How would this plan make transit more useful?
How do we measure improved outcomes?

This chapter reports on three ways to measure the performance of the proposed Draft Network. These are not forecasts, and they do not rely on any assumptions about how culture, technology, prices or other factors might change. Instead, we measure distance to service, travel times, and population and jobs to show how well each the Draft Network would serve people in Kansas City, MO. We calculate the outcomes of these measures at two key times:

- **Weekdays at Noon.** This compares the level of service experienced by most transit trips. This is because people take most of their trips during the daytime, and most bus routes in KCMO do not require added frequency at peak.

- **Saturdays at Noon.** This illustrates changes in weekend service. As shown on page 24, existing weekend service levels are much lower than on weekdays. In the proposed network, all frequent routes would continue to operate every 15 minutes or better on Saturdays, and every 20 minutes or better on Sundays.

Measure no. 1: Proximity

The first measure reported is very simple: How many people are near transit? We measure how many residents and jobs would be located within 1/2 mile of a bus stop, or in a Flex zone.

- **The number of KCMO residents near frequent transit service, coming every 15 minutes or better, would increase by +19%, from 116,000 to 138,000.** The number of low income residents near frequent service would increase by +15%, and the number of minority residents near frequent service would increase by +13%. The number of KCMO jobs near frequent service would increase by +8%, from 131,000 to 141,000.

At the same time, some areas would receive less service, and some people would need to walk further to access transit than they do today.

- **The number of KCMO residents near any RideKC service (fixed or Flex) would decline by -1.5%, from 383,000 to 377,000.** And the number of jobs near any RideKC service would decline by -1%, going from 255,000 to 253,000.

This is a consequence of the choice to orient service slightly more toward ridership, and away from coverage. Given a fixed budget, re-orienting service toward higher ridership, even slightly, means focusing more on frequent routes in core areas, and steering away from some lower-density, outlying and isolated neighborhoods.

In keeping with the choice to orient coverage service to higher need areas, coverage reductions in this Draft Plan impact low income residents far less than the average resident. The number of low income residents near any RideKC service would remain substantially the same,declining by only -0.4%.

Figure 16: Proximity Analysis Charts. These charts show the number of KCMO residents and jobs located within 1/2 mile of any bus stop on weekdays in existing service (lighter color) and if the Draft Plan were implemented (darker color). The top chart (orange) is limited to residents and charts near frequent service, every 15 minutes or better in the daytime. The bottom chart (blue) shows residents and jobs near any service, regardless of frequency, and also includes areas served by Flex routes.
Measure no. 2: Travel Time Maps
To understand the benefits of a network change, consider this simple question: Where could I get to, in a reasonable amount of time, from where I am? If you can get to more places in that amount of time, you will have more opportunities, and your life may well feel more free. The travel time maps show here cover how far one could travel in 60 minutes, on weekdays and Saturdays, from three significant locations:

- Country Club Plaza (47th Street & Broadway)
- The Shops on Blue Parkway (Blue Pkwy & Kensington Ave)
- Antioch Crossing (NE Antioch Rd & NE Vivion Rd)

Of course, different trips lead to different expectations about what a reasonable amount of time may be. 60 minutes door-to-door might make sense for a commute to a full-time job, but might seem long to go to the grocery store. For less frequent trips, just being able to get there may have value, even if it takes longer than an hour.

Ultimately, we use 60 minutes as our reference travel time because it is an amount of time that many people would consider travelling at least once per day if they lack other means to travel. It’s also an amount of time where KC transit service can make significant improvements, even in the context of limited existing resources.

Location no. 1: Country Club Plaza
Country Club Plaza is perhaps the single most important commuting and shopping destination south of the Missouri River after Downtown KC. It’s located at the end of the frequent segment of the Main MAX (MMAX), but no other frequent routes. The proposed improvements to the frequent grid would improve access between the Plaza and the following areas:

- Most of the east side, thanks to connections between North-South routes and frequent East-West service on 47th Street.
- Northeast Kansas City and Downtown KCK, thanks to the connection between MMAX and newly frequent East-West service on 12th Street.
- Areas north of the Missouri River, thanks to the connection between MMAX and service every 30 minutes to Antioch Crossing.

These improvements would be felt on weekdays, and even more on Saturdays. However, frequency reductions would require longer weekday trips between the Plaza and the following areas:

- Outer Wornall Road, south of 75th Street. The Draft Network would provide a new one-seat ride between the Plaza and Wornall Road, but it would come only once an hour. Due to the longer wait times, on average travel times would be longer.
- Areas east of the Blue River. The Draft Network would increase East-West frequency up to I-435, but routes operating to Blue Ridge Crossing would see a reduction in frequency (every 30 minutes on Route 31 east of Van Brunt Blvd, every 60 minutes on Route 47 east of the Shops on Blue).

How far can I travel in 60 minutes from the Plaza at 12 pm?

<table>
<thead>
<tr>
<th>Location</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country Club Plaza</td>
<td>+15,190</td>
<td>+8.2%</td>
</tr>
<tr>
<td>The Shops on Blue Parkway</td>
<td>+21,720</td>
<td>+13.7%</td>
</tr>
</tbody>
</table>

Figure 17: 60-minute travel time maps from Country Club Plaza, on weekdays and Saturdays. These maps show the places someone could reach, in an hour or less, starting from 47th St & Broadway, using transit (including time spent walking, waiting, and transferring, on weekdays (left) and on Saturdays (right). Light blue indicates places newly accessible in an hour or less; gray indicates areas that would no longer be accessible in an hour; dark blue/gray represents areas that are accessible in an hour or less and would remain that way.
How far can I travel in **60 minutes** from **Shops at Blue** at 12 pm?

### On Weekdays

![Map showing travel time improvements on weekdays.]

### On Saturdays

![Map showing travel time improvements on Saturdays.]

**Figure 18:** 60-minute travel time maps from Shops at Blue, on weekdays and Saturdays. These maps show the places someone could reach, in an hour or less, starting from Blue Pkwy & Kensington Ave, using transit (including time spent walking, waiting, and transferring, on weekdays (left) and on Saturdays (right). Light blue indicates places newly accessible in an hour or less; gray indicates areas that would no longer be accessible in an hour; dark blue/gray represents areas that are accessible in an hour or less and would remain that way.

**Location no. 2: The Shops on Blue Parkway**

The Shops on Blue Parkway are a significant destination on KCMO’s east side, that has up to now been located off to the side of the main routes on the transit system.

The proposed changes make the Shops on Blue one end of the frequent segment of redesigned Route 47. It would have service every 15 minutes to Country Club Plaza, Westport and KU Med.

As a result, this would now become a much more viable place to travel to and from on transit. Travel times would improve not only to direct destinations on Route 47, but also to go to places along every connecting route. For example:

- There would now be multiple paths between the Shops at Blue and Midtown and Downtown KCMO, since it would be possible to make a frequent-to-frequent transfer between Route 47 and the Prospect MAX, Troost MAX and Main MAX.

- Those same connections would also make it much quicker to travel between the Shops at Blue and areas between 47th and 75th Streets.

Conversely, the reduction in frequency of Route 47 between the Shops on Blue and Blue Ridge Crossing would mean that most trips to and from places east of I-435 would take longer. This would be slightly mitigated by the new Route 47’s more direct path to Blue Ridge Crossing.
### Location no. 3: Antioch Crossing

Due to its central location and many shops and services in walking distance, Antioch Crossing has long been a hub for transit service in the Northland. It is currently served by five hourly fixed routes (Routes 21, 231, 233, 234, and 238), one fixed route that operates only at peak hours (Route 236) in addition to being the hub for Flex Route 299, serving Gladstone and adjoining areas of KCMO.

The proposed Draft Network would make several significant service changes at this location:

- **Route 21** would continue to provide a cross-town connection to the East Side, but would deviate into employment areas in the East Bottoms on the way.
- Routes 231 and 234 would be combined into a new Route 239, covering most of the same areas in the western Northland, and travelling through Antioch Crossing to Downtown.
- Route 236 would be eliminated due to very low ridership (about 40 boardings per weekday).
- Route 238 would now serve Antioch Road and Prather Road (the path served by existing Route 233) to North Kansas City, instead of Vivion Road, NE 44th Street and North Oak Trafficway.
- Routes 238 and 239 would operate on staggered schedules. There would be a bus every 30 minutes between Antioch Crossing, North Kansas City and Downtown KCMO. Because these two routes would travel the same distance on a mostly similar path, the spacing between trips to Downtown would be more regular and reliable than on existing Routes 233 and 238.
- Flex Route 299 would expand to cover many more areas.

The fixed route changes above are key to understanding how the travel time maps in Figure 19 show, which is that:

- Travel to and from Downtown KCMO and North Kansas City would become faster, due to consistent 30 minute spacing between departures. The effect of this would be even stronger on Saturdays, where currently there is only one hourly route (238) between Antioch Crossing and Downtown.
- Travel to and from areas near Tom Watson Parkway would also become faster, due to more direct routing on the new Route 239 on weekdays, and due to service on Route 239 now running on both weekdays and Saturdays.

At the same time, trips between Antioch Crossing and the following areas would take longer, or would no longer be possible:

- Crestview/NE 44th Street, where trips from Antioch Center would now need to be reserved on Flex service.

### How far can I travel in 60 minutes from Antioch Crossing at 12 pm?

**On Weekdays**

<table>
<thead>
<tr>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs Accessible</td>
<td>+49,720</td>
</tr>
</tbody>
</table>

**On Saturdays**

<table>
<thead>
<tr>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs Accessible</td>
<td>+57,530</td>
</tr>
</tbody>
</table>

Figure 19: 60-minute travel time maps from Antioch Crossing, on weekdays and Saturdays. These maps show the places someone could reach, in an hour or less, starting from NE Antioch Road & NE Vivion Road, using transit (including time spent walking, waiting, and transferring, on weekdays (left) and on Saturdays (right). Light blue indicates places newly accessible in an hour or less; gray indicates areas that would no longer be accessible in an hour; dark blue/gray represents areas that are accessible in an hour or less and would remain that way.

1 As of late 2018, averaging fewer than 10 boardings per weekday between 68th Street and Boardwalk Square, and fewer than 15 boardings per day at Boardwalk Square itself.

### Lake Waukomis/Green Hills Road/Boardwalk Square

Existing boardings on Route 234 in this area have historically been extremely low, and as a result this path would no longer be served by transit from Antioch Crossing.
One of the main purposes of transit is to provide access to opportunity, especially for those who lack alternatives. And because retail and services also account for jobs, access to jobs is also a good indicator of the usefulness of transit for many other purposes.

So, we ask the question: Have we designed a transit network that helps more people access more jobs (and other opportunities) by transit, in less time?

To answer this question, we first measure how far a person could go in 60 minutes on transit (door-to-door, including walking, waiting, riding, and any necessary transfers) from anywhere in the KCMO, and then calculate how many jobs are located in that area.

The process is illustrated in Figure 20. It essentially consists in creating a 60 minute travel time map from everywhere in KCMO, and then using each location’s results to show which areas have the most access to jobs, and which areas would have the most to gain from proposed improvements.

We use jobs as a proxy for overall economic and social opportunity because data on jobs is readily available from the U.S. Census Longitudinal Employer Household Dynamics (LEHD) dataset. But jobs are also a good indicator of many opportunities beyond employment. Think of all the useful places you may need to go in a week: schools, restaurants, shopping centers, medical facilities, community centers, and many other such locations are also places of employment, often located near other places of employment.

On the next page, we show you how this access to opportunity would change, throughout KCMO, on weekdays and on Saturdays.

More Access to Opportunity, Especially on Weekends

The time any transit trip takes is driven by the following factors outside a rider’s control:

- **Frequency.** The more often the bus comes, the less time you wait. The average wait for a bus that comes every 30 minutes is 15 minutes; but the average wait for a bus that comes every 15 minutes is 7.5 minutes. Frequency also impacts transfers.

- **Transfers.** When a trip requires a transfer, that means a second wait for a bus. Transfers between two routes only work well when you have high frequency on both routes.
• **Vehicle speed.** Most bus routes in Kansas City do not benefit from any traffic priority measures. As a result, most buses operate at an average speed of 10 to 15 mph.

This Draft Plan does not propose street or intersection improvements to accelerate vehicle speeds (such improvements may be proposed in future). But it does propose important changes to frequency and transfers:

• More East-West service every 15 minutes, rather than every 20 to 30 minutes on weekdays. This will speed up many transit trips, particularly those that require transferring to or from North-South routes.

• More weekend service on frequent routes means most transit riders would experience almost the same service on weekends and weekdays.

• On some suburban routes, frequency would improve from every 60 minutes to every 30 minutes, e.g. on Blue Ridge Boulevard, and between Antioch Crossing and Downtown KCMO.

As a result, access to opportunity would increase noticeably in most places. On average:

• The average KCMO resident using transit could access +7% more jobs on weekdays, and +22% more jobs on Saturdays, in 60 minutes or less, door-to-door (including walking, waiting, riding, and transferring if required).

• The average low-income KCMO resident using transit could access +7.5% more jobs on weekdays, and +24% more jobs on Saturdays, in the same amount of time.

Because most frequency improvements are located in the inner parts of the city (where transit can compete for the most trips), the highest levels of benefit are located between Antioch Crossing and 75th Street.

Conversely, outlying areas where transit is provided primarily for coverage purposes are more likely to experience reductions in access, due to reductions in frequency. This is consistent with the plan’s overall choice to slightly increase resources provided for ridership, and to slightly reduce resources provided for coverage.

**How many more jobs could you reach in 60 minutes by transit?**

**Weekdays**

**Saturdays**

---

**Figure 21: Job Access Change Maps, on weekdays and Sundays. KCMO (the is divided into green, gray and pink hexagons. The size of each hexagon shows how many people live in that area. In green areas, the Draft Network would make it possible to access more jobs in 60 minutes. In pink areas, travel by transit would require longer waits, or in limited cases would no longer be possible. Gray indicates no substantial change.**