, there is a proportionate reduction in service to Indiana. Route 70 in the Ridership Concept is the only route that goes to Indiana. Every 60 minutes (green), it starts in Downtown Louisville and serves Downtown Jeffersonville, Spring Street, Downtown Clarksville via Eastern Boulevard, Lewis and Clark Parkway, Spring Street in New Albany, and Bono Road, Daisy Lane, and Gray Brook Lane.

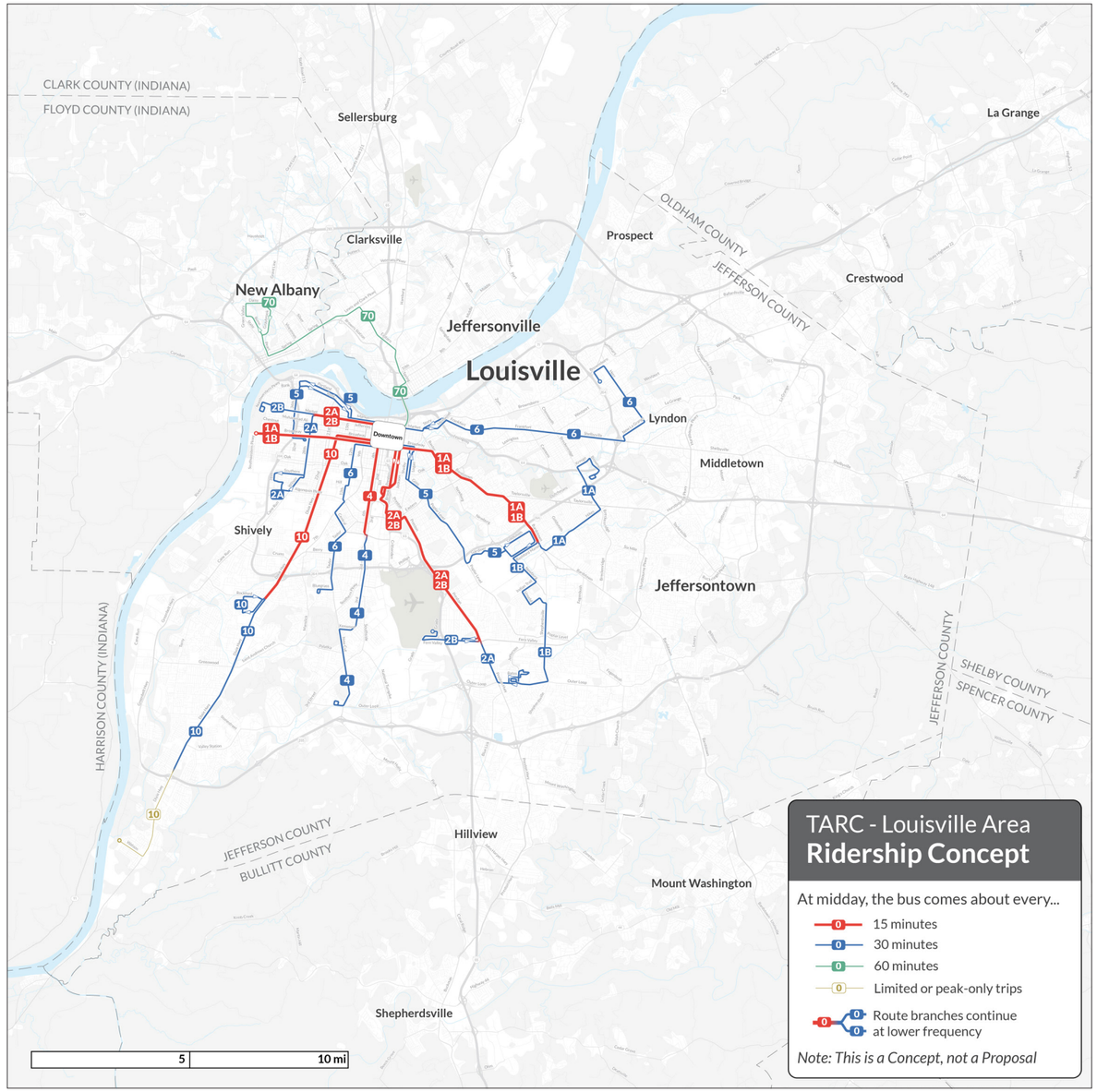


Figure 27: The Ridership Concept in the Louisville Area.

Ridership Concept

Consistent Weekday Spans

The chart on the right shows the frequency of each route in the Ridership Concept across the day on weekdays. It also shows the "trunk" segments for routes that together provide higher frequency on certain corridors. Each cell is colored by the planned frequency of that route during that hour of the day: red is every 15 minutes, blue is every 30 minutes, and green is every 60 minutes.

Offering **long spans of service throughout the day and week, in places where large numbers of people can use transit, is key to attracting high ridership** over time. On Weekdays, all routes in the Ridership Concept run from 5 AM to midnight. Every route offers its predominant daytime frequency between 6 AM and 7 PM. Compared to the existing network, the Ridership Concept has consistent frequencies across each route frequency category across much of the day.

Between 5 AM and 6 AM, and after 7 PM, the frequent "trunk" corridors only have 30 minute service. Their branch routes (1A, 1B, 2A, and 2B) and long lines (on Routes 4 and 10) are only every hour during those periods.

Routes 5 and 6 are every 30 minutes until 10 PM and then every hour until midnight. Route 70 provides the same hourly frequency throughout the day.

TARC Bus Route Frequencies, Ridership Concept

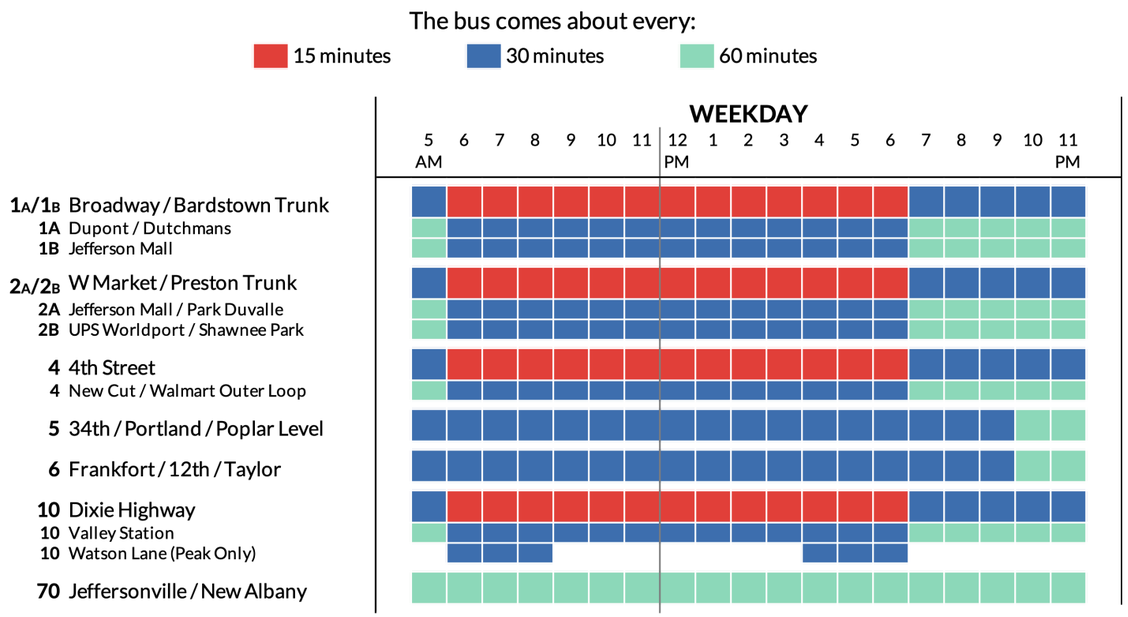


Figure 28: The frequency and span of service on weekdays for each route in the Ridership Concept.

Ridership Concept

Investment in Weekend Service

The chart on the right shows the frequency of each route in the Ridership Concept across the day on weekends. All routes run from 5 AM to midnight, just like on weekdays. So every route in this Concept is available 5 AM to midnight all week.

Frequent Service on Saturdays

The Ridership Concept has almost the same frequencies across the day on Saturdays as it does on weekdays. **Any trunk segment that is frequent on Weekdays is also frequent on Saturdays.** This is very different from TARC timetables in Spring 2024.

This is a deliberate choice towards ridership goals, within the constraints of the 50% lower service. When service can be useful on weekdays and weekends, people choose to use transit more often.

The only difference on Saturdays compared to Weekdays is that the 30 minute Routes 5 and 6 are every hour starting earlier at 7 PM, instead of 10 PM.

Longer Sunday Spans

Compared to Weekdays, frequencies are lower on the trunk segments on Sundays: they are every 30 minutes all day from 5 AM to midnight. Routes 5 and 6 have the same service as on Saturday. The hourly Route 70 in Indiana has the same span and frequency throughout the week.

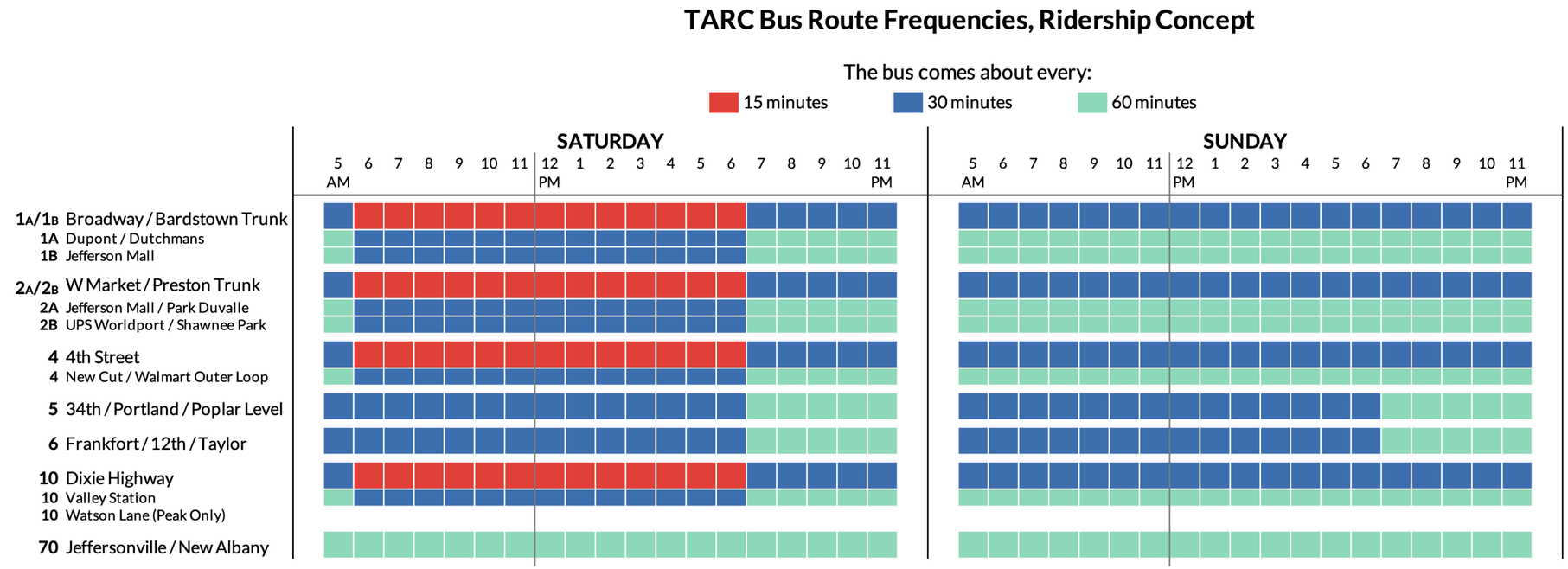


Figure 29: The frequency and span of service on weekends for each route in the Ridership Concept.

The Coverage Concept

Coverage Concept

The map on the right shows the predominant daytime frequency on each route in the Coverage Concept. A map of the Coverage Concept in the broader Louisville Area is on the next page.

The Coverage Concept ensures that **TARC continues to provide some level of transit service in almost all of the areas it currently serves.**

With a 50% budget cut, most places will have routes that are not very frequent and useful. Most segments on this map are green or tan, which means many areas will have a frequency of at best every hour. But **providing frequent, useful service is not the purpose of a network designed for high coverage.**

Preserved Coverage

Below is a detailed overview of the Coverage Concept routes in Jefferson County, starting in West Louisville and going counterclockwise around Downtown. Service in Indiana is described on page 30.

West Louisville

Routes 71A and 71B connect Portland to Downtown and New Albany every 60 minutes. This area is currently served by Routes 12, 22, 43, and 71.

Route 16 runs along West Market Street between Downtown and Shawnee Park every hour, similar to the western half of today's Route 15. There is no service on West Muhammad Ali Boulevard in the Coverage Concept, but current Route 19 riders here can walk to Route 16 on West Market Street or to Broadway, which still has frequent service between Downtown and 28th Street.

Route 1C towards Shawnee Park serves Vermont Avenue every hour, and stays on Broadway towards Downtown. Route 1D similarly serves Greenwood Avenue every hour outbound and Broadway inbound. Together, they provide one-way 30 minute service on Broadway. Between 28th Street and Downtown, Routes 1A, 1B, 1C, and 1D together provide two-way service every 15 minutes. Route 14 along 34th Street and Hill Street provides a "crosstown" connection every 2 hours in this area.

Southwest Louisville

Routes 1A and 1B together provide 30 minute service on Cane Run Road and 28th Street like the existing Route 19. Beyond Shively, Route 1A continues on Cane Run Road every hour to serve Greenwood and Pleasure Ridge covered by the existing Routes 19 and 63. Route 1B serves Crums Lane, Dixie Highway, and Rockford Lane one way.

Route 10 serves Dixie Highway, but only every 30 minutes. There is no separate "local" route like today's Route 18, so Route 10 in this Concept serves the stops on Dixie Highway that are today served only by Route 18. Some trips on Route 10 continue south to Watson Lane during morning and afternoon peak periods. Route 7 on 7th Street and Manslick Road covers areas served today by Routes 12, 18, and 62, every two hours. Route 7 and 14 together provide hourly service on 12th Street from Hill Street to Downtown.

South Louisville

Route 4A provides hourly service from UPS Worldport and the Airport to Downtown, which is more frequent than today's Route 2. Routes 4B, 4C, and 4D cover most of the same streets as the branches of the existing Route 4. Routes 4C and 4D alternate to provide 30 minute service between the Outer Loop Walmart, southern New Cut Road, and Downtown. North of Central Avenue, Routes 4A, 4B, 4C, and 4D provide 15 minute service to Downtown.

Figure 30: The Coverage Concept in the urban core of Louisville.

Coverage Concept

Southeast Louisville

Route 2 provides service similar to today's Route 28 along Preston Highway, but only every hour instead of every 15 minutes. It does not branch like today's Route 28, but continues to Fern Valley Road, Jefferson Mall, and back south along Preston to end at the Standiford Plaza Walmart like Route 46 did before the June 30, 2024 service reductions.

Route 5 in the Coverage Concept is similar to today's Route 43, and only has service every 90 minutes. It does not deviate into the Zoo or on Fern Valley Road, but does deviate to serve Jefferson Mall on Outer Loop before ending at Outer Loop Plaza.

Route 44 on Newburg Road is also every 90 minutes. It is similar to today's Route 21, but east of Bardstown Road, it covers Hikes Lane, Breckenridge Lane, and Six Mile Lane like one of the branches of today's Route 23.

The area served by the Newburg-Fegenbush branch of today's Route 23 is covered by Route 47 every hour in the Coverage Concept. However, Route 47 ends after reaching Bardstown Road. To get to or from Downtown, riders will need to transfer to Route 48. But this transfer can be timed by adjusting these routes' timetables, so it will be only a few minutes of added wait time.

East Broadway and Bardstown Road only have service every 30 minutes in the Coverage Concept, provided by Routes 3A, 3B, and 3C. These routes cover the areas currently served by Routes 17, 23, and 40. 3A is an hourly route that stays entirely on Broadway and Bardstown, from Downtown to Ashville: so the same as Route 17 today, but more frequent. Routes 3B and 3C together provide hourly service along Taylorsville Road, Dutchmans Lane, Breckenridge Lane, and Stony Brook Drive, covering most of the areas served by the Dupont-Dutchmans branch of Route 23, and Route 40.

Jeffersontown is served by Route 3B every two hours via Ruckriegel Parkway, Watterson Trail and Plantside Drive. Every other hour, it is served by Route 3C from the Bluegrass Industrial Area via Taylorsville Road. Someone near the crossing of Taylorsville Road and Ruckriegel Parkway will have service close to every 60 minutes towards Downtown Louisville using one of these routes. This area is currently served by Route 40 and the Route 75 Bluegrass Circulator.

East and Northeast Louisville

Routes 6A, 6B, and 6C cover the areas served by today's Routes 15, 19, 25, 29, and 31 east of Downtown. Each of these routes in the Coverage Concept is every 90 minutes. Their timetables can be coordinated to provide an effective 30 minute service on East Market Street and the inner parts of Frankfort Avenue.

Route 6A stays on Frankfort Avenue and Shelbyville Road all the way to Eastpoint Parkway. This is similar to today's Route 31. After splitting off at Stilz Avenue, Route 6B follows the same path as today's Route 25 all the way to the eastern end. Route 6C covers Cleveland Boulevard, the VA Hospital, Zorn Avenue, Brownsboro Road, and Herr Lane similar to today's Route 15, but then follows New La Grange Road, and ends at Dupont-Dutchmans.

Few Frequent Corridors

Because the Coverage Concept preserves some level of service to almost every area TARC serves today, service is spread thin and it cannot be frequent. The only corridors with 15 minute service in this Concept are West Broadway between 28th Street and Downtown (Routes 1A, 1B, 1C, and 1D), and 4th Street between Central Avenue and Downtown (Routes 4A, 4B, 4C, and 4D).

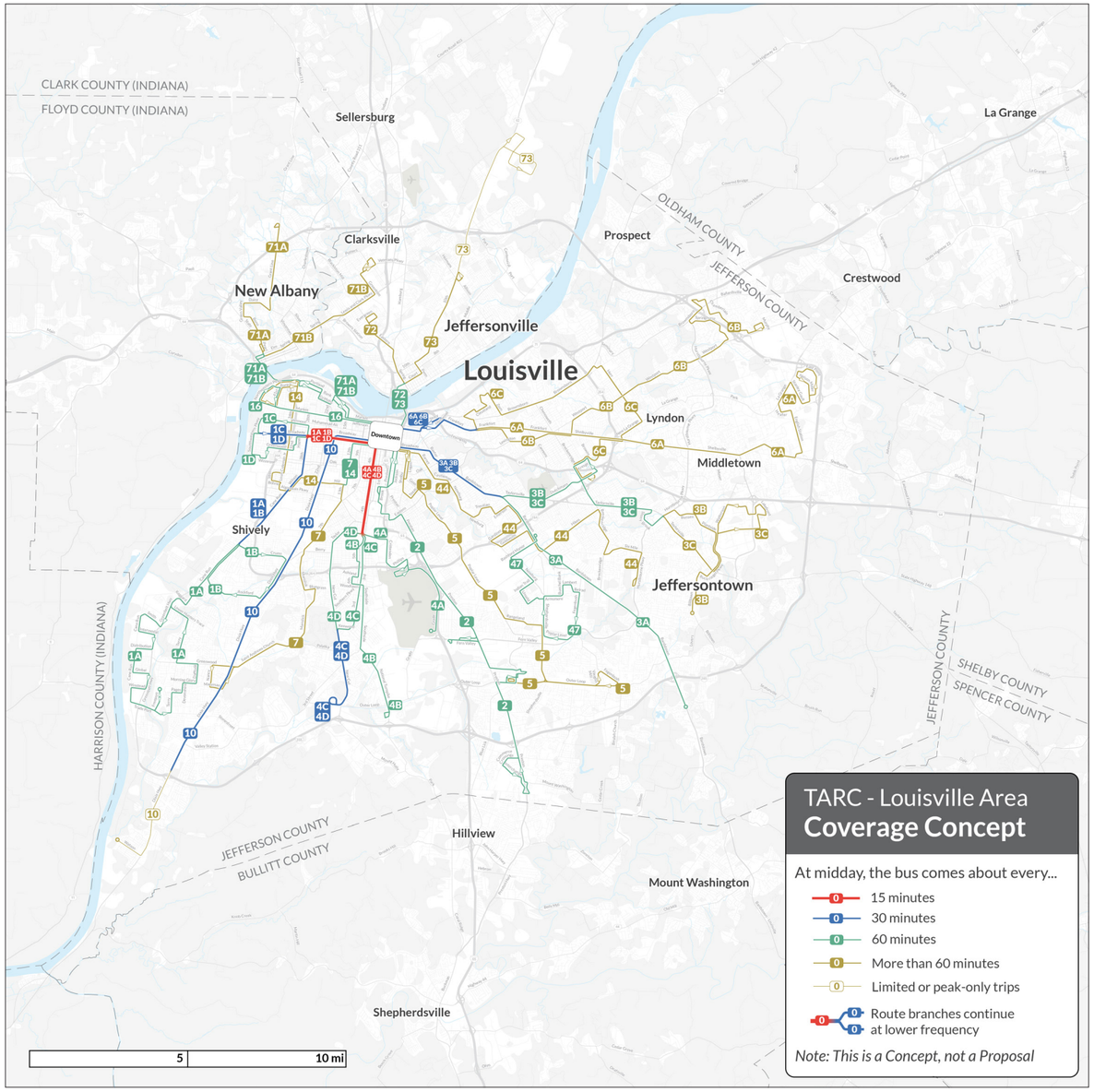


Figure 31: The Coverage Concept in the Louisville Area.

Coverage Concept

Service in Indiana

Cities in Indiana are served by four branch routes that each have a frequency of every two hours.

Routes 71A and 71B together provide hourly service between Downtown New Albany, Portland, and Downtown Louisville. Route 71A continues north along Bono Road, Green Valley Road, Daisy Lane, and Grant Line Road, ending at Indiana University Southeast. Route 71B continues east along Spring Street, Providence Way, Lewis and Clark Parkway, Greentree Boulevard, and ends like today's Route 72.

In the Coverage Concept, Routes 72 and 73 together provide hourly service between Downtown Jeffersonville and Downtown Louisville. Route 72 continues towards Downtown Clarksville, where it ends. Route 73 continues along 10th Street and ends at the Meijer at Allison Lane, with some morning and afternoon peak trips continuing to River Ridge.

Limited Weekday Spans

The chart on the right shows the frequency of each route in the Coverage Concept across the day on weekdays. It also shows the "trunk" segments for routes that together provide higher frequency on certain corridors. Each cell is colored by the planned frequency of that route or corridor during that hour of the day: red is every 15 minutes, blue is every 30 minutes, green is every 60 minutes, and tan is every 90 or 120 minutes.

Lower frequencies, short hours of service, and weekday-only schedules often help in achieving a coverage goal, as transit can be spread out over many routes, many neighborhoods and long distances, so that a little bit of service is close to many places and people. In the Coverage Concept, all routes run only from 5 AM to 10 PM in the night. For comparison, in the Ridership Concept, every route runs until midnight.

Almost every route has the same frequency all day on weekdays. The only exceptions are the branches of the 15 minute segments: Routes 1A, 1B, 1C, 1D, 4A, 4B, 4C, and 4D, which may have different start times before 6 AM and are only every 2 hours after 7 PM.

Some hourly trips on Routes 10 and 73 run longer during weekday peak periods to serve Watson Lane and River Ridge in Indiana, respectively.

TARC Bus Route Frequencies, Coverage Concept

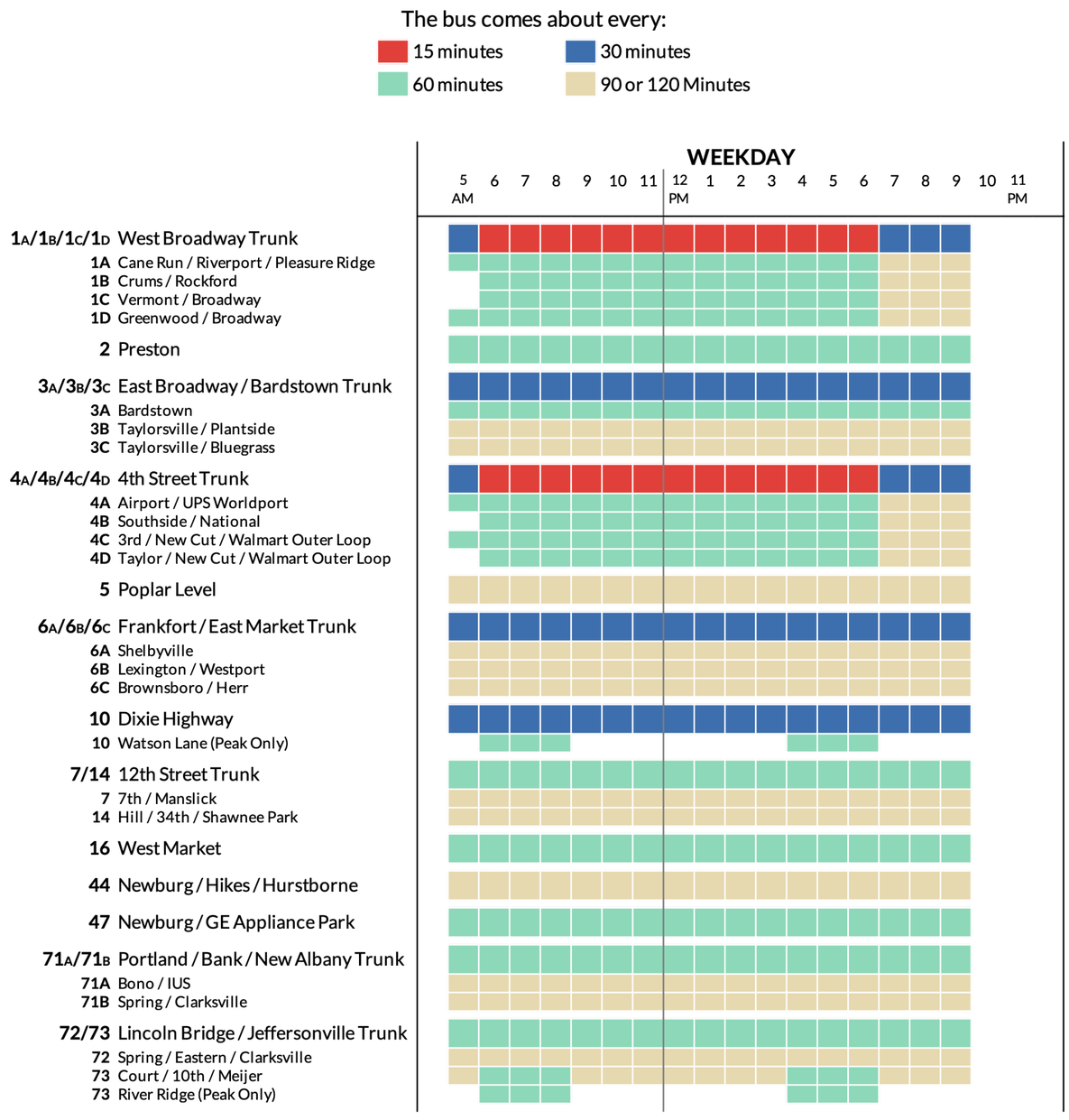


Figure 32: The frequency and span of service on weekdays for each route in the Coverage Concept.

Coverage Concept

Weekend Spans and Frequencies

Almost every route in the Coverage Concept also has the same frequency throughout the day, and the same span of service (5 AM to 10 PM) as on weekdays. The only exception is the branch Routes 1A, 1B, 1C, 1D, 4A, 4B, 4C, and 4D, which are every two hours on weekends. Their combined trunk segment is only every 30 minutes.

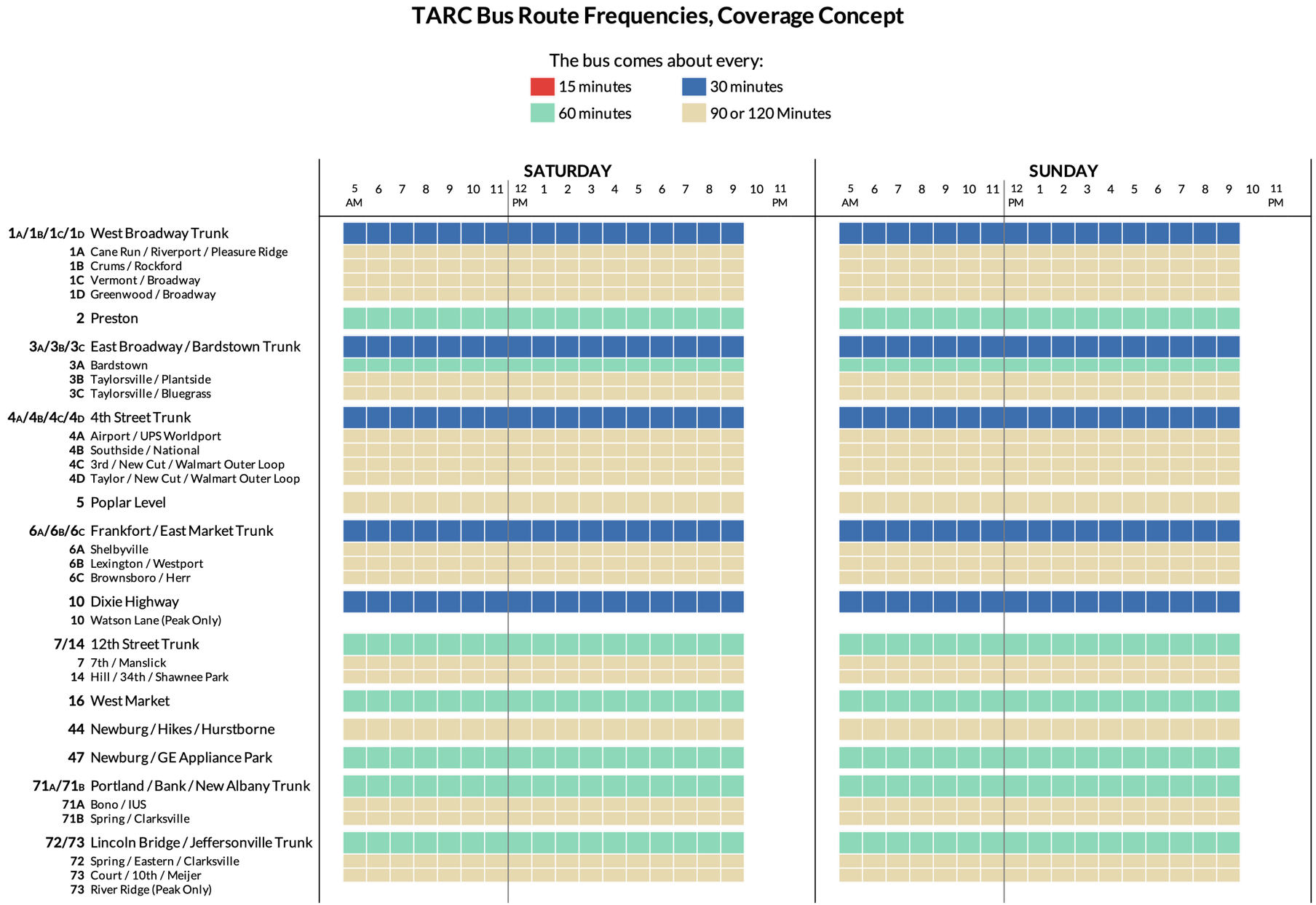


Figure 33: The frequency and span of service on weekends for each route in the Coverage Concept.

3: Outcomes of the Constrained Concepts

Comparing Outcomes

In this chapter we look at three ways of measuring potential outcomes of the Ridership and Coverage Concepts. After introducing the Growth Concept, we also compare the outcomes of the Constrained Concepts to the Growth Concept, starting on page 46.

Isochrones

To understand how a change in the network could affect someone's experience with transit, one could ask: **Where could I get to with transit, in a reasonable amount of time, from where I am?**

Wherever you live, there is a certain area you can reach in a reasonable amount of time. You could draw a map of this area, and it would appear as a blob, with you at the center. In this blob are things you can use transit to get to: workplaces, schools, shopping, and anything else you might want to do. The more things this blob, the more useful transit can be as an option for travel.

The technical planning term for this blob is an **"isochrone".** Isochrones visually explain how a transit network changes peoples' freedom to travel to or from a place of interest. They help visualize a person's access to jobs, schools, groceries, medical care, or any other opportunity.

City-wide Access

Isochrones show the access for a person from one particular place. By **adding up the access from isochrones across all of Louisville,** we can describe how access would change, on average, for all residents (or groups of residents) and to all opportunities.

For comparing transit networks, an access analysis is better than a ridership forecast, as it describes the part of ridership forecasting that is basic math and geometry and so highly predictable.

Proximity

Another simple question you could ask is: **How many residents and jobs are near transit?**

Proximity is a measure of the coverage a transit system provides. If resources are spread out to provide some service in lots of areas, more people and jobs will be near transit. A network that provides better proximity outcomes provides an some transit to more people and workplaces.

However, proximity by itself does not tell us how useful it could be to people, only that it is nearby to them. We also report on proximity to transit by the frequency of service, to provide information about how many people are near service that is more likely to be useful.

Outcomes with Less Service

In the painful context of 50% less service, the Constrained Concepts show important but contrasting ways of prioritizing service. The **Ridership Concept is designed to minimize loss in the usefulness** of TARC's network, so it has better access outcomes than proximity outcomes. On the opposite end, the **Coverage Concept minimizes coverage loss,** so it has worse access outcomes and better proximity outcomes.

Proximity is a measure of the *coverage* transit provides, while access is a measure of the *usefulness* of transit.

Which outcome matters more? That depends on your priorities and values.

In the **Constrained Concepts,** how far can I travel from

West Broadway at Dixie Highway

within 60 minutes, at midday on weekdays?

In the Ridership Concept

You can reach -18,600 Jobs (-7.5%) and -30,000 Residents (-12.0%)

In the Coverage Concept

You can reach -58,600 Jobs (-24.5%) and -87,900 Residents (-35.0%)

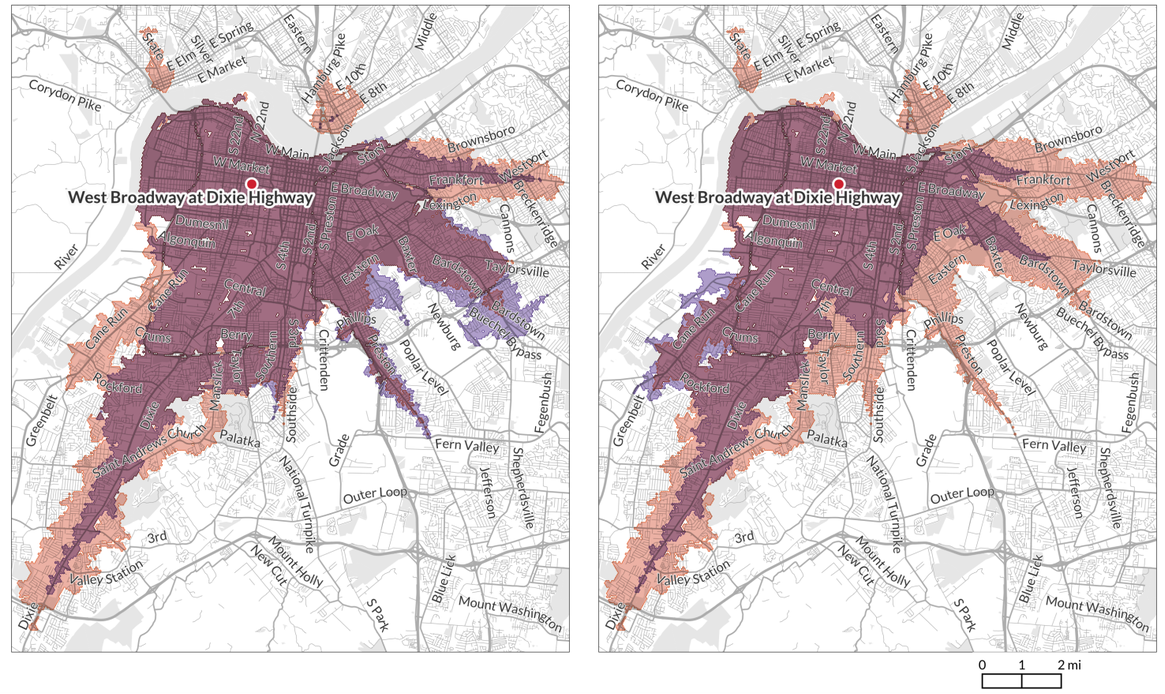


Figure 34: Examples of isochrones from West Broadway at Dixie Highway in the Constrained Concepts.

Isochrones

The maps above show isochrones from the intersection of West Broadway at Dixie Highway at midday on a weekday in the Ridership Concept and Coverage Concept, compared to the Spring 2024 Network. The maroon areas are reachable today and remain reachable in that Concept within 60 minutes of walking and transit. Newly reachable areas are shown in purple, and areas that are no longer reachable are shown in orange.

These isochrones include all the different parts of a transit trip that take time: the wait time to use a bus, time riding in the bus, any time needed to make a transfer, and time walking to the bus stop where you start your trip, and walking away from the stop where you get off.

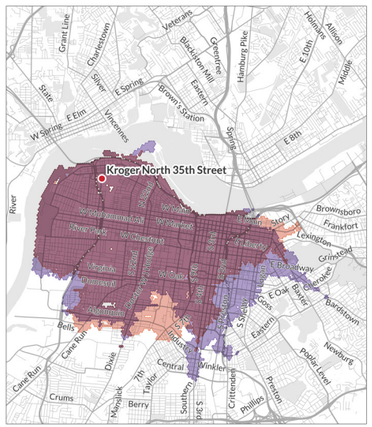
While reviewing these maps, it is also important to note that **it is not just how large an isochrone is, but also what is inside the isochrone that matters.**

Example Isochrones

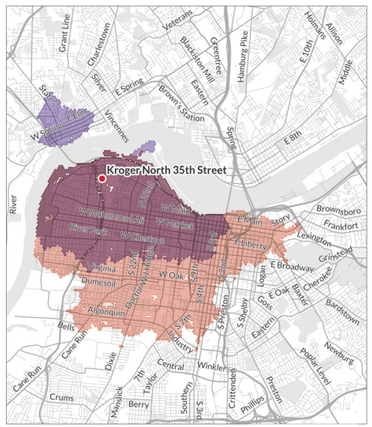
In the **Constrained Concepts,** how far can I travel from
Kroger North 35th Street
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach +9,500 Jobs (+7.5%) and +10,500 Residents (+13.5%)



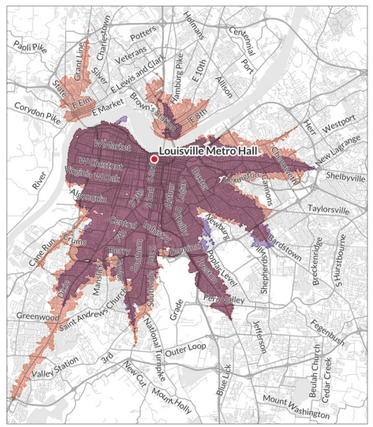
In the Coverage Concept
You can reach -62,200 Jobs (-49.0%) and -37,600 Residents (-49.0%)



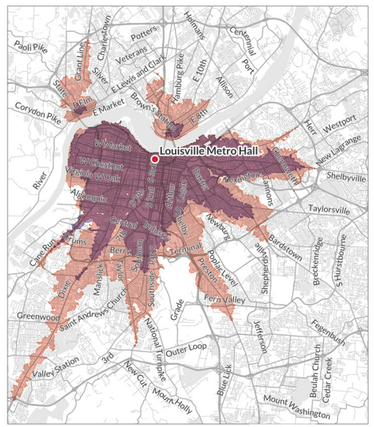
In the **Constrained Concepts,** how far can I travel from
Louisville Metro Hall
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach -39,200 Jobs (-14.5%) and -48,100 Residents (-18.0%)



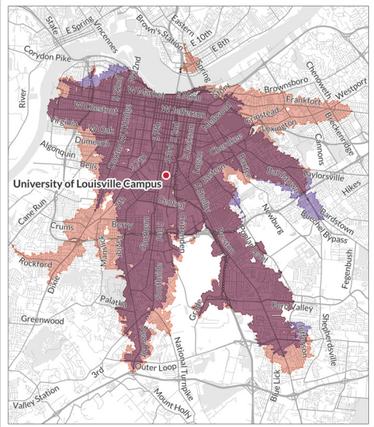
In the Coverage Concept
You can reach -83,200 Jobs (-30.5%) and -107,100 Residents (-40.0%)



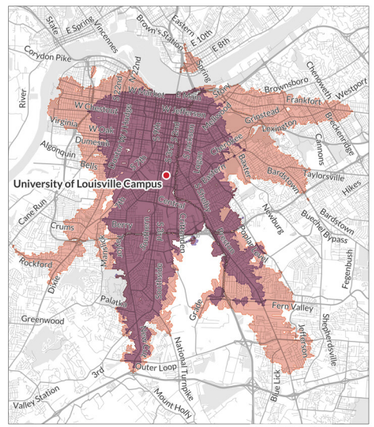
In the **Constrained Concepts,** how far can I travel from
University of Louisville Campus
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach -27,500 Jobs (-11.0%) and -35,100 Residents (-16.0%)



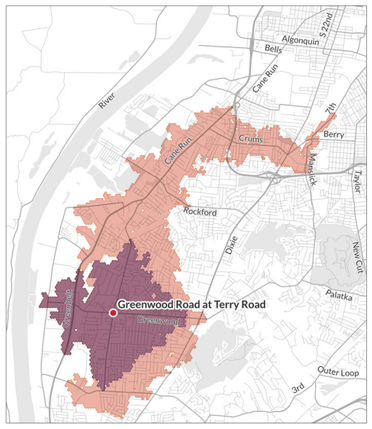
In the Coverage Concept
You can reach -65,400 Jobs (-26.5%) and -91,000 Residents (-41.5%)



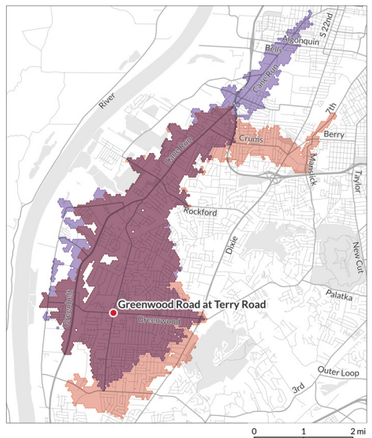
In the **Constrained Concepts,** how far can I travel from
Greenwood Road at Terry Road
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach -7,500 Jobs (-65.0%) and -23,400 Residents (-59.0%)



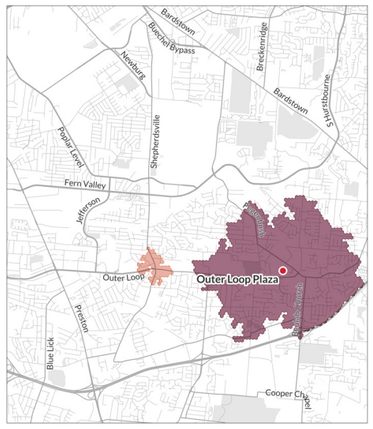
In the Coverage Concept
You can reach -1,400 Jobs (-12.5%) and -7,200 Residents (-18.5%)



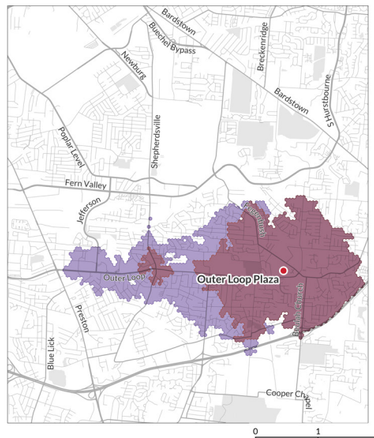
In the **Constrained Concepts,** how far can I travel from
Outer Loop Plaza
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach -300 Jobs (-10.5%) and -500 Residents (-3.5%)



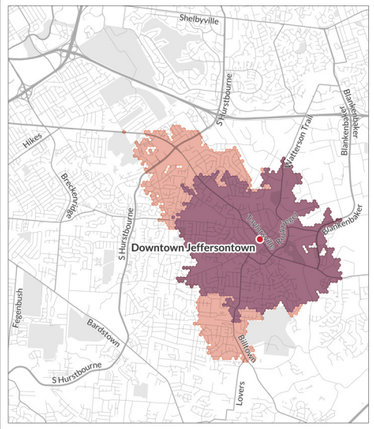
In the Coverage Concept
You can reach +3,600 Jobs (+125.0%) and +6,900 Residents (+54.0%)



In the **Constrained Concepts,** how far can I travel from
Downtown Jeffersontown
within 60 minutes, at midday on weekdays?

New Access · Retained Access · Lost Access

In the Ridership Concept
You can reach -6,500 Jobs (-43.0%) and -9,000 Residents (-40.0%)



In the Coverage Concept
You can reach +11,700 Jobs (+77.0%) and +3,100 Residents (+14.0%)

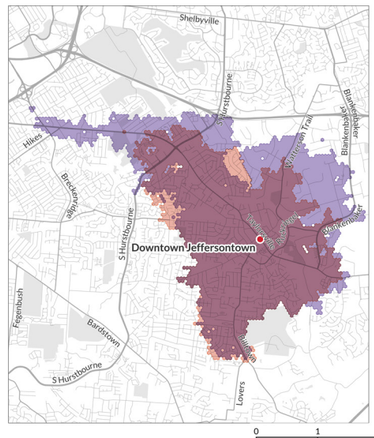


Figure 35: Examples of isochrones from various points in Louisville in the Constrained Concepts.

Change in Access to Jobs

Ridership Concept

We can create isochrones for locations across Jefferson County, and see how each Concept would change where you can get to in a certain amount of time.

For each of those isochrones, we can estimate how many jobs are reachable from that location in that Concept, and compare that to what is reachable in the Spring 2024 network.

Why Focus on Access to Jobs?

Job density can tell us not just about where people go for work, but also about important destinations people travel to. **One person's workplace may be a destination for dozens or even hundreds of people throughout the day.** So access to jobs acts as a good proxy for access to many other opportunities.

College, universities, and hospitals have many jobs, and also generate all-day travel demand. Students, staff, patients, and visitors arrive and leave at different times throughout the day as classes start and end and medical appointments are scheduled. Retail and service jobs also attract many customers and visitors.

Job Access Change in the Ridership Concept

The map on the right shows the change in jobs reachable from various points across Jefferson County in the Ridership Concept, compared to the baseline Spring 2024 network, at midday on a weekday.

Deeper shades of orange mean that fewer jobs can be reached from that location in the Ridership Concept. Deeper shades of purple mean that you can reach more jobs from that location in the Ridership Concept. Areas in white inside Jefferson County have very little change in job access in the Ridership Concept.

As expected with a 50% service cut, large swathes of Jefferson County have some access loss in orange. Many areas do not have any service near them in the Ridership Concept at all. This includes outer areas around Riverport and Pleasure Ridge, Manslick Road, National Turnpike, Bardstown Road, Shelbyville Road, Westport Road, and Brownsboro Road. However, there wasn't much useful transit service in these areas in Spring 2024, so most of them only show as moderate shades of orange in the map.

Some spots with the most severe access loss are where there was frequent service (or a combination of several less frequent routes) in Spring 2024 but not in the Ridership Concept. This includes Dixie Highway south of Rockford Run, 3rd Street south of Central Avenue, and the areas a bit further away from Bardstown Road and Frankfort Road.

Some areas have access gains in the Ridership Concept. Particularly areas like Newburg, Buechel, and Watterson Park have much more useful service in the Ridership Concept than in the Spring 2024 network, so they show large gains in job access.

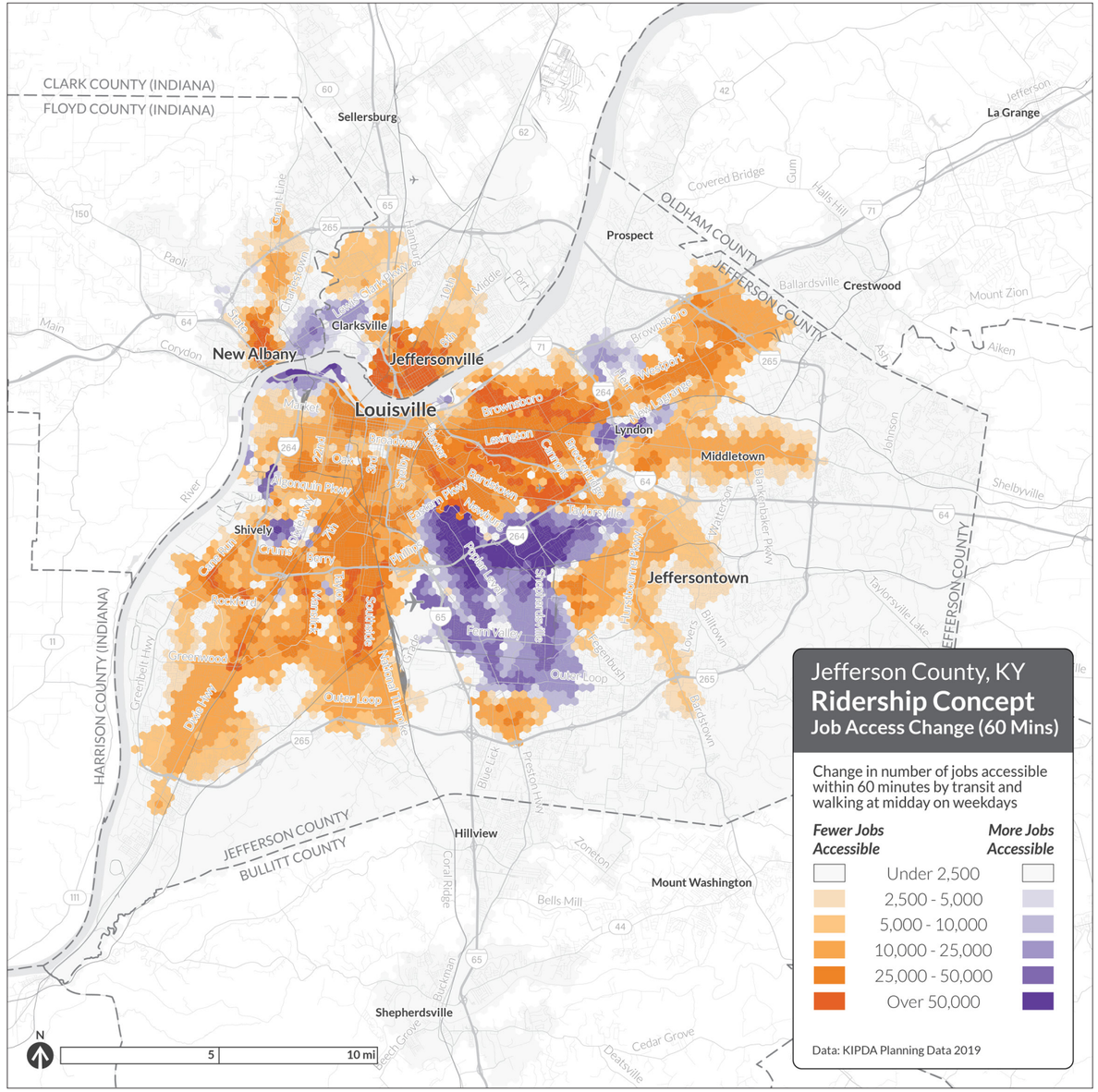


Figure 36: The change in access to jobs within 60 minutes in the Ridership Concept, compared to the Spring 2024 network. Areas in deeper shades of orange have more access loss, while areas in deeper shades of purple gain access to more jobs in 60 minutes.

Coverage Concept

Job Access Change in the Coverage Concept

The map on the right shows the change in jobs reachable from various points across Jefferson County in the Coverage Concept, compared to the baseline Spring 2024 network, at midday on a weekday.

Just like the map on the previous page, deeper shades of orange mean a larger loss in job access, and deeper shades of purple mean larger increases in job access in the Coverage Concept.

The orange areas in this map are much more widespread, and deeper in hue. This means that compared to the Ridership Concept, a much larger portion of Jefferson County has a much bigger loss in job access in the Coverage Concept.

But this outcome is expected. **The Coverage Concept is not designed to protect the network's usefulness, and so its access outcomes are much worse than the Ridership Concept** across large swathes of Jefferson County.

After a 50% service cut, the Coverage Concept spreads the remaining service really thin, and the worse access outcomes reflect that choice. So even though most of the area that had service in Spring 2024 has some service in this Concept, that does not translate into useful service.

Some areas in the Coverage Concept have modest access gains. These include areas where there is more frequent or consistent service all day, like Shively, outer Bardstown Road, Jeffersontown and Bluegrass Industrial Area, and Eastpoint Office Park.

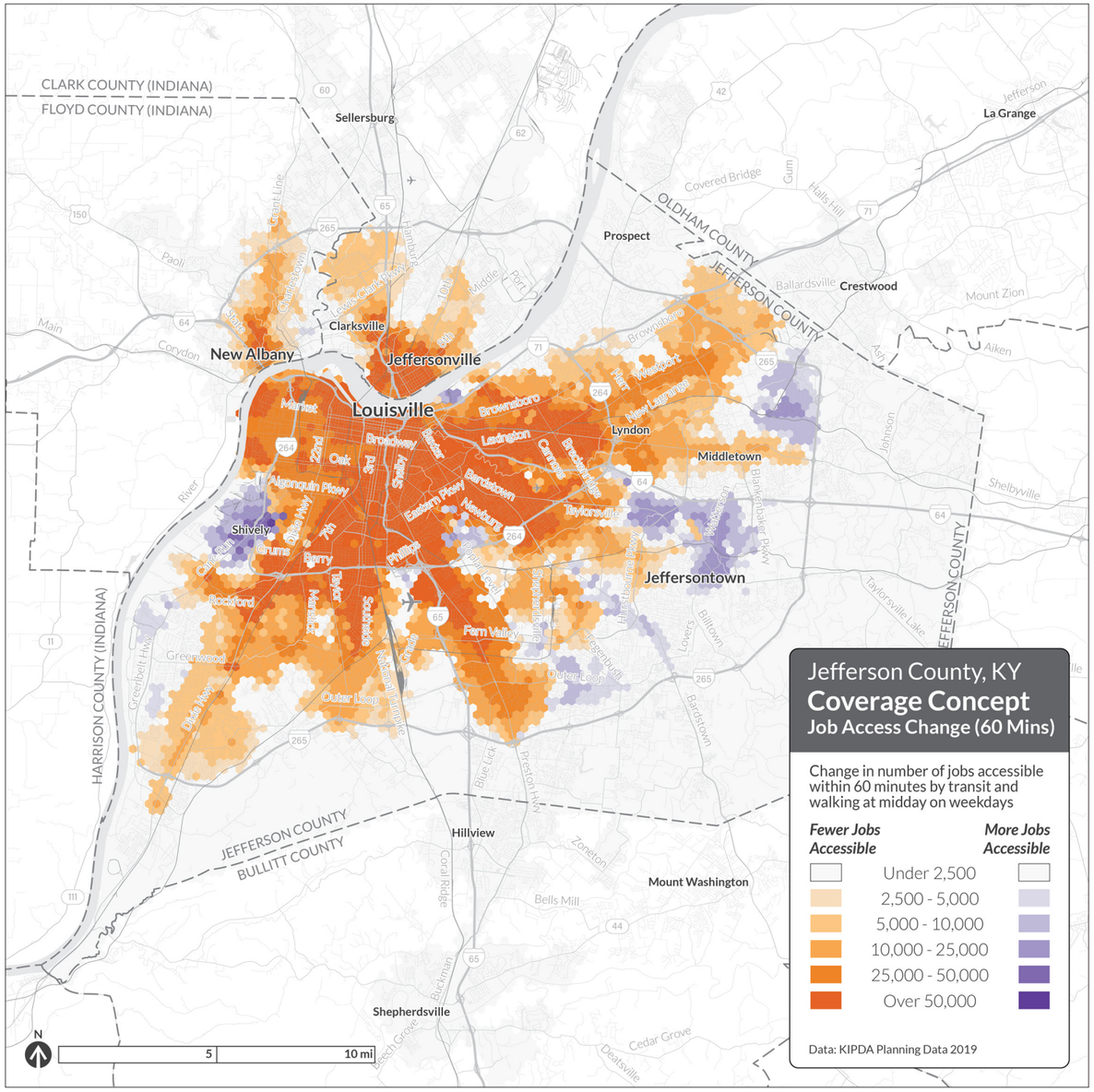


Figure 37: The change in access to jobs within 60 minutes in the Coverage Concept, compared to the Spring 2024 network. Areas in deeper shades of orange have more access loss, while areas in deeper shades of purple gain access to more jobs in 60 minutes.

Overall Job Access Change in Jefferson County

The maps on the previous two pages detailed the spatial patterns of job access change from each location in Jefferson County. We can add up the decreases and increases in job access from each location across Jefferson County. While doing that, we can also consider how many people in each of those locations experience that level of change. That lets us find out on average, how many fewer jobs can Jefferson County residents reach in each Concept.

These results are summarized in the chart on the right. For each group of people, the grey bar is the jobs accessible in the Spring 2024 network, the red bar is the jobs accessible in the Ridership Concept, and the blue bar is the jobs accessible in the Coverage Concept.

In the Spring 2024 network, the average Jefferson County resident could reach around 70,000 jobs within 60 minutes at midday. In the Ridership Concept, the average Jefferson County resident can reach 13% fewer jobs and opportunities compared to the Spring 2024 network, around 61,000 jobs. In contrast, in the Coverage Concept, the average Jefferson County resident can reach 38% fewer jobs, or only around 43,000 jobs.

This outcome reinforces the purpose of these Concepts in the context of a 50% service cut: the Ridership Concept is designed to protect as much job access as possible by making transit useful for as many people as possible. The Coverage Concept sacrifices job access to maintain some coverage to as many people as possible.

Access for Specific Groups

We can also consider how overall access to jobs changes for different groups of residents in Jefferson County in each Concept. Broadly, for every group, the job access loss in the Ridership Concept is much smaller than that in the Coverage Concept:

- Residents in Areas of Persistent Poverty can access on average 9% fewer jobs in the Ridership Concept, and 33% fewer jobs in the Coverage Concept.
- Low-Income Residents can access on average 11% fewer jobs in the Ridership Concept, and 34% fewer jobs in the Coverage Concept.
- Households Without Cars can access on average 11% fewer jobs in the Ridership Concept, and 32% fewer jobs in the Coverage Concept.
- Residents of Color can access on average 9% fewer jobs in the Ridership Concept, and 34% fewer jobs in the Coverage Concept.

Compared to all the residents across Jefferson County, the proportional access losses are smaller for each of these groups. This is because people in these groups tend to be more often located in areas which have more jobs nearby or in places which are easier to serve with transit. Areas of Persistent Poverty (AoPP) census tracts are mostly located around Downtown and in the western and southern parts of Louisville near lots of industrial and suburban retail job centers. Households without cars tend to be located closer to transit, and particularly closer to useful frequent transit, compared to residents overall. Households without cars are also more likely to be located in denser places with more mix of land uses, like near Downtown, UofL, and in apartments close to large retail centers where they can walk to many jobs.

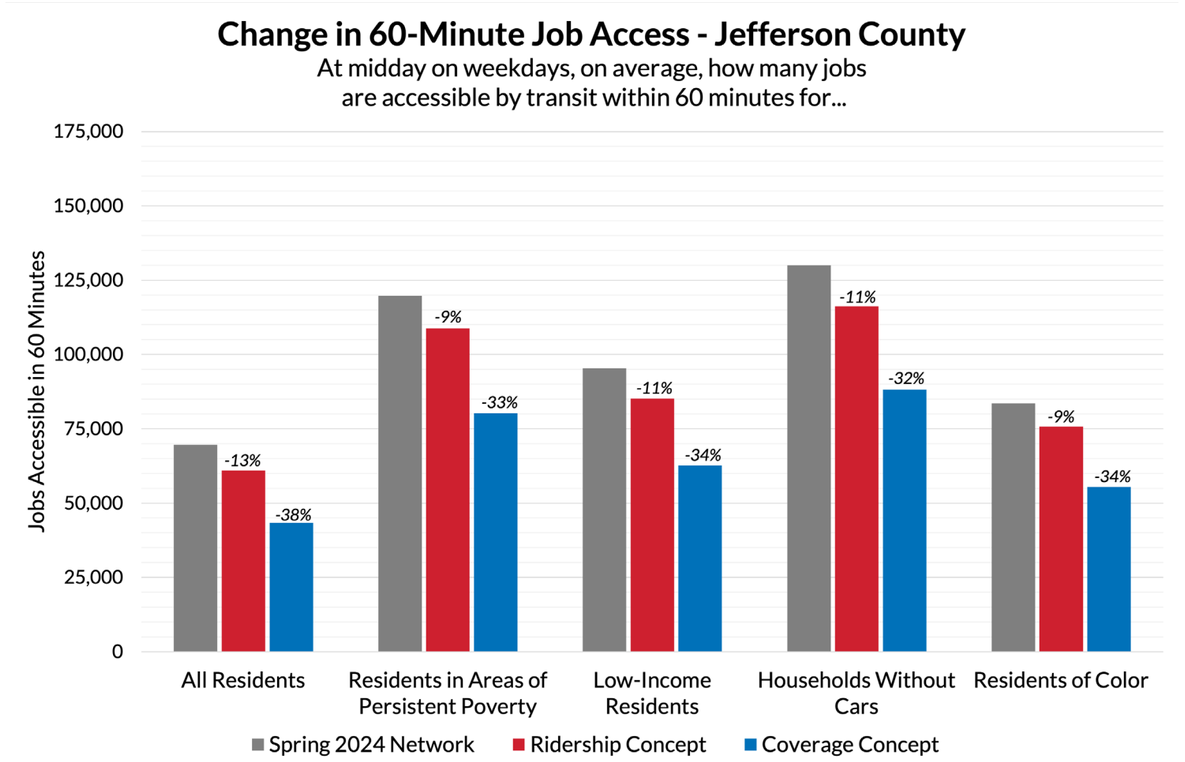


Figure 38: Change in access to jobs by walking and transit in the Ridership Concept and Coverage Concept, within 60 minutes at midday on a weekday.

With a 50% service reduction, the average number of jobs accessible by Jefferson County residents reduces by 13% in the Ridership Concept, while job access reduces by 38% in the Coverage Concept.

Change in Proximity to Transit

The chart on the right shows the proximity of people and jobs to TARC service in Spring 2024, compared to the Ridership Concept and the Coverage Concept, at midday on a weekday. Each group of bars is the proximity of residents, jobs, or a particular group of residents within Jefferson County. The overall proximity is divided into proximity to transit of particular frequencies at midday. That tells us a bit more about how many people are covered by service that is useful.

Around 59% of Jefferson County residents were close to some TARC service in Spring 2024. In the Ridership Concept, only 33% or a third of residents are near transit. The Coverage Concept preserves most transit coverage: 56% of residents are still near some transit service. But in the Coverage Concept, only 4% of residents are near transit that is every 15 minutes, and only 15% of residents are near transit that is every 30 minutes or better.

For comparison, 13-14% of residents are near frequent transit in both the Spring 2024 network and the Ridership Concept. 21% of residents were near transit that is every 30 minutes or better in Spring 2024, while 33% of residents are near transit that is every 30 minutes or better in the Ridership Concept (but those are the only residents near transit in that Concept).

74% of jobs in Louisville were near some transit service in Spring 2024. In the Ridership Concept, only 46% of jobs are near transit. 70% of jobs are near transit in the Coverage Concept, but only 7% are near frequent transit. The Ridership Concept maintains the portion of jobs near frequent transit.

Proximity for Specific Groups of People

The overall patterns for proximity for various groups of residents across Jefferson County follows similar patterns as proximity for all residents. The overall transit coverage is significantly higher in the Coverage Concept, but slightly more people are closer to transit every 15 minutes, and many more people are closer to transit every 30 minutes or better in the Ridership Concept.

- Residents in Areas of Persistent Poverty: Overall coverage goes from 79% in Spring 2024 to 62% in the Ridership Concept and 77% in the Coverage Concept. Frequent coverage goes from 30% to 33% in Ridership and 12% in Coverage.
- Low-Income Residents: Overall coverage goes from 73% to 48% in Ridership and 69% in Coverage. Frequent coverage goes from 22% to 23% in Ridership and 8% in Coverage.
- Households Without Cars: Overall coverage goes from 81% to 61% in Ridership and 79% in Coverage. Frequent coverage goes from 33% to 34% in Ridership and 14% in Coverage.
- Low-Income Residents: Overall coverage goes from 69% to 43% in Ridership and 67% in Coverage. Frequent coverage goes from 18% to 20% in Ridership and 6% in Coverage.

Since people in these groups are often located closer to useful transit, and transit in general, the overall levels of coverage in either Concept are higher for all of these groups, compared to coverage of residents overall.

Almost all people and jobs are still close to transit in the Coverage Concept.
26% of people and 28% of jobs are no longer close to transit in the Ridership Concept, but no route in Jefferson County is worse than every 30 minutes.

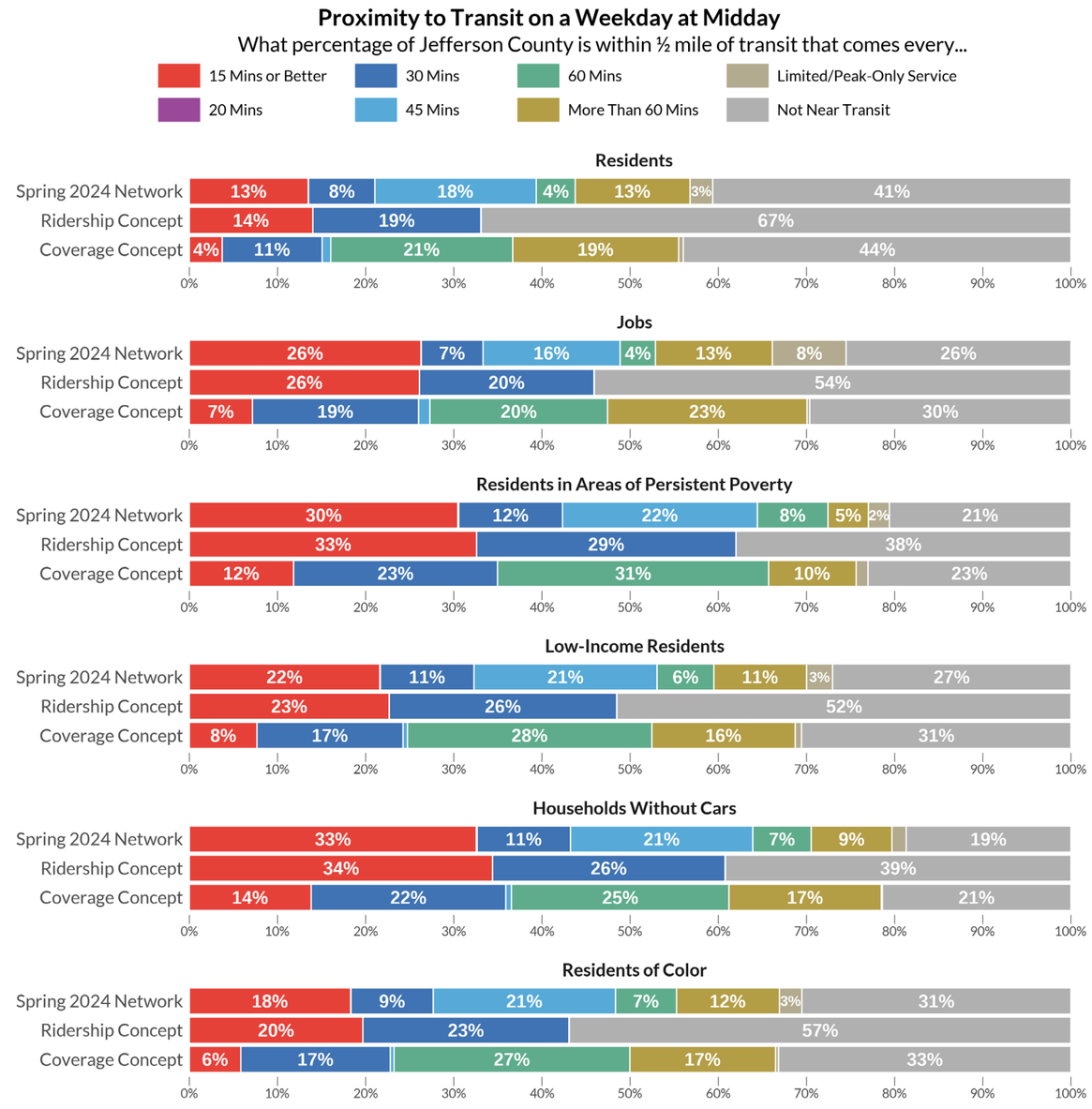


Figure 39: Proximity of people and jobs to transit by the frequency of service at midday on a weekday, in the Spring 2024 Network, Ridership Concept, and Coverage Concept.

Change in Outcomes for TARC Riders

Change in Access

Figure 40 shows how job access changes at midday on weekdays for riders under the Spring 2024 network and the two Constrained Concepts. We can get an **overall sense of change in access for TARC riders** by aggregating the access change from each stop and weighing it by the boardings at that stop.

In the Ridership Concept, riders can get to 22,100 fewer jobs, or around 11% fewer jobs within 60 minutes, compared to the Spring 2024 network. In the Coverage Concept, TARC riders lose access to 62,500 jobs within 60 minutes, representing a 31% loss in access.

Change in Proximity

Figure 41 shows the change in proximity of TARC boardings to transit at particular frequencies during midday on weekdays, for the Spring 2024 network and the two Constrained Concepts.

The bar for the Coverage Concept is almost completely full, which means that almost every TARC boarding is still at or near a stop with some transit service.

In comparison to this, 15% of TARC's boardings are not near any transit service in the Ridership Concept. Despite a 50% reduction in service, only 15% of riders will be too far from service in the Ridership Concept.

Change in Proximity to Frequent Service

70% of TARC's boardings were at stops which had frequent service during midday in the Spring 2024 network. This is despite the fact that the frequent routes and segments only covered 13% of residents in Jefferson County in the Spring 2024 network. This highlights how important frequency is to usefulness and to ridership.

With the Ridership Concept, 65% of TARC boardings are at or near bus stops which have frequent service at midday. In contrast to this, only 28% of boardings are at or near stops with frequent midday service in the Coverage Concept.

Almost 84% of TARC boardings are at or near stops with service at least every 30 minutes in the Ridership Concept, which is better than the 79% in the Spring 2024 network.

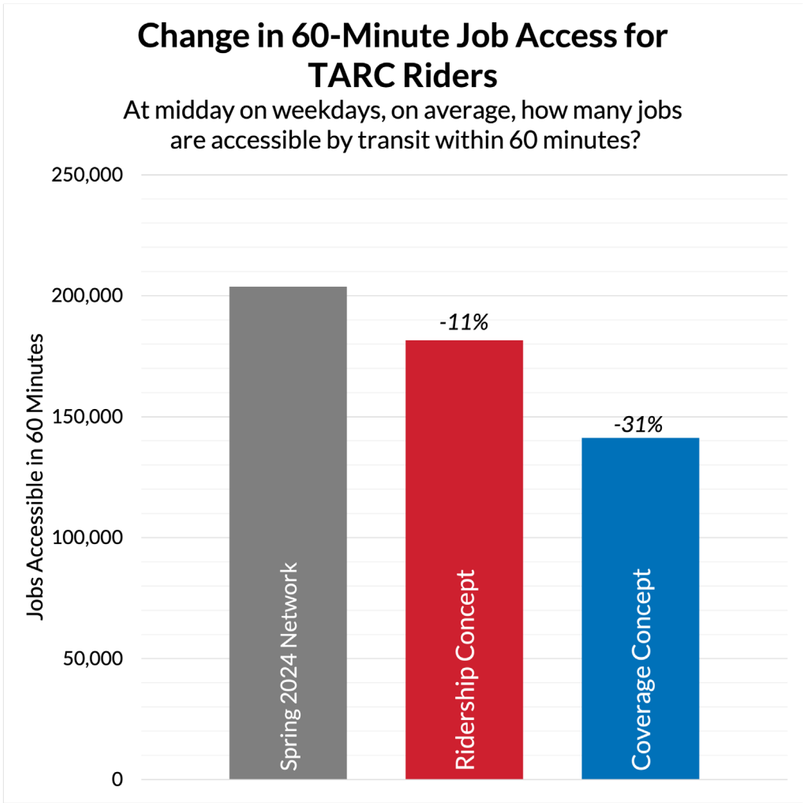


Figure 40: Change in access within 60 minutes for TARC riders at midday on weekdays.

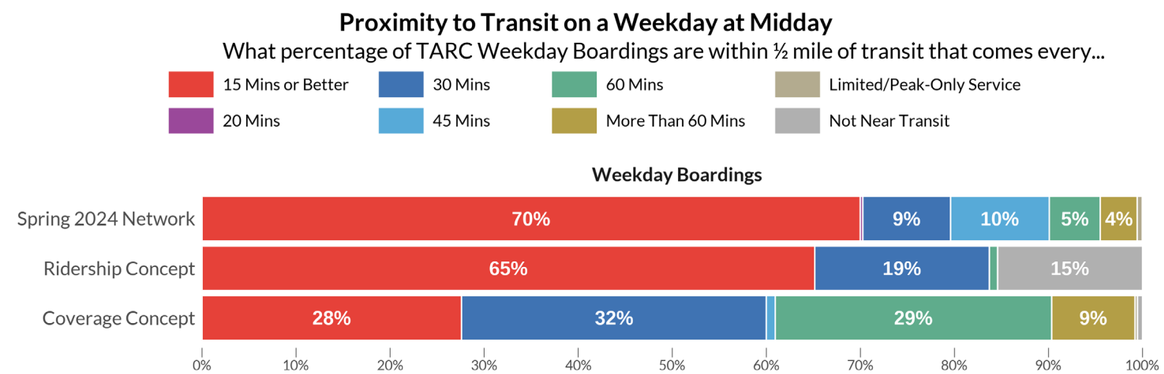


Figure 41: Change in proximity of boardings to transit at midday on weekdays.

4

4: The Growth Concept

The Growth Concept

Growth Concept

The Ridership Concept and the Coverage Concept together show the range of ways to design a network to meet two contrasting goals, but within the painful constraint of 50% less service.

The Growth Concept illustrates the benefits of a bigger investment in service. It shows what Louisville's transit would look like if we prioritize meeting more of the needs of the community and invest more in TARC service to position the system for future growth.

This Concept has around 12% more resources than were in the Spring 2024 network. This number is not based on a specific funding source, but is meant to be a benchmark for what the community could reasonably choose to invest in.

12% more resources gives TARC more room to achieve ridership goals as well as coverage goals without choosing one set of goals over the other. This Concept does not make that choice: it provides frequent service in new places and on Saturdays, all the while providing much better levels of service in most of the area TARC covers.

Expanded Frequent Service

The Growth Concept has frequent service on the following corridors:

- Broadway and Bardstown Road, from Shawnee Park in the east to Hikes Lane in the west, on Routes 1A, 1B, 1C, and 1D. This frequent segment extends a bit further west than today's Route 23.
- West Market Street from 28th Street, through Downtown, all the way south along Preston Highway to Jefferson Mall on Routes 2A and 2B. The West Market Street segment is a new frequent segment.
- 4th Street from Downtown to Central Avenue on Routes 4A and 4B, similar to today's Route 4. Like in the Ridership Concept, south of Central Avenue, there is only 30 minute service on Route 4B, compared to effective 15 minute service across multiple nearby streets in the branches of today's Route 4.
- Routes 10A and 10B on Dixie Highway provide 15 minute frequency as far south as Stonestreet Road. Route 10A continues to Valley Station (and Watson Lane during peak periods). Route 10B continues to the JCTC Southwest Campus every 30 minutes. There, every other 10B trip continues along Outer Loop to Jefferson Mall.
- East Market Street and Frankfort Avenue up to Zorn Avenue on Routes 6A, 6B, 6C, and 6D. This is a consistent 15 minute frequency compared to the complex arrangement of separate services on today's Routes 15, 19, and 31.
- A crosstown "orbital" Route 20 that connects Park Duvalle to the University of Louisville Campus and Bardstown Road via Algonquin Parkway and Eastern Parkway. Only the eastern half of this frequent segment is served by Route 29 today, around every 36 minutes.

More Useful Coverage

Almost every route in the Growth Concept has a frequency of 60 minutes or better. Compared to the Spring 2024 network, many areas are covered by more frequent and consistent 30 minute service.

Starting from Portland and going counterclockwise on the map around Downtown Louisville:

- Portland Avenue and Bank Street all the way to Downtown New Albany (Routes 71A and 71B)
- West Market Street (Route 2A)
- West Vermont Avenue (Route 2B)

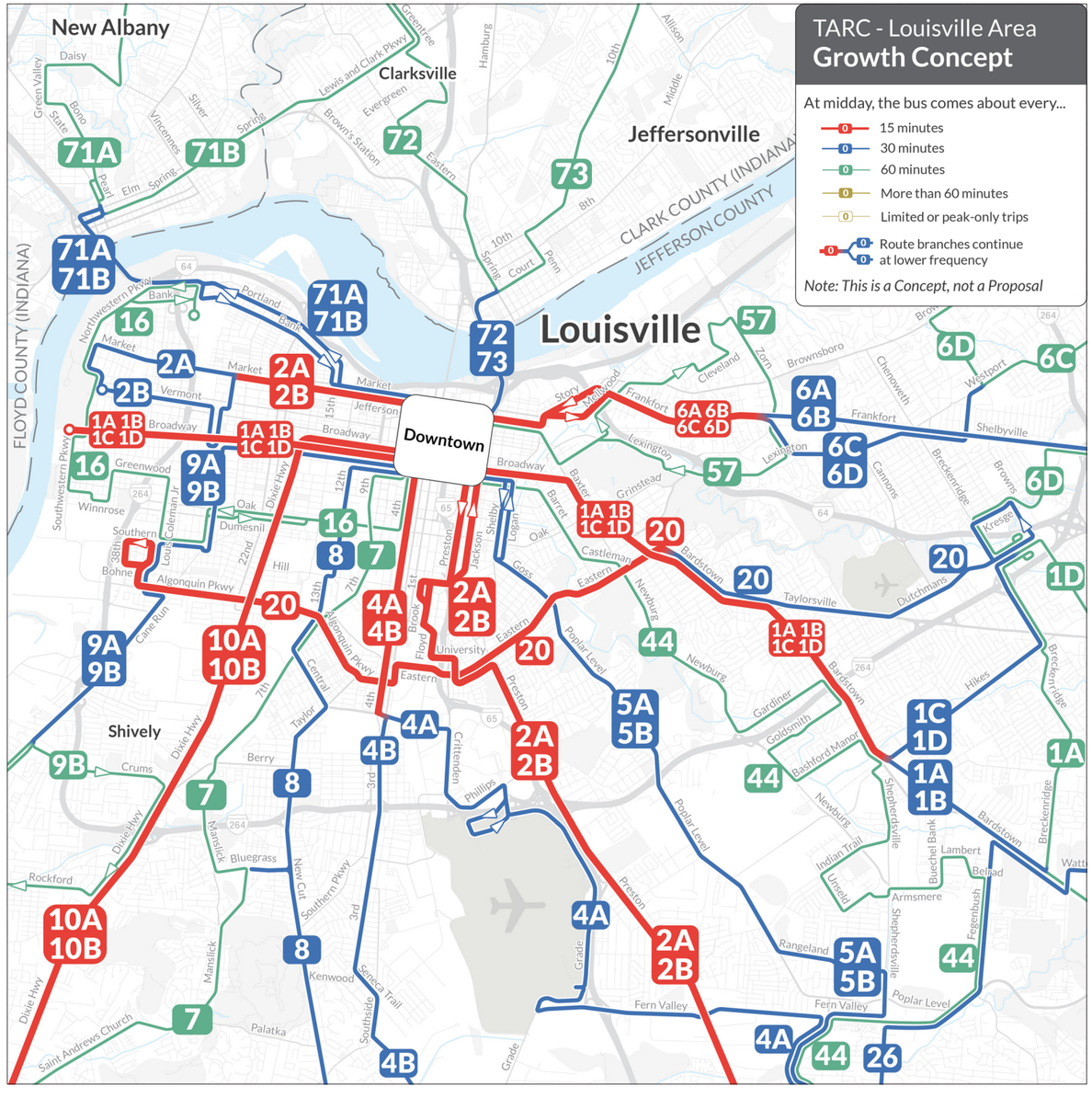


Figure 42: The Growth Concept in the urban core of Louisville.

Growth Concept

- 12th Street and New Cut Road as far south as the Outer Loop Walmart (Route 8)
- Crittenden Drive, Phillips Lane, and the Airport (Route 4A)
- National Turnpike (Route 4B)
- Poplar Level Road (Routes 5A and 5B)
- Route 26, an orbital route connecting Jefferson Mall, Fegenbush Lane, and Hurstbourne Parkway all the way north to Norton Brownsboro Hospital
- Bardstown Road as far south as Breckenridge Lane (Routes 1A and 1B)
- Hikes Lane and Breckenridge Lane (Routes 1C and 1D)
- Taylorsville Road and Dutchmans Lane (Route 20)
- Frankfort Avenue and Shelbyville Road as far east as Hurstbourne Parkway (Routes 6A and 6B)
- Stilz Avenue, Shelbyville Road, and Thierman Lane (Routes 6C and 6D)
- Lincoln Bridge to Downtown Jeffersonville (Routes 72 and 73)

Many areas with infrequent service have hourly service in the Growth Concept:

- Riverport and Pleasure Ridge Park (Route 9A)
- Portions of 7th Street (Route 7)
- New service on 3rd Street Road and Outer Loop between JCTC Southwest Campus and Jefferson Mall on Route 10B
- Preston Highway south of Outer Loop (Route 5A)
- Outer Loop between Jefferson Mall and Outer Loop Plaza (Route 5B)
- Barret Avenue, Newburg Road, Gardiner Lane, Goldsmith Lane, Bashford Manor Lane, Unseld Boulevard, Buechel Bank Road (Route 44)
- Bardstown Road all the way south to Ashville (Route 1B)
- Breckenridge Lane all the way from Bardstown Road to Dutchmans Lane (Route 1A)
- Browns Lane, Taylorsville Road, and Jeffersontown (Route 1D)
- Bluegrass Industrial Area (Route 6B, where every other trip serves Plantside Drive or Bluegrass Parkway)
- Shelbyville Road and English Station Road to Eastpoint Parkway (Route 6A)
- Cleveland Boulevard, VA Hospital, Zorn Avenue, and Lexington Road (Route 57)

Areas along Brownsboro Road, Herr Lane, and Westport Road on today's Routes 15 and 25 are served by Routes 6C and 6D every 60 minutes with along paths different from today.

More Coverage in Indiana

In the Growth Concept, cities in Indiana are served by four hourly routes. Route 71A continues north along Bono Road, Green Valley Road, Daisy Lane, and Grant Line Road, ending at Indiana University Southeast. Route 71B continues east along Spring Street, Providence Way, Lewis and Clark Parkway, and Greentree Boulevard. Route 72 serves Downtown Clarksville, Greentree Boulevard, Veterans Parkway, and Holmans Lane, ending at the Meijer at 10th Street. Route 73 serves 10th Street and ends at the Meijer, with some morning and afternoon peak trips continuing to River Ridge. As noted above, Downtown New Albany and Jeffersonville have 30 minute service.

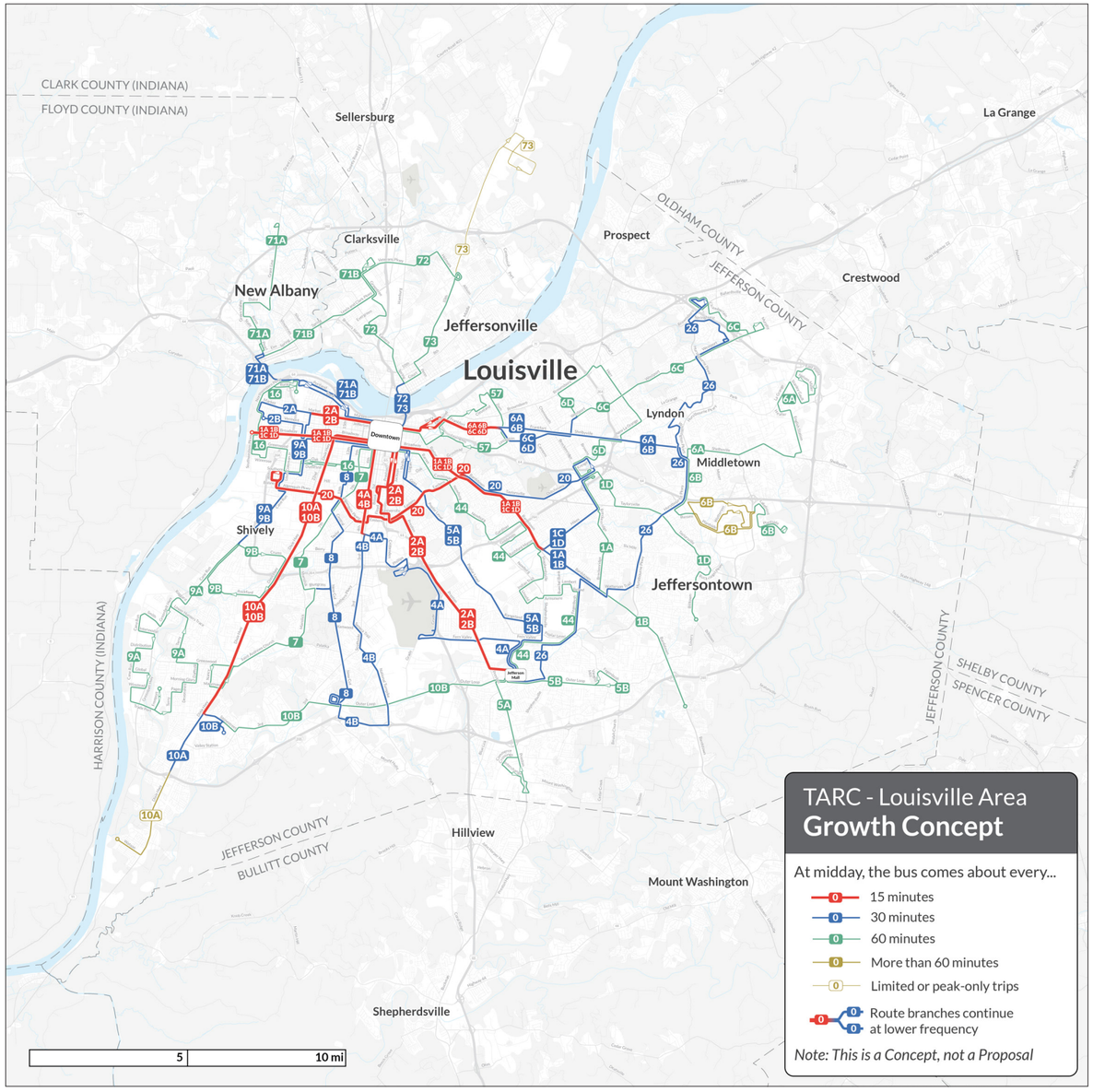


Figure 43: The Growth Concept in the Louisville Area, with routes color-coded by frequency.

Growth Concept

Consistent Weekday Spans

The chart on the right shows the frequency of each route in the Growth Concept across the day on weekdays. It also shows the "trunk" segments for routes that together provide higher frequency on certain corridors. Each cell is colored by the planned frequency of that route or corridor during that hour of the day: red is every 15 minutes, blue is every 30 minutes, green is every 60 minutes, and tan is every 90 or 120 minutes.

All routes operate from 5 AM to midnight. All routes offer their predominant daytime frequency from 6 AM to 7 PM. The 15 minute trunk segments only operate every 30 minutes after 7 PM, and their branches also consequently offer lower frequencies. The 30 minute routes and trunk segments become hourly after 10 PM, except the 71A/71B and 72/73 trunk segments.

Some hourly trips on Routes 10A and 73 run longer during weekday peak periods to serve Watson Lane and River Ridge, respectively.

The Growth Concept's spans of service and frequencies across the day and week are very similar to the Ridership Concept. But in the context of 12% more service, these similarities do not represent a full commitment towards ridership goals. If the Growth Concept were designed instead to maximize ridership, we would invest much more in useful night service, and some of the routes in this Concept that primarily provide coverage would not exist at all.

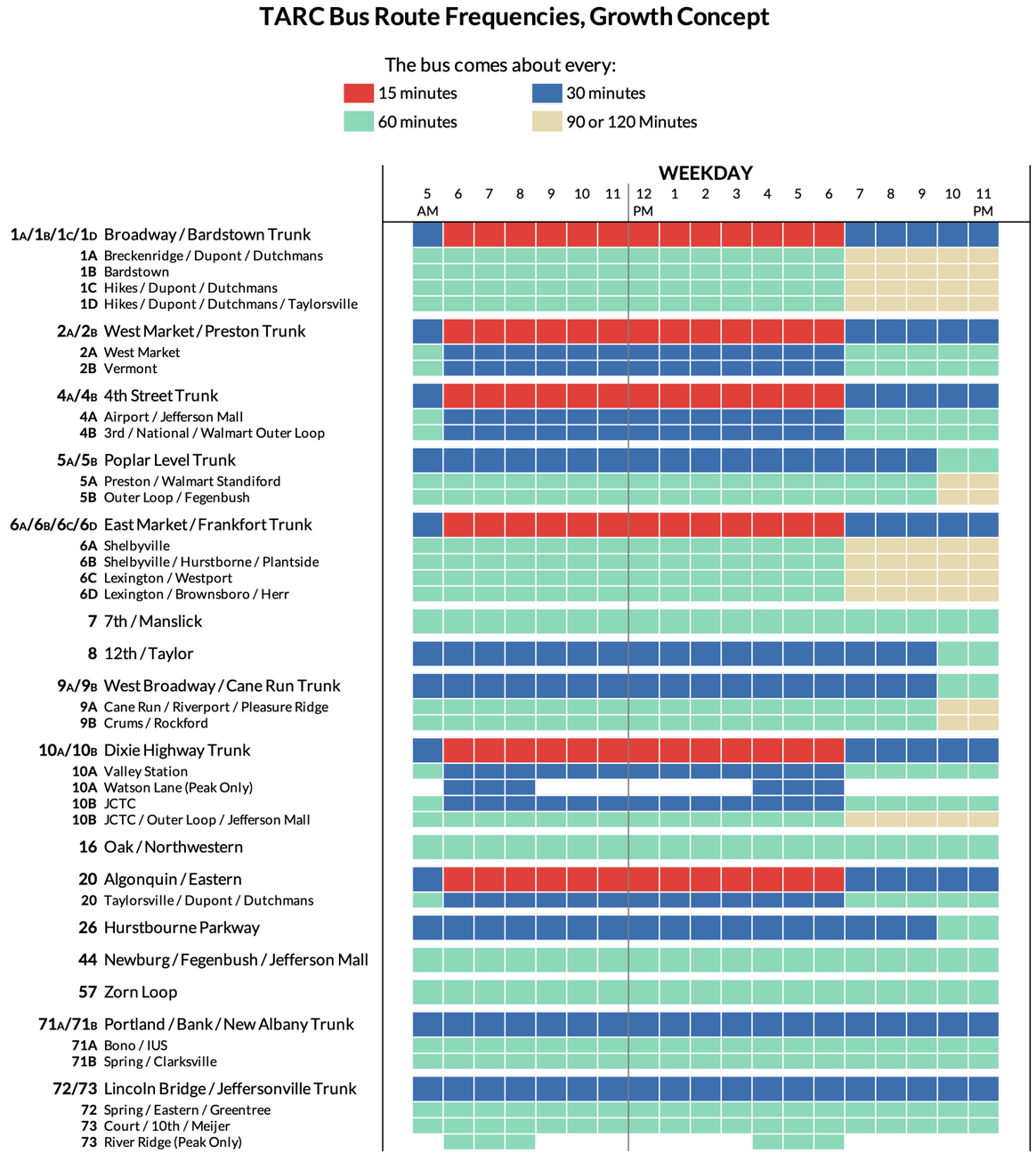


Figure 44: The frequency and span of service on weekdays for each route in the Growth Concept.

Growth Concept

Investment in Weekend Service

The chart on the right shows the frequency of each route in the Growth Concept across the day on weekends. All routes run from 5 AM to midnight, just like on weekdays. So every route in this Concept is available 5 AM to midnight all week.

Frequent Service on Saturdays

The Growth Concept, just like the Ridership Concept, has almost the same frequencies across the day on Saturdays as it does on weekdays. Every 15 minute trunk segment is also frequent during those same hours on Saturdays.

The only difference on Saturdays compared to weekdays is that the 30 minute trunk segments and routes are every hour starting earlier at 7 PM, instead of 10 PM.

Longer Sunday Spans

Compared to weekdays and Saturdays, frequencies are lower on the trunk segments on Sundays: the frequent routes are every 30 minutes all day from 5 AM to midnight.

The 30 minute trunk segments and routes have the same service as on Saturday. The routes that serve Indiana (71A, 71B, 72, and 73) have the same spans and frequencies throughout the week.

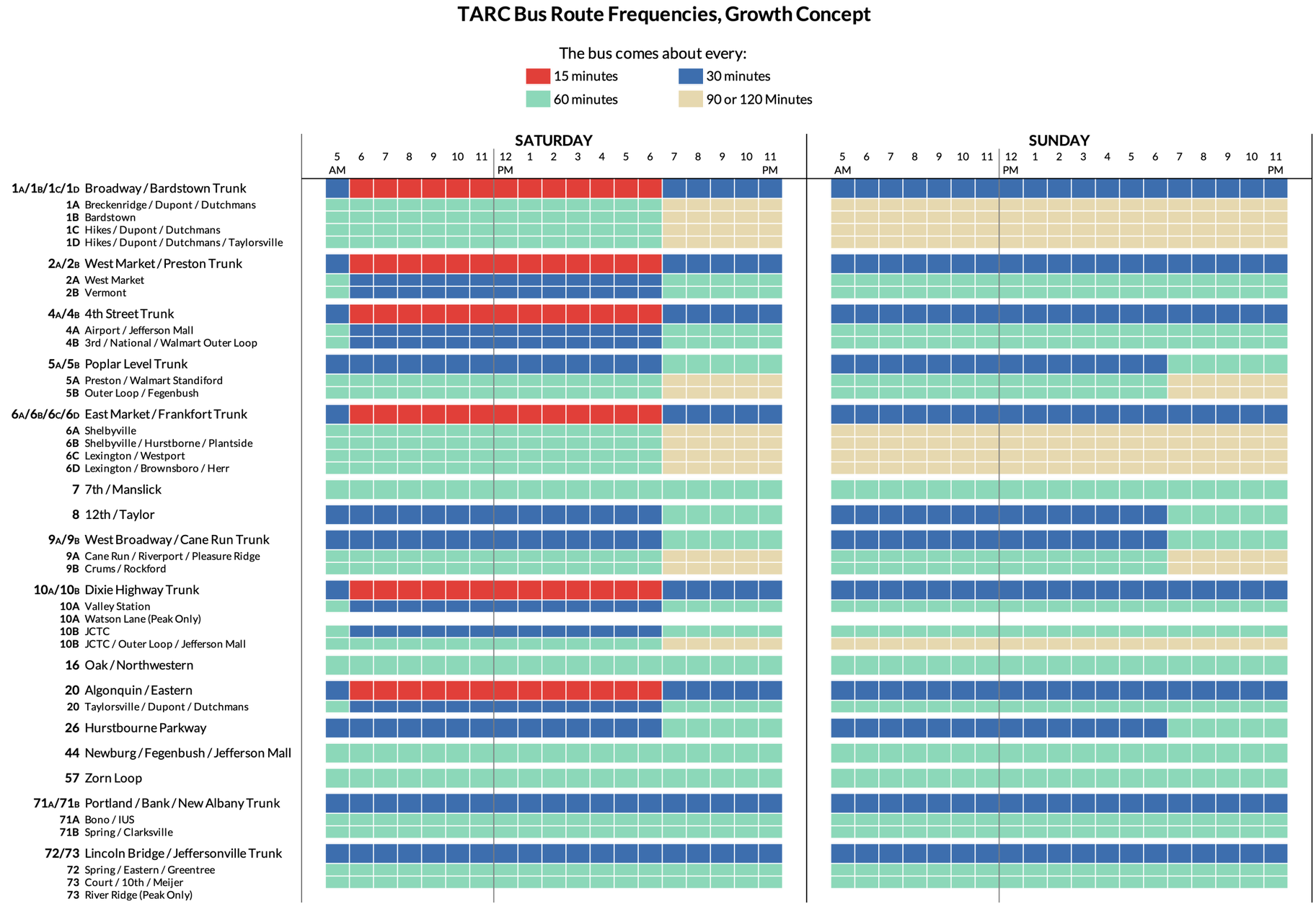


Figure 45: The frequency and span of service on weekends for each route in the Growth Concept.

5: Outcomes of the Growth Concept

Isochrones

Growth Concept

The three transit outcomes that can be used to think about transit goals that people care about are explained in detail on page 33. To summarize:

- **Isochrones** tell you where you can get to in a given amount of time. We can calculate what is inside the isochrone to measure your **access** to jobs and opportunities. Access is a measure of transit's usefulness.
- We can calculate isochrones for places across Jefferson County and measure how access would change in each Concept.
- **Proximity** is a measure of the coverage transit provides. It tells us whether transit is near someone.

The map on the right shows how far you could reach within 60 minutes at midday on weekdays from Jefferson Mall, in the Growth Concept, and in the Spring 2024 network.

Areas you can reach in the Growth Concept but not the Spring 2024 network are in purple. Areas you can get to in both networks are in maroon. Areas you can get to in the Spring 2024 network but not in the Growth Concept are in orange.

This isochrone is an example of the positive impacts of investment in TARC service. In the Growth Concept, Jefferson Mall is a major suburban transit hub. From there:

- You can travel west along Outer Loop on route 10B.
- You can go much further towards Downtown within 60 minutes on the combined frequency of Routes 2A and 2B.
- You can transfer from Route 2A or 2B to Route 20 and get to areas around Algonquin Parkway, Eastern Parkway, and Bardstown Road.
- Routes 5A and 5B let you travel all along Poplar Level Road
- Route 26 can take you east along Hurstbourne Parkway, where you can also transfer to routes 1A and 1B along Bardstown Road.

More isochrone examples from locations around Louisville are on the next page.

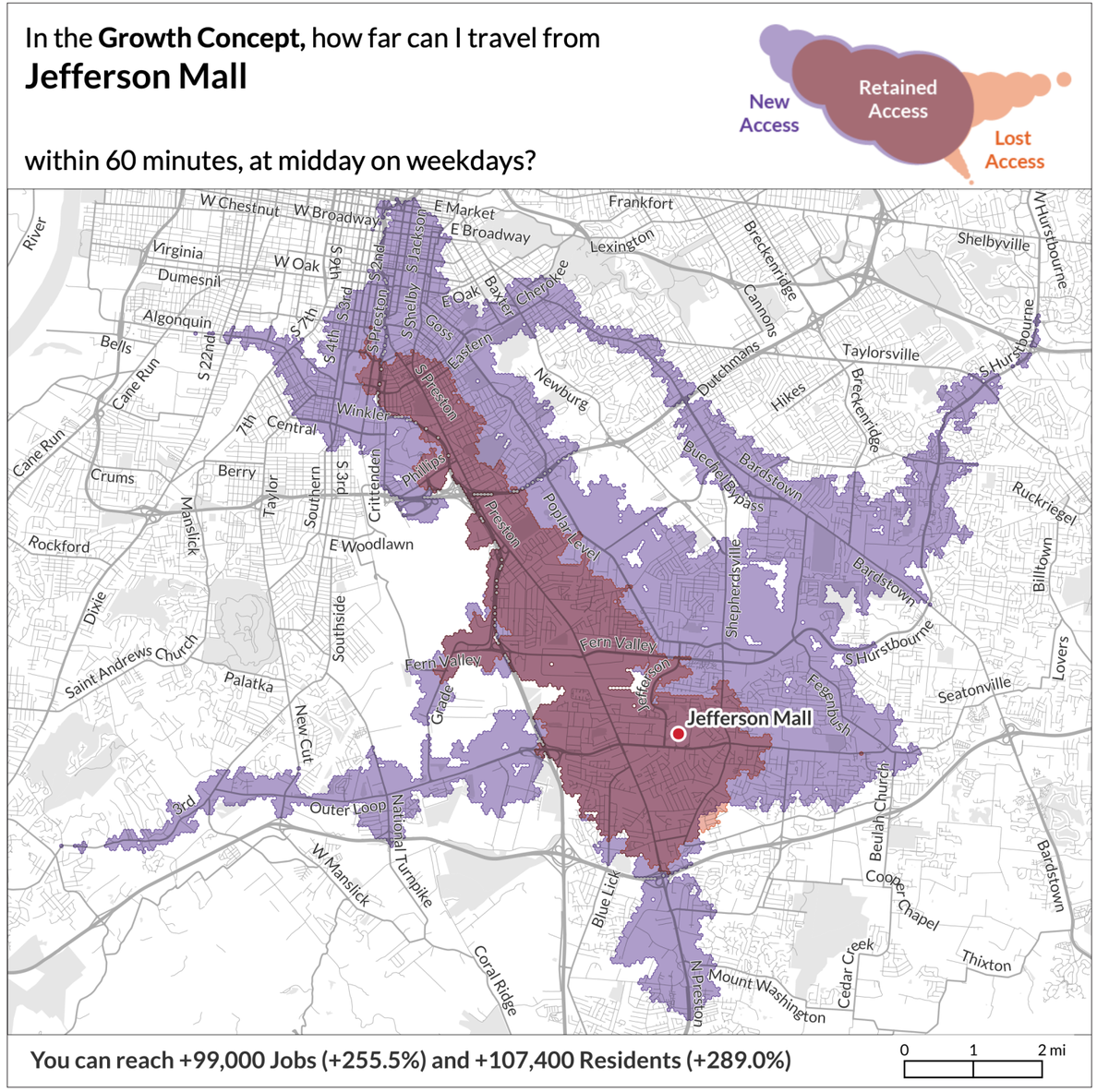
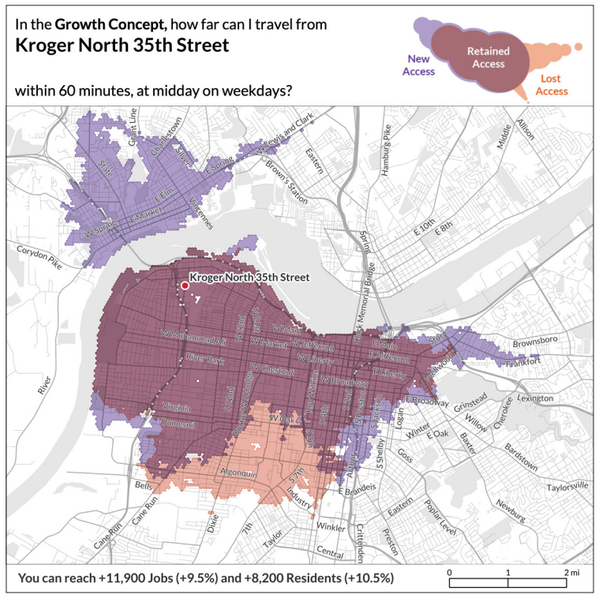
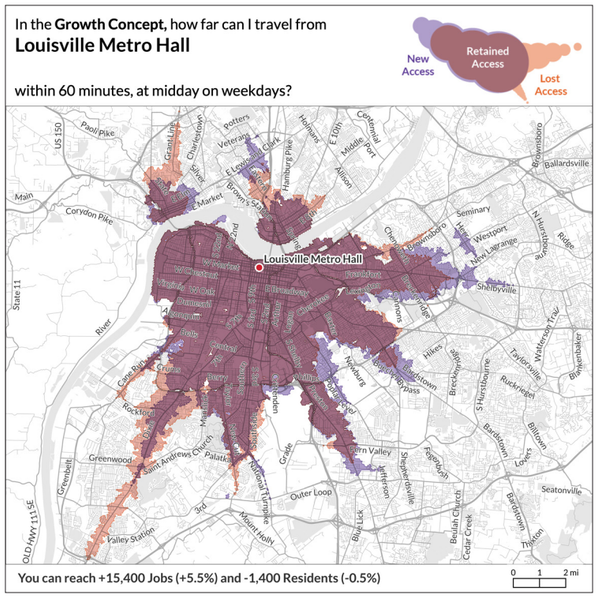


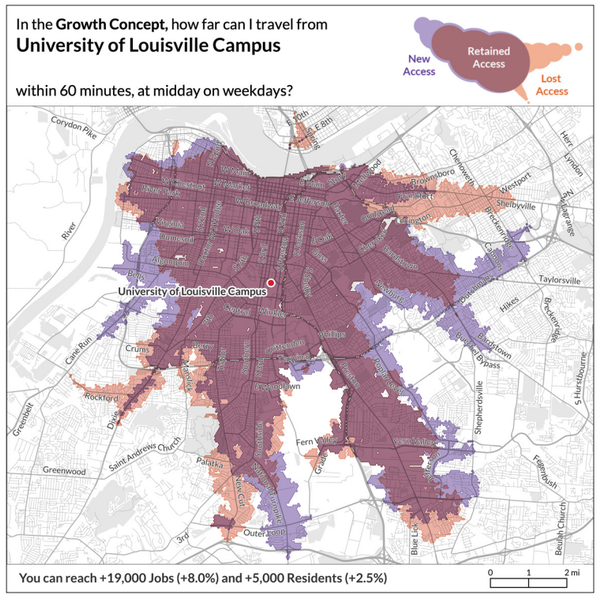
Figure 46: Examples of isochrones from Jefferson Mall in the Growth Concept, compared to the Spring 2024 Network.

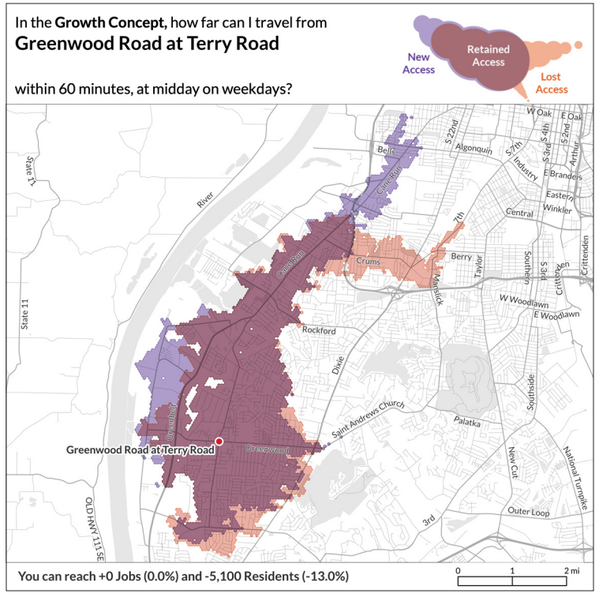
Example Isochrones

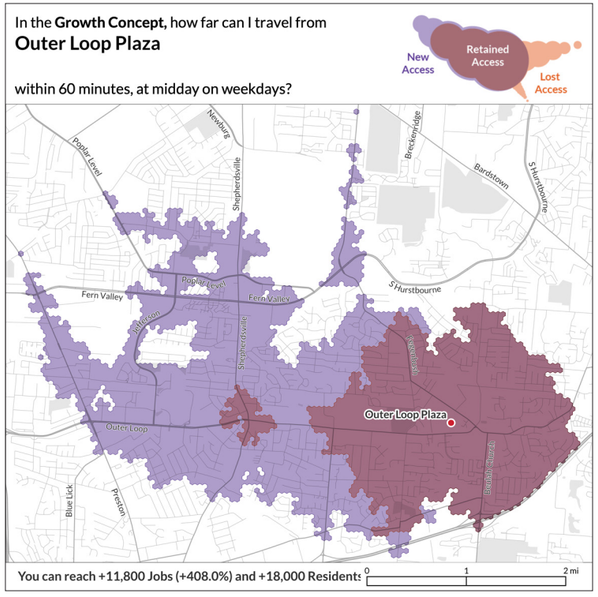
Growth Concept











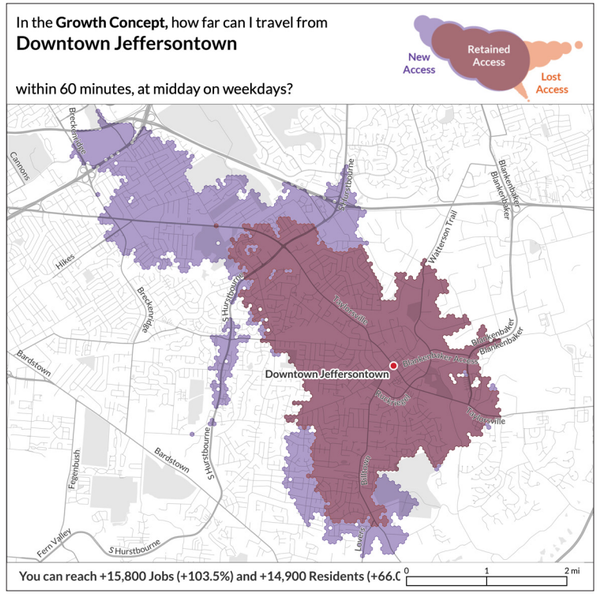


Figure 47: Examples of isochrones from various points in Louisville in the Growth Concept compared to the Spring 2024 network.

Change in Access to Jobs

Growth Concept

The map on the right shows the change in jobs reachable from various points across Jefferson County in the Growth Concept, compared to the baseline Spring 2024 network, at midday on a weekday.

Just like the maps on page 35 for the Ridership Concept and page 36 for the Coverage Concept, deeper shades of purple mean larger increases in jobs accessible in 60 minutes, while deeper shades of orange mean larger access losses.

Compared to both the Constrained Concepts, **purple areas of access gain are very widespread across most of Louisville.** Some of the biggest access gains are near:

- Cane Run Road, which has service every 30 minutes on Routes 9A and 9B.
- Park Duvalle and areas along Algonquin and Eastern Parkway, near the frequent Route 20.
- Poplar Level Road, which has service every 30 minutes on Routes 5A and 5B.
- Jefferson Mall, which is a major suburban transit center where a lot of services come together.
- Bardstown Road between I-264 and I-265, which has a lot more service on Route 1B as well as Routes 1A, and 26.
- Hurstbourne Parkway which has 30 minute service along Route 26.
- Shelbyville Road, which has service every 30 minutes on Routes 6A and 6B.

Some areas have slight to moderate access loss:

- The outermost part of Dixie Highway, because service there is now only every 30 minutes.
- Areas south of Central Avenue along 3rd Street. These only have service every 30 minutes in the Growth Concept on Route 4B. In the Spring 2024 network, they had service effectively every 15 minutes on various branches of Route 4, on different nearby streets.
- Taylorsville Road near I-264. There is no route on this segment in the Growth Concept, like Route 40 in the Spring 2024 network. But there are many other routes nearby.
- Westport Road just east of Herr Lane, which only has Route 6C every 60 minutes, compared to Routes 15 and 25 in Spring 2024.
- The area around Brownsboro Road and Chenoweth Lane, where service has been configured differently than today, and focused more on Frankfort Road and Shelbyville Road.

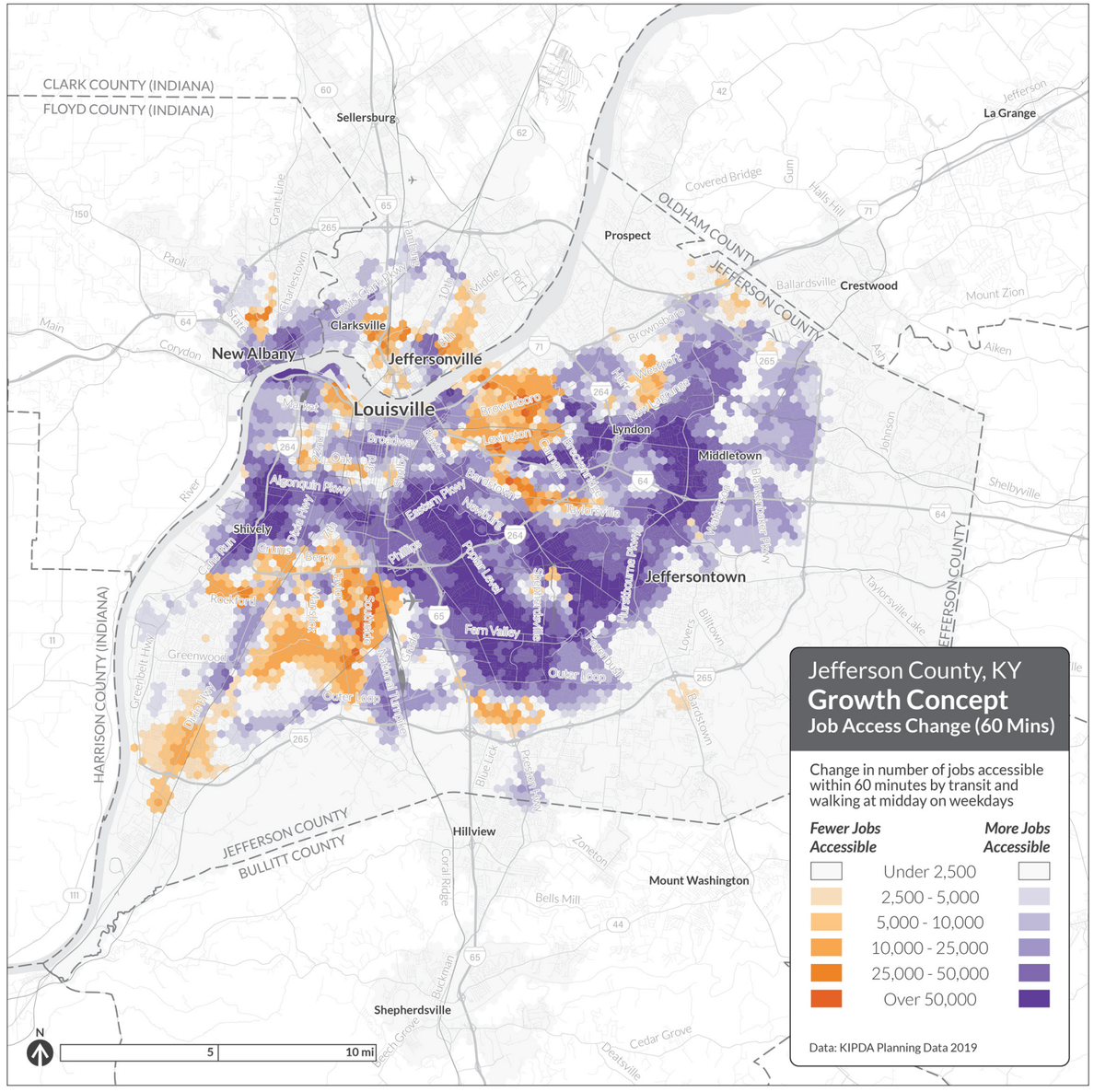


Figure 48: The change in access to jobs within 60 minutes in the Growth Concept, compared to the Spring 2024 network. Areas in deeper shades of orange have more access loss, while areas in deeper shades of purple gain access to more jobs in 60 minutes.

Overall Job Access Change in Jefferson County

The chart on the right shows how job access changes in the Growth Concept, on average, for all Jefferson County residents and for specific groups of residents. The grey bars are the jobs accessible in the Spring 2024 network, the red bars are the jobs accessible in the Ridership Concept, the blue bars are the jobs accessible in the Coverage Concept, and the green bars are the jobs accessible in the Growth Concept.

Compared to the 13% job access drop in the Ridership Concept and the 38% drop in the Coverage Concept, **residents can reach on average 20% more jobs, or 13,700 more jobs** within 60 minutes in the Growth Concept than in the Spring 2024 network.

Access for Specific Groups

We can also consider how overall access to jobs changes for different groups of residents in Jefferson County in the Growth Concept:

- Residents in Areas of Persistent Poverty can access on average 12% more jobs.
- Low-Income Residents can access 15% more jobs.
- Households Without Cars can access on average 11% more jobs.
- Residents of Color can access 19% more jobs.

The increase in job access is relatively lower for many of these groups, when compared to the job access increase for residents in Jefferson County overall. This is because people in these groups tend to be more often located in areas which already had pretty high job access (their grey bars are much higher too). So the baseline for achievable access increase is higher.

The Growth Concept doesn't reflect a specific ridership-coverage choice. It invests in better transit across a wide geographic area, instead of focusing investment in the areas with the highest ridership potential for maximizing access gains. Evening and Saturday service is a major investment in the Growth Concept. That investment is not reflected in outcomes calculated for midday on weekdays. And yet the Growth Concept can achieve a 20% increase in the number of jobs accessible by residents during midday on weekdays.

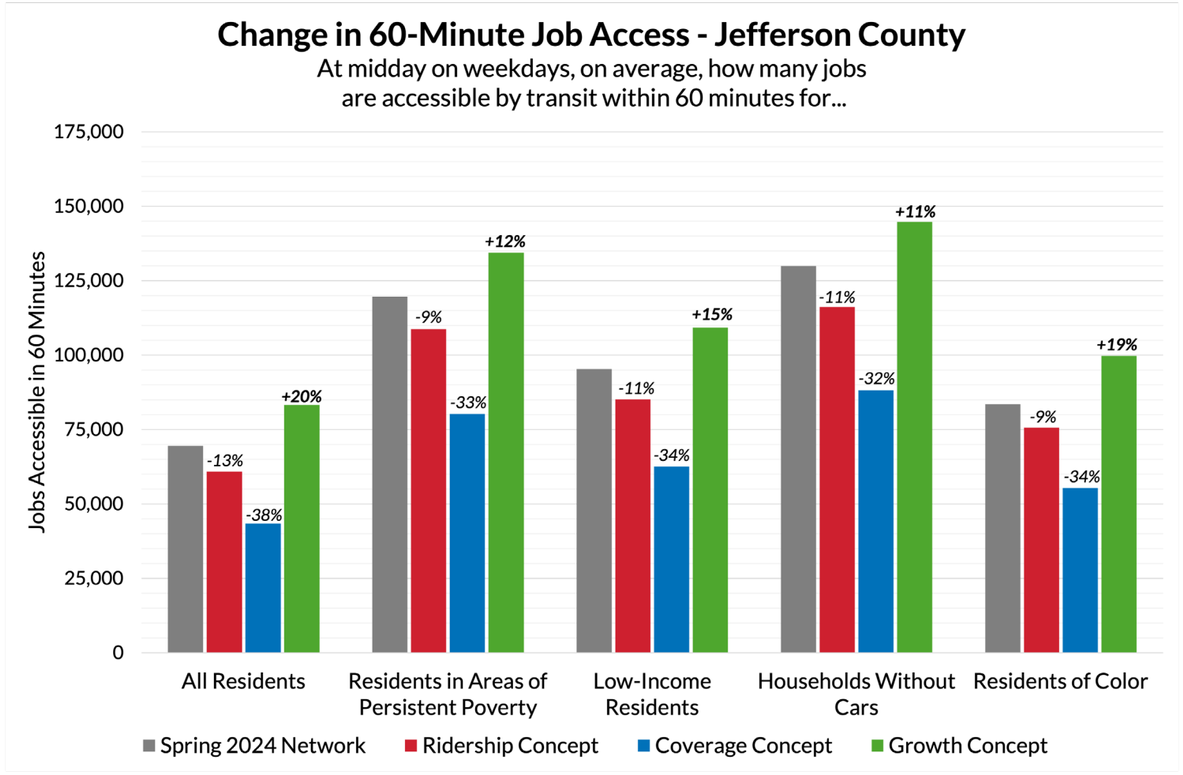


Figure 49: Change in access to jobs by walking and transit within 60 minutes at midday on a weekday in the three Concepts, compared to the Spring 2024 network.

In the Growth Concept, the average Jefferson County resident can reach 13,700 more jobs, which is a fifth more jobs and opportunities than in Spring 2024.

Change in Proximity to Transit

The chart on the right shows the coverage provided by TARC services in Spring 2024, compared to the coverage provided by all three Concepts, at midday on a weekday. Each group of bars is the coverage of residents, jobs, or a particular group of residents within Jefferson County. The overall coverage is divided into coverage by transit of particular frequencies at midday. That tells us a bit more about how many people are near service that is useful.

The Growth Concept provides slightly more overall transit coverage than the Coverage Concept, and provides much more useful transit coverage than either the Ridership or the Coverage Concept.

In the Growth Concept, 1-2% fewer people and jobs are near transit than in Spring 2024, The slight loss in proximity is related to no longer investing in specialized and peak-only services, which got transit close to 3% of people and 8% of jobs in Jefferson County in Spring 2024.

Almost every route in the Growth Concept has a frequency of at least every hour. So 58% of residents are near transit that comes every 60 minutes or better. In comparison, only 43% of residents were near transit every 60 minutes or better in the Spring 2024 network, 33% in the Ridership Concept, and 38% in the Coverage Concept. 19% of residents are near frequent in the Growth Concept, compared to 13% in Spring 2024.

71% of Jefferson County jobs are near transit that comes every 60 minutes or better. In comparison, only 53% of jobs were near transit every 60 minutes or better in the Spring 2024 network, 46% in the Ridership Concept, and 48% in the Coverage Concept. 32% of jobs are near frequent service in the Growth Concept, compared to 26% in Spring 2024.

The overall patterns for proximity to transit for Jefferson County's Residents in AoPP Census Tracts, Low-Income Residents, Households without Cars, and Residents of Color are similar to the proximity for all residents. In particular, **at least half of residents in each of these groups are close to transit that's every 30 minutes or better.**

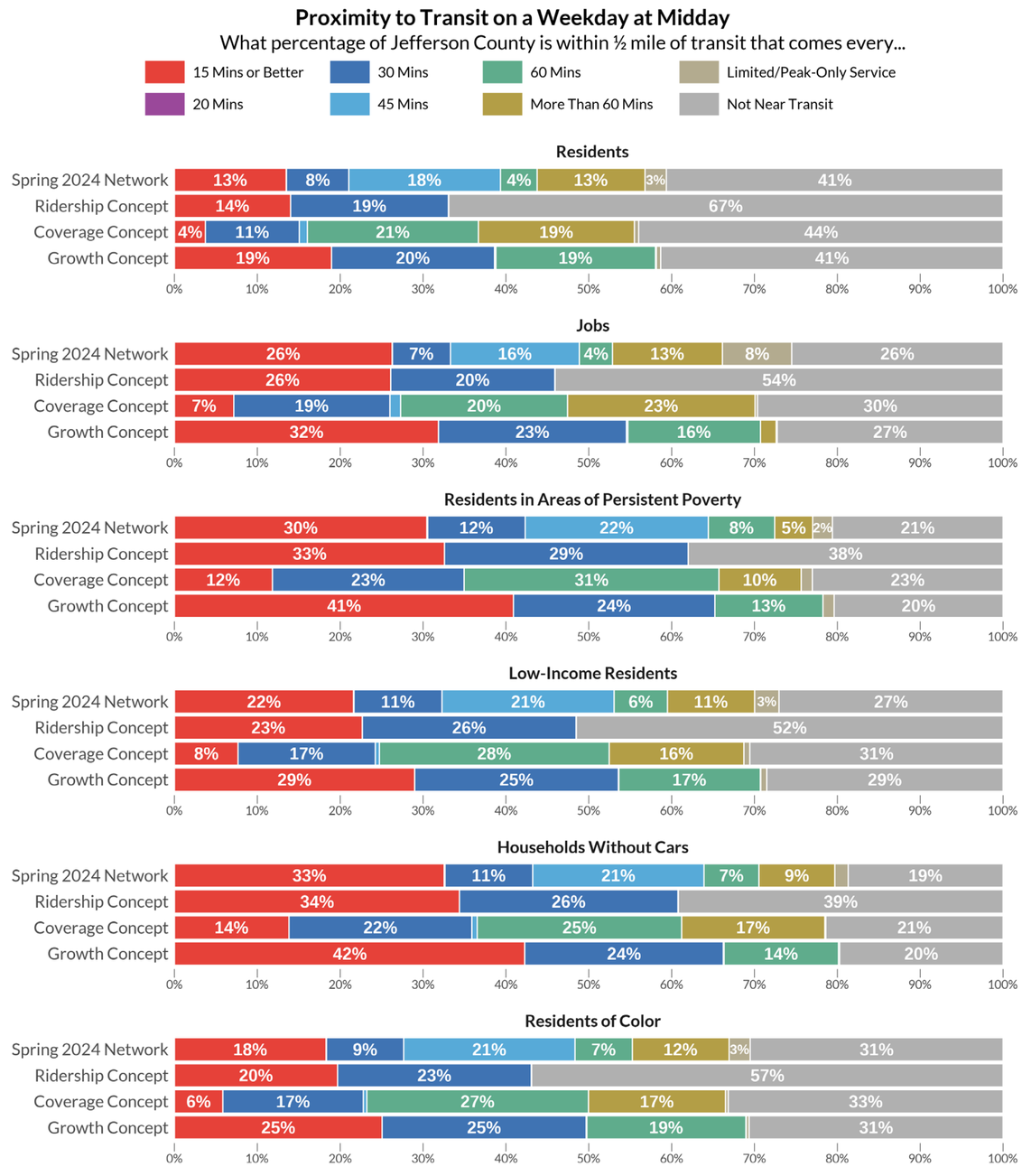


Figure 50: Proximity of people and jobs to transit by the frequency of service at midday on a weekday, in the Spring 2024 Network, Ridership Concept, Coverage Concept, and the Growth Concept.

Change in Outcomes for TARC Riders

Change in Access

Figure 51 shows how job access changes at midday on weekdays for riders under the Spring 2024 network and each of the three Concepts. These numbers represent an **overall sense of change in access for TARC riders**.

In the Growth Concept, riders can get to 21,600 or around 11% more jobs, compared to the 11% access loss in the Ridership Concept and the 31% access loss in the Coverage Concept.

The patterns of relative change in job access within 60 minutes for TARC riders are similar to patterns of access change for residents overall, described on page 49. In particular, the relative change in access for TARC riders in each of the Concepts is very similar to the change in access for Households Without Cars, which underscores the geographical distribution of those households close to transit.

Change in Proximity

Figure 52 shows the change in proximity of TARC boardings to transit at particular frequencies during midday on weekdays, for the Spring 2024 network and the three Concepts.

In both the Coverage Concept and the Growth Concept, almost every TARC boarding is still at or near a stop with some transit service: the bars for those two Concepts are almost completely full. But much of the proximity that the Coverage Concept preserves is through routes that are quite infrequent (large green and tan bars). In comparison, **with the Growth Concept, 92% of TARC boardings are at or near stops with service every 30 minutes or better.** This is better proximity of boardings to relatively useful service than both the Spring 2024 network (79%) and the Ridership Concept (84%), and dramatically better than the Coverage Concept (60%).

70% of TARC boardings are at or near stops with frequent midday service in the Growth Concept, which is the same proportion as the Spring 2024 network, and better than the Ridership Concept (65%).

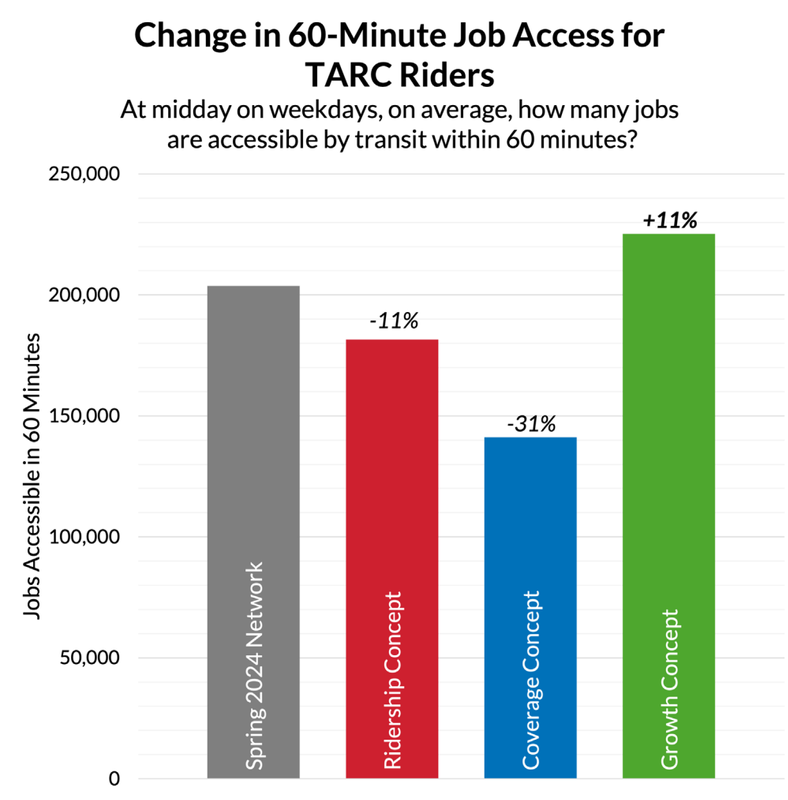


Figure 51: Change in access within 60 minutes for TARC riders at midday on weekdays.

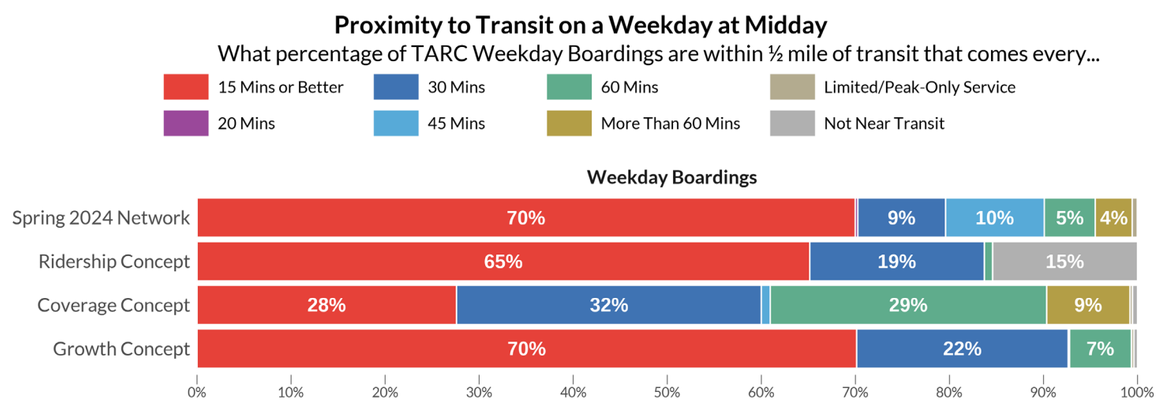


Figure 52: Change in proximity of boardings to transit at midday on weekdays.

6: Next Steps

Next Steps

The maps and analysis presented in this report will be the basis for conversations that we will kick off with the community, key stakeholders, and leaders at the end of July 2024.

Throughout this process, we urge you to think about your priorities for the TARC network, and to provide your input.

Please look at these Concepts and their outcomes carefully, because your feedback matters for TARC's future.

We will gather your input through an online survey and in-person surveying, stakeholder meetings, and other engagement events. Details on the latest event and the online surveys will be available at: **www.ridetarc.org/tarc2025**

The community and stakeholder input from this upcoming phase will inform the design of two Draft Recommended Networks: one with the constrained budget and the other with a higher budget assumption than today.

We will summarize those Drafts for stakeholders and the public to review in Winter 2024. The input on the second round of public engagement will be used to finalize these two networks. The intent is to implement the new constrained network between August 2025 and early 2026.

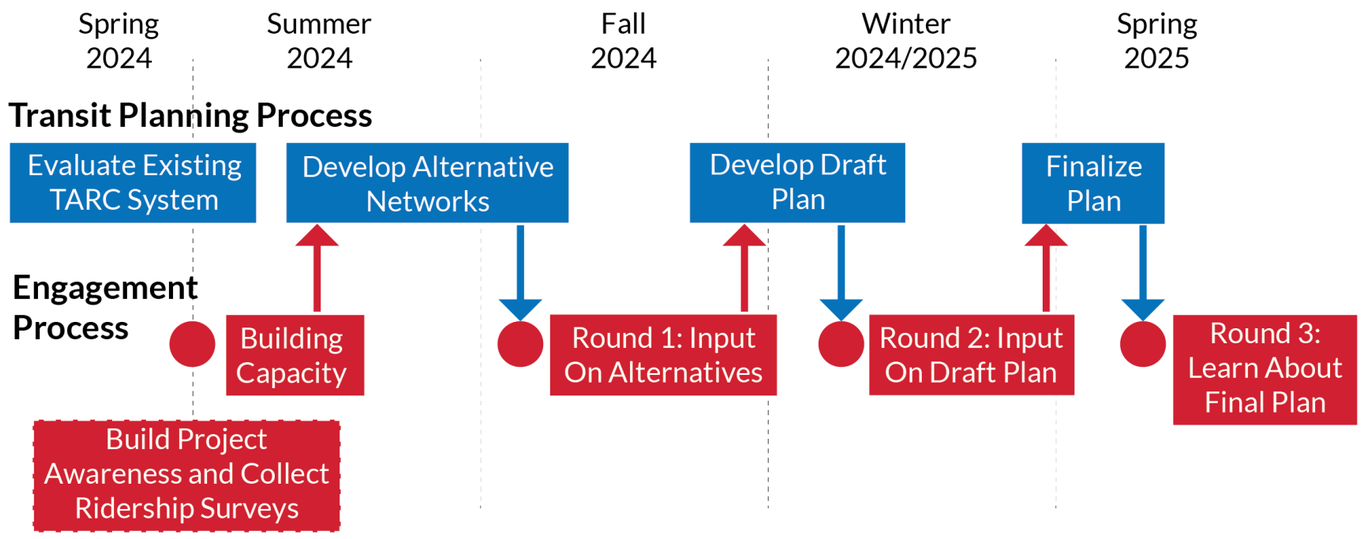


Figure 53: The process of designing, analyzing, and engaging the public on draft plans that will guide TARC 2025.