How does the fixed-route network perform?
Since 2016, all public transit services in and near Kansas City have come under the regional RideKC brand. But service is still funded and operated by several entities:

- The Kansas City Area Transportation Authority (KCATA) directly operates 47 fixed bus routes, mostly in Kansas City, MO (KCMO).
- KCATA also manages:
  - Johnson County Transit, a network of 14 bus routes funded by Johnson County, KS. These are operated under contract by First Transit.
  - IndeBus, a network of six bus routes operated under contract in Independence, MO.
  - Several on-demand and flexible services in KCMO, Raytown and Johnson County.
- Unified Government Transit (UGT) funds and manages 10 bus routes in Kansas City, KS. Six of those routes are operated directly by UGT, while the other four are operated by KCATA.
- The Kansas City Streetcar Authority (KCSA) is a non-profit that manages the KC Streetcar in downtown Kansas City, Mo.

Fixed Routes in KCMO
RideKC Next is focused specifically on reviewing and proposing changes to the transit network operated by KCATA within the boundaries of Kansas City, MO. This includes:

- All current and planned MAX and KC Streetcar routes.
- All RideKC fixed and FLEX bus routes with numbers from 1 to 99 (KCMO South), and 200 to 299 (Northland).
- Suburban express routes 535 and 571.

Because the boundaries of Kansas City, MO are so fragmented, some of these bus routes also operate in or immediately next to other jurisdictions, like North Kansas City, Gladstone, Riverside and Raytown.

Figure 32: Transit routes color-coded by frequency in the Kansas City region. The highest levels of service are provided in KCMO, south of the Missouri River.
Figure 33: Existing transit routes in the central part of the Kansas City region. This has historically been KCATA's core service area, and features the most frequent service.

Figure 34: Existing transit routes in the Northland. Service is generally less frequent north of the Missouri river.
Why focus on Kansas City, MO?
Transportation issues in Kansas City are regional. But local transit funding does not reflect the regional reality. Sales taxes collected in KCMO contribute nearly 80% of local transit funds, so the overwhelming majority of service is provided within KCMO. Bus routes from other jurisdictions are often designed around the best places to connect to the KCMO network.

KCMO Service Inventory
Figure 33 and Figure 34 on page 36 are maps of the bus network with lines color-coded by the prevailing frequency on weekdays, between 10 AM and 2 PM. Visualizing lines by frequency provides an easy way to see where a transit agency’s most useful services operate. On weekdays, midday frequency provides the best overall sense of a route’s service level, because it is often the lowest frequency operated in the daytime.

Metropolitan Area Express (MAX) and KC Streetcar
The most frequent routes in the RideKC network are the KC Streetcar, Troost MAX, and Main Street MAX. Each of these routes are the product of a specific investment not just in service, but also infrastructure.

* The KC Streetcar is a 2-mile long modern streetcar line operating within KCMO between the River Market and Union Station. It typically operates every 12-15 minutes, although service can be as frequent as every 10 minutes during peak times. Unlike most other transit routes, KC Streetcar’s peak times usually correspond to downtown events, and are typically on evenings and Saturdays.

* The Main and Troost Metropolitan Area Express (MMAX and TMAX) lines are designed as special fast and frequent bus Rapid Transit (BRT) lines:
  - Both MAX lines operate every 10 minutes in the middle of the day on weekdays on their core segments. However, they also both feature less frequent long-lines (every 20 minutes on MMAX south of 47th St, and every 30 minutes on TMAX south of 85th St).
  - MAX lines feature limited stops with improved shelters (typically every 1/2-mile) and signal priority. These features exist only on the core segments north of 47th on MMAX, and north of 85th on TMAX.

* MAX lines also feature distinctive red buses; however, unlike some “closed” BRT systems, they do not feature off-board fare payment or the need for raised platforms. This means that, in theory, any RideKC bus could operate a MAX line, and a MAX bus could operate on a regular route if it became necessary.

* The MMAX is the only north-south route on Main Street south of Union Station. In contrast, TMAX is complemented by a local overlay (Route 25) on most of Troost Ave, which operates every 30 minutes and makes more frequent stops.

* MMAX operates every 15 minutes on weekday evenings and on Saturdays, but only every 30 minutes on Sundays. In contrast, TMAX is only frequent between 7 AM and 7 PM on weekdays; it operates every 30 minutes at all other times.

Other Frequent Routes
The RideKC network features four routes with service levels approaching what is available on the streetcar and MAX. Most of these routes operate every 10-15 minutes on weekdays from 7 AM to 7 PM, every 20-30 minutes on Saturdays, and every 30 minutes on Sundays and evenings.

* **Downtown Service:** Route 24 (Independence) and Route 71 (Prospect). These routes share a number of interesting features:
  - Both operate every 15 minutes or better on weekdays, and are oriented to and from Downtown KCMO. Route 71 generally operates slightly more frequently than Route 24.
  - They both serve historically disadvantaged communities of color that feature significant densities of households in poverty and zero-vehicle households.
  - Both are also slated to be upgraded to MAX. Construction of Prospect MAX Stations is ongoing as of May 2019. Following the Independence Avenue BRT Study, KCATA has begun the process of pursuing funding for MAX service on Independence as well.
  - Note that Route 24 also features a less frequent long-line operating to downtown Independence. Service to Independence is hourly on weekdays.

* **Crosstown Service:** Routes 31 and 39 (respectively on 31st and 39th Streets) are the two most frequent routes that do not operate to or from Downtown KCMO.

* Route 31 operates every 15 minutes on weekdays from MCC-Penn Valley to Blue Ridge Crossing. It is the only frequent bus route east of I-435. This frequency was made possible by consolidating prior services on both 31st Street and Linwood Blvd into a single route. Because Route 31 is both frequent and long, and it crosses three other frequent routes with service to Downtown, it has a uniquely important role in providing access to jobs and opportunity from the East Side.

* Route 39 operates every 20 minutes on weekdays (every 15 minutes at peak) between KU Medical Center and Hardesty Ave. It connects two significant transit markets (KU Med, and 39th east of Prospect) to north-south frequent services on Prospect Ave, Troost Ave and Main Street.
30-minute Routes
This tier of routes generally operate every 30 minutes on weekdays until 7 PM, and every 60 minutes on evenings and weekends. These routes often have smaller ridership markets than those listed above, usually because:

- The route is in an area of lower population density, and/or features fewer jobs and services along its length than the frequent routes.
- The route is located within 1/2-mile of a frequent route. As a result, a portion of this route’s natural market is lost to a more convenient service.

Within KCMO, the 30-minute routes include both downtown and crosstown services:

- Routes 9, 11, 12 and 15 connect Northeast Kansas City and the Blue Valley with Downtown KC MO. Of these, Route 12 is the furthest from a frequent route, and has the highest ridership.
- Routes 18 and 85 connect areas of south KCMO and the East Side to Downtown, mostly operating on streets a 1/2-mile east and west of Prospect Ave.
- Route 25 is unique in that it serves as a “local” companion to the TMAX on most of Troost Avenue, coming less frequently and making more stops. It has a slightly different alignment than the TMAX downtown.
- Routes 27 and 35 are crosstown routes connecting parts of the East Side to shopping and employment destinations south of Downtown KCMO, including Crown Center, Westport and Country Club Plaza.
- Routes 63 and 75 are crosstown routes in south KCMO, primarily on 63rd and 75th Streets.
- Route 57 is a feeder service, operating on and near Wornall Road from Martin City to 75th Street, where passengers may connect to Route 75 to go east or west, or to the MMAX longline going downtown.

The usefulness of Routes 27, 25, 63 and 75 is constrained by their 30-minute frequency, in that they do not offer a frequent connection to and from the MMAX, TMAX and Route 71. Connecting inbound to go somewhere is relatively easy, because the wait at the transfer point will be short. But coming off MMAX, TMAX or Route 71, it takes a much longer wait at the bus stop to get home.

Infrequent All-Day Routes
In KCMO, this tier includes routes that mostly operate once an hour on weekdays until 7 PM.

- Several of these routes run more often during the morning and afternoon peak. These tend to be more commuter-oriented routes such as Route 28 (Blue Ridge), and Routes 201, 229, and 233 from the Northland.
- Several of these routes do not operate on weekends, such as Routes 10, 23, 55, 231 and 234. These routes serve a variety of purposes, including:
  - Route 10 connects neighborhoods located between Prospect Ave and Hwy 71 to Downtown KC MO.
  - Routes 21 and 23 are crosstown routes primarily serving East Side neighborhoods that are located far from more frequent service on Prospect Ave and 31st Street. Route 21 also provides a rare crosstown connection from Antioch Crossing in the Northland to areas south of the river other than Downtown.
  - Routes 28, 47 and 55 combine substantial cross-town segments (on Blue Ridge Parkway, 47th Street and 51st/55th) with paths to and from Downtown KCMO.
  - Routes 77, 201, 229, 233 and 238 each connect a different part of the Northland to Downtown KCMO. Routes 77, 201 and 229 tend to have the highest ridership among this group.
  - Route 201 operates on North Oak, which has a slightly higher density of jobs and low-income residents than other parts of the Northland.
  - Route 229 operates to Zona Rosa, Boardwalk Square and Kansas City International Airport (MCI).
  - Route 77 operates to several casinos and a theme park.
  - Routes 231 and 234 are the only routes to operate only within the Northland. They connect employment and shopping centers in the I-29 corridor to the main RideKC Northland hub at Antioch Crossing.

Peak-Only Routes
In addition to the routes listed above, the RideKC network serving KCMO includes nine routes that operate only at weekday peak hours. Each of these routes has only a few trips per day, and all of these routes operate to and from Downtown Kansas City, MO.

- Most peak-only routes provide primarily service inbound to Downtown KCMO in the morning, and outbound service in the afternoon:
  - Route 16 from Independence and Truman Road.
  - Route 29 from Grandview and Blue Ridge Parkway.
  - Route 52 from Red Bridge on Ward Parkway and Wornall Road.
  - Route 235 from Claycomo.
  - Routes 236 and 237 from Gladstone.
  - Route 571 from the Red Bridge Park & Ride via Highway 71.
- Only two routes in this category provide two-way service at peak times:
  - Route 51 from Rosanna Square and Sprint World Headquarters via Ward Parkway. This route also connects to KU Medical Center.
  - Route 535 from Liberty via Shoal Creek Parkway and I-35.

Small Buses vs. Large Buses
KCATA maintains a fleet of buses in three different sizes.

- Large buses are traditional 40-foot vehicles, and are used primarily on frequent routes, as well as a few 30-minute and peak-only routes.
- Smaller 30-foot buses are used on most 30- and 60-minute routes, due to their generally lower ridership.
- Routes with very low ridership (like Routes 10, 231, 234) make use of cutaway minibuses.

This matters because KCATA’s agreement with bus drivers makes it possible to operate 30-foot buses and minibuses at lower cost, which enables the agency to stretch the budget for coverage service to more places.

2 Several other peak-only routes provide service to and from Downtown KCMO, but do not include any non-Downtown stops within KCMO. This includes routes such as the 519 (Olathe), 550 (Lee’s Summit), 570 (Blue Springs) and others. Because these routes are funded by other jurisdictions and do not otherwise serve KCMO neighborhoods, they are not included in this listing.

RideKC Next
Transit Choices Report | 38
Service levels are highest on weekdays until 7 PM. They are much lower on evenings and weekends.

**Figure 35: Hours of Service and Frequencies in the Existing Network - KCMO South**

*The KC Streetcar typically operates every 12-15 minutes, but it may operate as frequently as every 10 minutes at peak times.*

***Route 16 (Truman Limited) and some runs of Route 24 (Independence) also operate to downtown Independence from KCMO.*
Outside KCMO, local jurisdictions fund transit out of a mix of general funds, state grants, special programs, and federal matching funds. Three jurisdictions provide the bulk of non-KCMO transit service (and funding).

**Johnson County**

Johnson County Transit (JCT) service is paid for with $11.8 million annually as of 2019, primarily from the county general fund. JCT service is provided under the RideKC brand and is operated by First Transit. KCATA manages the contract on behalf of Johnson County. Most JCT services are commuter-oriented and operate only on weekdays at peak hours. 

Route 401 (Metcalf-Plaza) and Route 475 (Quivira-75th) are the only all-day routes. The SmartMoves 3.0 plan envisions that segments of both of these routes will become the basis for regional fast and frequent service between KCMO and Johnson County in the long term.

**Kansas City, KS**

Unified Government Transit (UGT) service is paid for with $4.3 million annually, primarily from the city general fund and the county aging fund. This results in a network of ten RideKC routes. Four of those routes are operated by KCATA, and provide hourly service Monday to Saturday:

- Route 101 (State Ave)
- Route 104 (Argentine)
- Route 106 (Quindaro-Amazon)
- Route 107 (7th St-Parallel)

The remainder are operated directly by UGT and operate on weekdays only. SmartMoves 3.0 envisions two fast and frequent routes in KCK: State Avenue, and South 7th Street/Rainbow Boulevard.

**Independence**

IndeBus service is paid for with $2.0 million annually, primarily from the city general fund. The result is six local lines (Green, Blue, Purple, Yellow, Orange, Red) that operate every 1-2 hours, Monday to Saturday.

**Other Areas**

Gladstone, North Kansas City and Riverside provide contributions for service within their boundaries, though the majority of Northland service is in KCMO. In Jackson County, Lee’s Summit, Blue Springs, Raytown and Grandview also contribute small amounts for service within their boundaries.

1 JCT expenses also included $3.4 million in capital funds in 2019.
Service levels are higher in places more likely to generate high ridership.

Figure 37: Existing transit routes and residential density in the central part of the region. Frequent service is mostly provided in places with continuous, linear density, which are mostly in KCMO. An exception is the frequent Route 31, which traverses low-density areas on the way to Blue Ridge Crossing.

Figure 38: Existing transit routes and residential density in the Northland. Areas of mid-to-high density in the Northland are few, far from each other, and often freeway-oriented. As a result, there aren’t any streets or neighborhoods where deploying frequent service is likely to generate very high ridership. The existing network has focused on getting a minimum level of service near as many mid-density places as possible.
Nevertheless, most people live and work far from a frequent transit line.

Many people in Kansas City live very far from transit service.

Fewer than half of the residents of the seven-county Kansas City region live within a half-mile of any transit stop. Even within KCMO and immediately adjacent Northland communities, over one-third of the population lives more than 1/2-mile from service.

The numbers are even lower when looking at access to frequent service, i.e. transit routes with service every 15 minutes or better on weekdays. Despite the recent emphasis on the KC Streetcar and the ongoing expansion of MAX rapid bus lines, a mere 6% of regional residents (and 13% of regional jobs) are within a half-mile of a frequent transit route. Within KCMO and immediate environs, only 18% of residents and 32% of jobs are located near frequent service.

Minority and low income residents are more concentrated in the inner city, and tend to live nearer to transit service.

Within KCMO and immediate environs, 75% of minority residents and 82% of low-income residents live within a half-mile of transit service, compared to only 64% of the general population. Low-income residents are also significantly more likely than average to live near a frequent service. Even so, only 33% of low-income residents in this area live within a half-mile of a frequent transit route.

In contrast, seniors are slightly more likely to live in suburban and outlying areas than the population as a whole. Within KCMO and environs, 65% live within a half-mile of any transit service, but only 15% live within a half-mile of frequent service.

These numbers show how generally low investment in transit, combined with vast areas of low-density development, make it hard to succeed at either ridership or coverage goals:

- Because development patterns cause such large numbers of people to live in dispersed low-density locations, there are large parts of the city and region where transit is not serving a lifeline role as insurance against isolation.
- It’s not surprising that very few people ride transit when the vast majority of economic and social opportunities are located far from a frequent service.

![Proximity to Transit: Kansas City, MO](image)

Figure 39: Approximately 64% of residents and 74% of jobs are located within a 1/2-mile of some form of transit service within KCMO and adjacent Northland communities. But far fewer residents (18%) and jobs (32%) are within 1/2-mile of service that comes frequently. On average, minority and low-income populations live nearest to transit, and especially frequent transit, but seniors live farther from transit.

*Includes all parts of the City of Kansas City, Mo. and adjacent Northland communities
Riders respond strongly to frequency.

Frequency and Productivity
As shown in Chapter 2, experience across many cities tells us that more frequent routes tend to attract higher ridership. On some level, this is obvious: if there are more buses, there are more opportunities for passengers to come onboard.

But in cases where the basic demand conditions for transit are strong, the benefits of frequency are so strong that the relationship is non-linear. More frequent routes not only attract more riders in total, but they often attract more riders on each bus. This means that more frequent routes are often more productive.

The productivity of a bus route is measured in boardings per in-service vehicle hour. The chart in Figure 40 (at right) shows the productivity of RideKC routes compared to their scheduled weekday midday frequency.

At first glance, the relationship is clear: productivity is much higher on frequent routes than on 30-minute routes. And 30-minute routes are also typically more productive than most 60-minute or peak-only routes. However, not all routes at the same frequency have the same productivity, for a variety of reasons.

Frequent Routes
The KC Streetcar is considerably more productive than comparably frequent bus routes, attracting over 70 boardings per hour on a typical weekday, and far more on Fridays and Saturdays. Reasons for the streetcar’s high number of passengers per hour include:

- The streetcar runs through the heart of Downtown KCMO, the densest place in the region, where it is most inconvenient and expensive to drive. So it operates in the strongest available ridership market.
- The streetcar line is short, so it is mostly used for short trips. That means there are far more boardings per passenger-mile on the streetcar than on other routes.
- Streetcar service is free, unlike on buses. This is not just a price advantage; it also means anyone who doesn’t ride transit regularly doesn’t need to figure out the fare system to use it.

The core segment of the Troost MAX is more productive than the Main Street MAX.

- This is due in part to higher residential densities near Troost Ave than Main Street, and the much higher densities of low-income and zero-vehicle households near Troost Ave.

- The opposite is true of the outer segments of TMAX and MMAX. This is the result of a combination of higher frequency and much higher population density on the outer MMAX than the outer TMAX.

The frequent part of Route 24 (Independence) is 25% more productive than Route 71 (Prospect), even though Route 71 is more frequent. However:

- The difference in frequency between the two routes (12 vs. 15 minutes) is limited. It might not make much of a difference in convenience.
- The difference in frequency does mean that there is 20% more service on Prospect Ave than on Independence Ave. Adjusting for the difference in service, it’s likely that Routes 24 and 71 would have very similar productivities.

Among cross-town routes, Route 39 (39th) is more productive than Route 31 (31st), even though Route 31 is more frequent. This likely reflects very low densities on Route 31 between Hardesty Avenue and Blue Ridge Crossing. In contrast, Route 39 operates only in areas of continuous mid-to-high density development. A significant part of the ridership of Routes 31 and 39 comes from the connections they offer to the TMAX, MMAX and Route 71, as explained on page 46.

30-Minute Routes
Most of the 30-minute routes cluster around 20 boardings per hour on weekdays, but a few stand out.

- Route 12 (12th) serves over 26 boardings per hour. It serves a continuous corridor of higher-density residential neighborhoods a 1/2-mile or further from frequent service. Furthermore, there are many lower-income and zero-vehicle households in this area. It’s likely that Route 12 would attract even more riders if it operated more frequently.

In contrast, Routes 9 (9th) and 15 (Truman Rd) serve similar neighborhoods as Route 12, but they are much closer to frequent Routes 24 and 71. As a result, they only serve 14-15 boardings per hour. See page 47 for more details on this and other examples of service duplication.

- Route 63 (63rd) serves over 26 boardings per hour. This is related to the broad mix of useful destination on and near the route, including retail, employment, medical and social services, as well as the opportunity to connect with the frequent TMAX and Route 71.
Route 57 (Wornall) serves only 11 boardings per hour. This is likely due to long distances from areas south of 85th Street to major employment centers, combined with the lack of connections to frequent routes. The only connection to downtown is with the outer MMAX, operating every 20 minutes. This is especially inconvenient because a service operating every 20 minutes (like the outer part of the MMAX) can only be scheduled to connect with a service that runs every 30 minutes (like Route 57) once an hour.

Infrequent All-Day Routes - KCMO South

We observe a wide variety in the productivity of infrequent all-day routes in Kansas City. Much of this variety can be explained by the areas each route crosses.

- Routes 10 (Woodland-Brooklyn), 23 (23rd) and 55 (Uni-Crossroads) provide hourly service in areas that are near much more frequent routes, so they experience very low ridership. Route 10 serves only 7 passengers per hour, because it largely duplicates Route 71 at lower frequency.

- Routes 21 (Cleveland-Antioch), 28 (Blue Ridge) and 47 (Broadway) each have relatively direct paths through long unique segments in mid-density areas. Although they do not attract very high ridership in total, the relatively low level of service provided ensures they are more productive than other infrequent routes.

- Route 47 gets the added advantage of serving the high-demand areas of Country Club Plaza, Westport and Downtown KCMO, which is likely why it achieves nearly 28 boardings per hour.

- Route 77 provides a specialized service between Downtown KCMO, the Isle of Capri, Harrah’s and Ameristar casinos, and the Worlds of Fun theme park.

Infrequent All-Day Routes - Northland

The Northland transit network is built on routes operating every 60 minutes, in addition to a thin overlay of peak-only routes.

- Route 201 (North Oak) features the longest stretch of continuous development in the Northland, the most consistent residential and employment densities, and a very direct path to Downtown KCMO. As a result, this route provides the largest transit market in the Northland with the highest level of access to opportunity. Route 201 outperforms all other Northland routes by a significant margin; it serves nearly 19 passengers per hour; it might be able to attract even higher ridership if it operated every 30 minutes.

- Routes 229 (Boardwalk-KCI), 233 (Vivion-Antioch) and 238 (Meadowbrook) each connect a mix of low-density residential areas and suburban commercial and employment destinations to Downtown KCMO. However, their paths are less direct than Route 201, and involve either fewer destinations (Route 233) or longer travel distances (Route 229). As a result, they are not as productive as Route 201, serving only 10-15 boardings per hour.

- Routes 231 (Riverside-Antioch) and 234 (Boardwalk-Antioch) are unique in that they serve similarly low-density areas as other Northland routes, but they also do not provide service to Downtown KCMO. As a result, the market for their service is very small. Generally speaking, cross-town routes can only attract significant ridership if they operate in denser areas, are much more frequent, and connect to frequent downtown service; the conditions for this are not present in the Northland. Both routes serve fewer than 5 passengers per hour.

Peak-Only Routes

Because peak-only routes are only useful for people (and days) with predictable 9-to-5 (or similar) schedules, they generally attract very few riders, and are less productive than all-day routes.

Although Figure 40 shows the productivity of peak-only route ranging from 7 to 14 boardings per service hour, these numbers mean something slightly different than for all-day routes:

- Peak-only routes are generally useful in only one direction at a time. The vast majority of boardings are inbound to Downtown in the morning, and outbound to suburbs in the afternoon. The bus sits nearly empty for most of the time it operates.

- In addition, unlike all-day routes, much of the time when the bus is operating in the “wrong” direction (i.e. outbound in the morning, inbound in the afternoon) it is not counted as being in service.

So the “real” productivity of most peak-only routes is only 50 to 70% of what is measured in Figure 40, or in the range of 4 to 10 boardings per hour.
Ridership by Time of Day

Figure 41 (at bottom) shows the total ridership by hour of day for all bus services in Kansas City, MO, split by day of week.

On weekdays, the network operates at nearly “full service” (all routes operating at their midday frequencies or better) from 6 AM to 7 PM. During this period, the baseline level of ridership is in the range of 2,000 boardings per hour. There is a small morning peak at 2,500 boardings per hour between 7 and 8 AM, and a more significant afternoon peak at 3,000 to 3,500 boardings per hour between 2 and 5 PM. Ridership drops steadily throughout the evening, as service becomes much less frequent.

This suggests that, although there are 9-to-5 commuters on transit, the “classic” commute pattern is not dominant. In particular, the early, long and strong afternoon peak suggests that the system is used by many schoolchildren, university students, and people making shopping trips.

Weekday vs. Weekends

Saturday and Sunday service levels are generally much lower, and there is much lower ridership. Saturday and Sunday ridership by hour exhibit very similar patterns, except ridership (and service) is typically 50% higher on Saturdays than Sundays.

Both weekend days experience a slower ramp-up in ridership than on weekdays, achieving a more or less steady rate of boardings between 9 AM and 6 PM. On Saturdays, ridership peaks at 1,800 boardings per hour; on Sunday, the peak is around 1,100 boardings per hour. As shown in Figure 42, weekend service levels are substantially lower than on weekdays, a common pattern in transit agencies primarily designed around 9-to-5 work schedules and education commutes.

Of the 40 fixed bus routes in KCMO, only 25 provide service on Saturday, and only 21 provide service on Sunday. In all cases, frequencies are significantly lower on Saturdays and Sundays than on weekdays. In terms of total service hours, Saturday service level is about 60% of weekdays, while Sunday is around 35%. Ridership follows the same pattern.

Interestingly, while ridership systemwide does decline significantly on weekends, productivity doesn’t. On most high-demand routes, productivity actually increases on Saturdays compared to weekdays. When weekend productivities are higher than weekday productivities, this suggests a degree of unmet ridership potential.

While the number of people commuting to work is much lower on weekends than weekdays, many people still do travel for work and for other reasons. In fact, according to the 2016 American Time Use survey\(^1\), while 46% of the population engaged in travel to work on weekdays, 14% of the population do so on weekends as well.

While the volume of work travel is lower on weekends than weekdays, transit networks designed to maximize ridership often continue to provide a high level of service to places that carry high demand through the weekends, such as dense residential areas, and retail or service-oriented employment areas.

---

\(^1\) American Time Use Survey, Table A-2A. Time spent in detailed primary activities and percent of the civilian population engaging in each activity, averages per day on weekdays and weekends, 2016 annual averages, total. 2016.
Cross-town routes that create a frequent grid make the network useful and attract high ridership.

Historically, most transit routes in Kansas City have been oriented toward Downtown KCMO. This is a legacy of the early streetcar era, when nearly all transit was oriented at connecting new “suburbs” (now inner-city neighborhoods) with downtown. Nonetheless, Downtown KCMO continues to be the largest, densest and most walkable job center in the region, so it makes sense that much of today’s transit network would remain oriented in this direction.

However, many major destinations have emerged outside of downtown. The most notable examples are Country Club Plaza, Westport and KU Medical Center, but almost every hospital and college campus attracts large numbers of trips throughout the day and in many cases on weekends as well.

Routes that connect neighborhoods to these secondary destinations and do not head downtown are known as crosstown routes. Eleven of the 31 all-day RideKC bus routes in KCMO are crosstown, and they account for 25% of all boardings. However, their usefulness and ability to attract ridership varies greatly.

The most useful crosstown routes must not only connect large numbers of households with the major destinations directly, but also provide useful connections to and from downtown routes, especially frequent downtown routes. In this way, they create a grid of frequent services that provides the best possible access to opportunity and attracts the most riders. In this respect, two existing routes stand out.

- **Route 31** serves 2,700 boardings per day, and has a productivity of 28 boardings per service hour. It connects large numbers of households in Midtown and on the East Side with major destinations including MCC-Penn Valley, the VA Medical Center and Blue Ridge Crossing, in addition to various smaller retail centers on and near 31st Street. Because it operates every 15 minutes on weekdays, it provides the best transfer opportunities anywhere outside of downtown where it intersects with the Main MAC, Troost MAX lines, and Route 71.

- **Route 39** serves 2,300 boardings per day, and has a productivity of 34 boardings per service hour. Route 39 performs a similar function as Route 31 along 39th Street, connecting many neighborhoods to Westport and KU Medical Center. With service every 20 minutes, it offers a nearly-frequent connection to both MAX lines and Route 71.

In most of KCMO south, the street network is highly gridded, with a major street every 1/2-mile. In designing for higher ridership, this presents a significant opportunity to expand the frequent grid by providing more frequent crosstown services.

Figure 44: KCMO transit network, ridership and job access by transit between 30th and 40th Street. The grid intersection of frequent downtown routes (MMAX, TMAX, 71) with frequent crosstown routes (31, 39) creates the highest levels of job access by transit in all of Kansas City (dark red areas in bottom image). Because transit service is so useful to this area, it experiences the highest levels of ridership outside downtown (dark red areas in middle image).
Service Duplication
The RideKC network in Kansas City, MO features several examples of nearby routes providing very similar service. In most cases, the more frequent route outcompetes the less frequent route for ridership.

Northeast Kansas City: Routes 9, 12, 15 and 24
As shown in Figure 45 (at bottom left), these four routes all provide local service to Downtown KCMO within 1/4-mile of each other between Independence Ave and Truman Road. The inner segments of Truman Road are also served by the frequent Route 71.

From a demand perspective, these routes operate in largely similar neighborhoods, though densities tend to be lower south of 12th St. But Routes 12 and 24 are clearly outperforming Route 9 and 15 in ridership terms.

- Route 24 serves 2,570 daily boardings, over 40 per service hour.
- Route 12 serves 900 daily boardings, or 26.5 per service hour.
- Routes 9 and 15 each serve 400 daily boardings, or 15 per service hour.

This is probably because most potential Route 9 riders find it faster to use the more frequent service on Route 24, and many potential Route 15 riders end up boarding the more frequent Route 71.

At the same time, it’s likely that the presence of Routes 9 and 15 is dampening ridership on Route 12. The contrast with Route 11 is informative, as Route 11 is spaced 1/2-mile from Route 24 along most of its length. Route 11 serves 1,250 daily boardings.

Prospect/Brooklyn: Route 10 and 71
Route 71 operates every 15 minutes on weekdays to Downtown KCMO, mostly on Prospect Ave. Route 10 operates every 60 minutes on weekdays to Downtown KCMO, mostly on Brooklyn Ave, a 1/4-mile to the west.

Route 71 serves 4,600 daily boardings, and 32 boardings per hour. Route 10 serves 80 daily boardings, or 7 per hour. Route 71 is out-competing Route 10 because most potential Route 10 riders find it faster and more reliable to use a service that comes five times as frequently. As Route 71 is converted to the Prospect MAX and becomes even more frequent, it’s likely that the difference with Route 10 will become even more pronounced.

Prospect/Brooklyn: Route 10 and 71
Route 71 operates every 15 minutes on weekdays to Downtown KCMO, mostly on Prospect Ave. Route 10 operates every 60 minutes on weekdays to Downtown KCMO, mostly on Brooklyn Ave, a 1/4-mile to the west.

Route 71 serves 4,600 daily boardings, and 32 boardings per hour. Route 10 serves 80 daily boardings, or 7 per hour. Route 71 is out-competing Route 10 because most potential Route 10 riders find it faster and more reliable to use a service that comes five times as frequently. As Route 71 is converted to the Prospect MAX and becomes even more frequent, it’s likely that the difference with Route 10 will become even more pronounced.

Figure 45: Routes 9, 12, 15 and 24 are spaced very closely together.

Troost/Paseo: Troost MAX and Routes 25 and 85
The Troost MAX (TMAX) operates in the context of two very nearby routes:

- Most of Troost Ave features an overlay of TMAX and a less frequent local route (Route 25-Troost), both of which end in Downtown KCMO.
- From 35th to 63rd Street, Route 85 provides a parallel service to Downtown KCMO on The Paseo/MLK, a 1/4-mile or less to the east.

The frequent parts of the TMAX serve nearly 40 boardings per hour, compared to around 20 boardings per hour on Routes 25 and 85. It is clear that TMAX is outperforming these other two routes, but it is less clear that it is competing with both of them. After all, Routes 25 and 85 are both operating at a very typical productivity for a 30-minute route in KCMO.

In particular, Route 85 is the only north-south bus route between Troost Ave and Prospect Ave south of 39th Street. These two streets are located 1 mile apart, so Route 85 is serving a significant unique market east of The Paseo/MLK.

Route 25 is at least in part serving a distinct market of passengers who are willing to wait longer for a slower bus, so that they may walk shorter distances to the bus stop. But the data from Northeast Kansas City suggest that this market is unlikely to be very large (compare Route 9 to Route 24).

People taking shorter trips are usually less willing to wait, and are less benefited by the higher speed of the MAX service. So it is also likely that many TMAX riders taking shorter trips are getting on the first bus that shows up, and sometimes that is Route 25.
4 HOW DOES THE FIXED-ROUTE NETWORK PERFORM?

JARRETT WALKER + ASSOCIATES

Should MAX routes feature a local overlay?

KCATA has made different choices in the service design of the Main Street MAX (MMAX) and Troost MAX (TMAX). The most visible of these choices is the decision to continue operating local Route 25 on Troost Ave, while the equivalent local service has been removed from Main Street.

This has consequences for the frequency and usefulness of service to different users, especially on evenings and weekends.

Walking vs. Waiting

On weekdays between 7 AM and 7 PM, MMAX and TMAX both run every 10 minutes on their core frequent segment. Because MMAX and TMAX both run with limited stops up to a 1/2-mile apart, they are able to operate faster than a local service. Because the service is faster, KCATA can run it more frequently at the same cost. This is a positive outcome for most travelers, as faster speeds and higher frequencies both reduce travel time.

But it’s not positive for everybody: people who are less time-sensitive and people who have more difficulty walking long distances will perceive this as a disadvantage. Adding a local route, with closer stop-spacing, accommodates these people.

But the additional local route isn’t free, so what does that mean for MAX service?

Weekend and Evening Frequency

To fund both TMAX and Route 25, KCATA has chosen to provide less TMAX service on evenings and Saturdays. MMAX operates every 15 minutes on weekdays until 1 AM, and on Saturdays from the start of service to 6 PM. In contrast, TMAX operates every 30 minutes at those times, and Route 25 always ends service at 7 PM. As a result:

- Weekday evening frequencies on Troost (every 30 minutes) are worst than on Main St (every 15 minutes).
- Saturday frequency on Troost is less consistent than on Main St.
  - TMAX service is faster than Route 25, because it makes far fewer stops. So it’s only possible to schedule a consistent frequency at one point on the line. At 39th Street, buses are scheduled every 15 minutes. But at 75th street, Route 25 shows up 13 minutes after TMAX, and TMAX shows up 17 minutes after Route 25.
  - It doesn’t take much to throw an individual bus 2-3 minutes off schedule. So on Saturdays, it’s a lot more likely that some passengers will end up with a 20 minute gap between buses on Troost Avenue than Main Street.
- On Sundays, there is more service on Troost than on Main, but there is not a reliably higher frequency. On average, half of Sunday customers on Troost wait just as long customers on Main St.
  - MMAX operates every 30 minutes on Sundays.
  - TMAX operates every 30 minutes, and Route 25 operates hourly. So the bus comes every 15 minutes twice an hour, and every 30 minutes once an hour.

What does this mean for future MAX routes?

The conflict between fast and frequent travel on the one hand, and the need for shorter walks on the other hand, will present itself in any new MAX corridor. KCATA is currently building MAX stations on Prospect Ave, and is considering a future upgrade to Independence Ave.

To maximize ridership for the same amount of service, KCATA should replace existing service with only MAX. But if KCATA wants to provide better coverage for people with higher needs, they should provide a local overlay like Route 25, even if it means weekend and evening service will be less frequent or less reliable.

Figure 48: MMAX and TMAX routes from 22nd to 75th Street. MMAX is the only route on Main Street, even though it operates a limited-stop service north of 47th Street. On Troost Ave, TMAX provides limited-stop service until 75th Street, while Route 25 provides local stops at a much lower frequency.

Figure 49: Outbound stops on the Troost MAX line (left, in red), compared to outbound stops on Route 25 between 27th and 7th Street. In this six-mile stretch, MAX serves 13 stops but Route 25 serves 31 stops.
As seen in Chapter 2, achieving high ridership is not the only valid reason to operate a public transit network. And the evidence shows that significant amounts of bus service in Kansas City are being deployed in ways that should not be expected to generate significant ridership.

In some cases, this is due in part to the duplication issues covered on page 47 and page 48. In most others, it’s the desire of KCATA to continue providing a basic level of coverage, even in areas that are not likely to generate significant ridership. Coverage-oriented service does not result in full buses, but it does serve important social functions: if all coverage service went away, many people might be trapped in their neighborhoods, or be totally reliant on friends and family for transportation.

**All-Day Coverage Service - KCMO South**

Generally speaking, service provided on an hourly basis cannot be expected to generate significant ridership, because few people have enough time in their day to wait up to an hour to get where they are going. In addition, because this type of infrequent service is relatively inexpensive to operate, hourly routes often meander or make deviations to cover as many places as possible. Almost all hourly routes are being provided overwhelmingly for coverage purposes.

Even service every 30 minutes is limited in its usefulness to many people. However, 30-minute routes are much less likely to deviate. With the exception of the duplicative routes covered in prior pages, most 30-minute service in KCMO has been deployed in places that can be expected to generate middling levels of ridership, either due to middling levels of density, or because it makes sense to run a more frequent route less than 3/4 of a mile away. As such, service on most 30-minute routes is being deployed more or less 50% for ridership purposes, and 50% for coverage purposes.

**All-Day Coverage Service - Northland**

Because densities are so much lower, and the distances required to reach major destinations are so much longer in the Northland than south of the Missouri River, almost all service in the Northland is being provided for coverage purposes. The only significant exception to this is service on North Oak (Route 201), where the combination of slightly higher density and linearity of land uses on a direct path to Downtown KCMO mean that this route’s ridership would probably increase noticeably if service were upgraded to every 30 minutes.

Other all-day Northland services have lower ridership potential, even when they link passengers to significant destinations (like Route 229 to the airport). This is due to low densities away from the major destinations, and because the sheer distances to those major destinations (including in many cases additional time for the bus to weave on and off of the freeway) make it very expensive to increase service frequency in a way that would make the service attractive to many people.

**Peak-Only Service**

As discussed on page 44, peak-only services are generally useful only to a small number of people: those who predictably work on a 9-to-5 schedule, and rarely have other things come up in their day that would require them to either travel at a different time, or use their car to go somewhere other than the area they came from in the morning.

This turns out to be a much smaller number of people than is often assumed, which is reflected in the very low productivity numbers on most RideKC peak-only routes. As such, the service provided by peak-only routes primarily serves a coverage function. Peak-only routes provide bare-minimum service to and from (mostly) outer suburban locations where demand is so low that even an all-day 60-minute route may not be justified within KCATA’s limited resources.

---

**Figure 50: List of transit routes being provided at least in significant part for purposes other than ridership in Kansas City, MO. Note that all of these routes serve an important coverage function, providing basic transportation for people who lack other choices.**