Coordinated Routes

ROUTE 11
Downtown to KU to 31st and Iowa

SERVICE DESIGN

Route 11 is a route coordinated between Lawrence Transit and KU on Wheels that operates between the Downtown Transit Hub, the University of Kansas, and Pine Ridge Plaza. The route travels primarily along Iowa Street, Naismith Drive, 19th Street, Irving Hill Road, Jayhawk Boulevard, 11th Street, and Indiana Street (Figure 1). Route 11 provides service to numerous social services in downtown Lawrence, retail destinations, and KU destinations, including academic buildings, residence halls, and recreation facilities.

ALIGNMENT/SERVICE PATTERNS

Route 11 features a separate alignment for outbound (south) and inbound (north) service, but maintains a single consistent weekday service pattern. Departing outbound from the Downtown Transit Hub Route 11 turns left on 7th Street, left on Tennessee Street, right on 9th Street, left on Indiana Street, left on 12th Street, and right on Jayhawk Boulevard. From Jayhawk Boulevard Route 11 travels around the traffic circle onto Crescent Road, turns left on Naismith Drive, right on 15th Street, left on Burdick Road, and right on Irving Hill Road. Route 11 follows Irving Hill Road, turns left on Constant Avenue, left on 19th Street, right on Naismith Drive, right on 24th Street, and follows 24th Street through Ousdahl Road to Ridge Court. Route 11 then turns left on Ridge Court, right on 27th Street, left on Iowa Street, and left on 31st Street, before terminating at Pine Ridge Plaza.

Returning inbound, Route 11 departs Pine Ridge Plaza on 31st Street, turns right on Ousdahl Road, right on 33rd Street, right on Nieder Road, left on 31st Street, and turns left to serve The Reserve apartment complex off 31st Street. From The Reserve, Route 11 turns right on 31st Street, left on Iowa Street, right on 27th Street, left on Ridge Court, and right on 24th Street. The route follows 24th Street through Ousdahl Road, turns left on Naismith Drive, left on 19th Street, right on Constant Avenue, right on Irving Hill Road, left on Naismith Drive, and right onto Jayhawk Boulevard. From Jayhawk Boulevard Route 11 turns right on 13th Street, left on Louisiana Street, right on 11th Street, left on Connecticut, left on 9th Street, and right on Vermont Street, terminating at the Downtown Transit Hub.
Figure 1 | Route Map

Source: Lawrence Transit; August 2015 – September 2016
SYSTEM INTERACTIONS AND TRANSFER OPPORTUNITIES

Customers can transfer between Route 11 and several Lawrence Transit routes at the Downtown Transit Hub and Pine Ridge Plaza, and to multiple KU on Wheels routes at the Kansas Union. There are also transfer opportunities at several other points along the route, including along Iowa Street (Route 5, Route 7, Route 9); transfers to the K-10 Connector, operated by Johnson County Transit, are available on Irving Hill Road (Figure 2).

Figure 2 | Primary Transfer Opportunities

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSFER TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Transit Hub</td>
<td>Route 1, Route 3, Route 4, Route 6, Route 7, Route 10, Route 15</td>
</tr>
<tr>
<td>Kansas Union</td>
<td>Route 10, Route 29, Route 30, Route 36, Route 38, Route 43</td>
</tr>
<tr>
<td>Pine Ridge Plaza</td>
<td>Route 5, Route 7, Route 9</td>
</tr>
<tr>
<td>Snow Hall</td>
<td>Route 10, Route 27, Route 29, Route 30, Route 36, Route 38, Route 41, Route 42, Route 43</td>
</tr>
</tbody>
</table>

SERVICE SCHEDULE

Route 11 operates service Monday-Saturday year round (Figure 3). On weekdays the route runs every 30 minutes from 6:03 AM to 8:03 PM. On Saturdays the route operates every 30 to 60 minutes from 6:31 AM to 7:52 PM. Route 11 does not operate on Sundays.

Figure 3 | Schedule Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>SPAN OF SERVICE</th>
<th>FREQUENCY (MIN)</th>
<th>DAILY TRIPS (OUTBOUND/INBOUND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday-Friday</td>
<td>6:03 AM – 8:03 PM</td>
<td>30</td>
<td>27/28</td>
</tr>
<tr>
<td>Saturday</td>
<td>6:31 AM – 7:52 PM</td>
<td>30-60</td>
<td>24/23</td>
</tr>
<tr>
<td>Sunday</td>
<td>No service</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit

RIDERSHIP

Route 11 ranks first of two coordinated routes in terms of weekday ridership and in terms of ridership per trip (Figure 4). On average, the route carries 1,469 passengers, or 22.3 passengers per trip, on Monday-Friday (Figure 5 and Figure 6). On Saturdays, Route 11 features the highest ridership among all systems in Lawrence, carrying 716 passengers, or 15.2 passengers per trip.

Figure 4 | Ridership Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>TYPICAL DAILY RIDERSHIP</th>
<th>AVERAGE RIDERSHIP PER TRIP</th>
<th>COORDINATED AVERAGE RIDERSHIP PER TRIP</th>
<th>RIDERSHIP RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday–Friday</td>
<td>1,469</td>
<td>22.3</td>
<td>19.9</td>
<td>1 of 2</td>
</tr>
<tr>
<td>Saturday</td>
<td>716</td>
<td>15.2</td>
<td>9.7</td>
<td>1 of 2</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit, 2016
Figure 5 | Weekday Ridership by Route

Coordinated Routes
Average = 1,296
- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016

Figure 6 | Weekday Ridership per Trip by Route

Coordinated Routes
Average = 19.9
- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016
Figure 7 | Saturday Ridership by Route

Coordinated Routes
Average = 382

- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016

Figure 8 | Saturday Ridership per Trip by Route

Coordinated Routes
Average = 9.7

- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016
RIDERSHIP BY STOP

The highest weekday ridership stops on Route 11 traveling inbound are located on KU’s campus and near major residential complexes along 31st Street (Figure 9). Inbound weekday ridership peaks at the stop at Jayhawk Boulevard and Budig Hall, serving an average of 227 daily passengers. Other stops generating more than 100 combined boardings and alightings per weekday include: West 31st Street and The Reserve, Kansas Union, Irving Hill Road and Engel Road, and 31st Street and Ousdahl Drive. These stops serve central locations on KU’s campus, including numerous academic buildings and the Lied Center of Kansas, as well as serving off-campus student housing complexes such as The Reserve and The Connection at Lawrence. All other stops serve fewer than 88 boardings and alightings (Figure 10-Figure 13).

Traveling in the outbound direction, the highest weekday ridership is concentrated at stops on KU’s campus: Snow Hall (201 passengers), Kansas Union (156 passengers), and Bailey Hall Westbound (148 passengers).

Saturday ridership patterns on Route 11 are similar to weekday, but with lower activity; no stops serve more than 100 daily passengers (Figure 14-Figure 17). However, Route 11 records consistent activity on Saturday at retail and student housing locations. The most active inbound Saturday stop is at 33rd Street and Kohl’s, generating 97 combined boardings and alightings. The stop at Irving Hill Road and Engel Road generates 73 passengers, and 50 passengers utilize the stop at Kansas Union. No other stops record more than 42 daily passengers.

Figure 9 | Top 5 Highest Ridership Stops and Key Trip Generators (Weekday Inbound)

<table>
<thead>
<tr>
<th>BUS STOP</th>
<th>RIDERSHIP*</th>
<th>MAJOR LOCAL DESTINATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jayhawk Boulevard / Budig Hall</td>
<td>227</td>
<td>Budig Hall, KU campus</td>
</tr>
<tr>
<td>West 31st Street / The Reserve</td>
<td>202</td>
<td>The Reserve; off-campus student housing</td>
</tr>
<tr>
<td>Kansas Union</td>
<td>136</td>
<td>Kansas Union; KU campus</td>
</tr>
<tr>
<td>Irving Hill Road / Engel Road</td>
<td>132</td>
<td>Oswald Hall; on-campus student housing; Lied Center of Kansas</td>
</tr>
<tr>
<td>31st Street / Ousdahl Drive</td>
<td>105</td>
<td>The Connection at Lawrence; off-campus student housing; Pine Ridge Plaza</td>
</tr>
</tbody>
</table>

*Weekday Inbound ridership (boardings and alightings) for Route 11 only
Figure 10 | Weekday Outbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 11 | Weekday Inbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 12 | Weekday Outbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 13 | Weekday Inbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 14 | Saturday Outbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 15 | Saturday Inbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 16 | Saturday Outbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 17 | Saturday Inbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
RIDERSHIP BY TRIP

Route 11 is well-utilized on weekdays, featuring above-average ridership per trip (Figure 18 and Figure 19). On weekdays, Route 11 ridership is consistently high from the mid-morning period through the remainder of service. Overall, 55% of trips carry more than 20 passengers and 26% of trips carry more than 30 passengers. After 10:30 AM only one trip carries fewer than 15 passengers (at 1:30 PM). Traveling inbound, ridership peaks at 1:33 PM, at 56 passengers. Moreover, the majority of inbound trips (89%) carry 10 or more passengers; 54% inbound trips carry 20 passengers or more.

Several weekday maximum loads approach the total seating capacity (35-40 passengers), but no loads exceed capacity on a single trip. This indicates there's a steady turnover of passengers over the course of the route, which limits the need for passengers to stand.

On Saturdays, Route 11 ridership is highest in the outbound direction during the early evening service period (4:00 – 6:30 PM), when two trips carry more than 30 passengers (Figure 20 and Figure 21). Overall, seven outbound trips carry 20 passengers or more. After 12:00 PM only two trips carry fewer than 10 passengers (1:31 PM and 3:01 PM). Saturday inbound ridership is relatively static throughout the service period, peaking in the afternoon and evening hours at 22 passengers. Overall, 83% of inbound Saturday trips carry 10 passengers or more.
Figure 18 | Weekday Outbound Ridership by Trip Chart

Source: Ride Check, April and May 2016
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.

Figure 19 | Weekday Inbound Ridership by Trip Chart

Source: Ride Check, April and May 2016
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.
Figure 20 | Saturday Outbound Ridership by Trip Chart

Source: Ride Check, April and May 2016. No data was collected for the 6:31 AM, 7:01 AM, 8:31 AM, 10:01 AM, and 11:31 AM outbound trips.
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.

Figure 21 | Saturday Inbound Ridership by Trip Chart

Source: Ride Check, April and May 2016. No data was collected for the 7:03 AM, 7:33 AM, 9:03 AM, 10:33 AM, and 12:03 PM inbound trips.
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.
SERVICE PRODUCTIVITY

In terms of average passengers per hour, Route 11 is the second most productive coordinated route (Figure 22). The route carries 35.1 passengers per hour on weekdays, 3% less than the system average (Figure 23). Route 11 carries 23.5 passengers per hour on Saturdays, 28% more than the system average (Figure 24).

Figure 22 | Service Productivity Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>TYPICAL DAILY RIDERSHIP</th>
<th>SERVICE HOURS</th>
<th>AVERAGE RIDERSHIP PER HOUR</th>
<th>COORDINATED ROUTES AVERAGE RIDERSHIP PER HOUR</th>
<th>SYSTEM RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday–Friday</td>
<td>1,469</td>
<td>41.8</td>
<td>35.1</td>
<td>36.3</td>
<td>2 of 2</td>
</tr>
<tr>
<td>Saturday</td>
<td>716</td>
<td>30.4</td>
<td>23.5</td>
<td>18.4</td>
<td>1 of 2</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit, 2016

Figure 23 | Weekday Ridership per Service Hour by Route

Source: Ride Check, April and May 2016
ON-TIME PERFORMANCE

On weekdays, approximately 51.8% of Route 11 time points were served “on-time” during the survey period (Figure 25). On Saturdays, approximately 54.5% of Route 11 time points were served “on-time” during the survey period.” Buses are considered early when they depart a time point before their scheduled departure time. Buses are considered late when they depart a time point more than five minutes behind schedule.

Weekday on-time performance was affected by primarily by late departures (28.5%), but early departures were also recorded at nearly 20% of all time points. Saturday on-time performance was the inverse of the weekday, with early departures occurring at 32.4% of time points, and 13.1% of time points impacted by late departures.

<table>
<thead>
<tr>
<th></th>
<th>WEEKDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Time</td>
<td>51.8%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Early</td>
<td>19.7%</td>
<td>32.4%</td>
</tr>
<tr>
<td>Late</td>
<td>28.5%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>

Note: Total may not sum to 100% due to rounding.
Source: Ride Check, April and May 2016
POTENTIAL SERVICE IMPROVEMENT OPTIONS

Opportunities to strengthen Route 11 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- **Increase Frequency to Every 20 Minutes During Peak Periods.** Route 11 has strong ridership throughout the day and experiences overcrowding issues in the southbound/outbound direction during the afternoon. Increasing the frequency to every 20 minutes would help alleviate some of those issues.

- **Operate Along Naismith Drive.** As Route 11 heads outbound, it heads southwest from downtown to KU and continues southwest as it serves numerous student housing complexes. However, it then turns back east to service Naismith Drive and back west to neighborhoods south of W. 23rd Street before reaching the retail area at W. 31st Street and Iowa Street. It is also a fairly long route, taking over 30 minutes to travel between the retail area and downtown. To speed up and strengthen the route, consider moving Route 11 to Naismith Drive between W. 19th Street and Sunnyside Avenue. This would provide more direct service between retail, off-campus housing, Jayhawk Boulevard, and downtown. While service to W. 19th Street, Constant Avenue, and Irving Hill Road would be removed, those areas are still well-connected to the existing system to make quick transfers, or minor tweaks to other routes can more effectively serve these areas. In addition, this may help with overcrowding because students must then take Route 43 to reach Irving Hill Road and other student housing on Daisy Hill and West Campus.

- **Improve Functionality of Downtown Alignment.** The current alignment in downtown differs in the inbound and outbound directions to help provide east-west coverage in downtown. This can be beneficial if the alignments are relatively close and people can walk between the inbound and outbound stops quickly. However, the Route 11 alignment is far apart and may be diluting the effectiveness of the service since riders are not able to return to their starting point if they travel in both directions during the day. Operating an outbound and inbound alignment that provide coverage, but that are easy to walk between, will simplify and improve the service. This will also likely improve the discrepancy in travel time between the outbound and inbound alignment, excluding the retail area loop and service to The Reserve on the northbound alignment. Currently, Route 11 takes about 25 minutes to reach W. 24th Street and Naismith Drive from downtown in the southbound direction, while it takes about 30 minutes in the northbound direction.

- **Extend Service to 9:00 PM.** Route 11 has a wide variety of land uses that it serves, enabling riders to make many different connections and attracting ridership. Thus the community may appreciate later service on the route to reach jobs, shop, visit campus or downtown, and be able to make a return trip after dinner time by transit. Extending service by about an hour or an hour and half would allow for many of these trips to occur.
Coordinated Routes

ROUTE 29

27th & Wakarusa to KU

SERVICE DESIGN

Route 29 is a route coordinated between Lawrence Transit and KU on Wheels that operates the Kansas Union and the intersection of 24th Place and Crossgate Drive. The route travels primarily along Jayhawk Boulevard, 15th Street, Iowa Street, Clinton Parkway, Wakarusa Drive, Inverness Drive, and 24th Place (Figure 1). Route 29 connects the KU Main Campus to apartment complexes and shopping centers along Clinton Parkway in southwest Lawrence.

ALIGNMENT/SERVICE PATTERNS

Route 29 has a single consistent service pattern for weekday and Saturday service. Departing outbound from the Kansas Union, Route 29 travels southwest on Jayhawk Boulevard, turns left on Naismith Drive, right on 15th Street, left on Iowa Street, right on Clinton Parkway, left on Wakarusa Drive, straight onto 27th Street, left on Inverness Drive, and right on 24th Place before terminating just before the intersection with Crossgate Drive.

Returning inbound from 24th Place and Crossgate Drive, Route 29 turns left onto Crossgate Drive right on Clinton Parkway, and then continues along the outbound alignment to the Kansas Union. After serving the Kansas Union, Route 29 completes a turnaround loop by turning right on 13th Street, left on Louisiana Street, left on 11th Street, left on Indiana Street, left on 12th Street, right on Oread Avenue and then ending service at the Kansas Union.
Figure 1 | Route Map

Source: Lawrence Transit; August 2015 – August 2016
New route alignment effective as of August 2016
SYSTEM INTERACTIONS AND TRANSFER OPPORTUNITIES

Customers can transfer between Route 29 and several Lawrence Transit and KU on Wheels routes at the Kansas Union. There are also transfer opportunities at several other points along the route, including along 15th Street (Route 10, Route 30, and Route 43) and 27th Street (Route 9); transfer opportunities to the K-10 Connector are also available on 15th Street (Figure 2).

Figure 2 | Primary Transfer Opportunities

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSFER TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas Union</td>
<td>Route 10, Route 11, Route 30, Route 36, Route 38, Route 43</td>
</tr>
<tr>
<td>11th Street and Louisiana Street</td>
<td>Route 10, Route 11</td>
</tr>
<tr>
<td>W 24th Place</td>
<td>Route 9</td>
</tr>
<tr>
<td>Snow Hall</td>
<td>Route 10, Route 11, Route 27, Route 30, Route 36, Route 38, Route 41, Route 42, Route 43</td>
</tr>
</tbody>
</table>

SERVICE SCHEDULE

Route 29 operates Monday-Saturday when KU is in session (Figure 3). On weekdays, the route runs every 20 minutes from 7:00 AM to 6:32 PM. On Saturdays, Route 29 runs every 40 to 60 minutes from 7:20 AM to 6:22 PM. Route 29 does not run on Sundays, and operates on a limited schedule during KU’s academic breaks and the summer session.

Figure 3 | Schedule Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>SPAN OF SERVICE</th>
<th>FREQUENCY (MIN)</th>
<th>DAILY TRIPS (OUTBOUND/INBOUND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday-Friday</td>
<td>7:00 AM – 6:32 PM</td>
<td>20</td>
<td>32/32</td>
</tr>
<tr>
<td>Saturday</td>
<td>7:20 AM – 6:22 PM</td>
<td>40-60</td>
<td>16/16</td>
</tr>
<tr>
<td>Sunday</td>
<td>No service</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit

RIDERSHIP

Route 29 ranks second of two coordinated routes in terms of weekday ridership and second of two in terms of ridership per trip (Figure 4). On average, the route carries 1,123 passengers, or 17.5 passengers per trip, on Monday-Friday (Figure 5 and Figure 6). On Saturdays, Route 29 carries 49 passengers, or 1.5 passengers per trip (Figure 7 and Figure 8).

Figure 4 | Ridership Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>TYPICAL DAILY RIDERSHIP</th>
<th>AVERAGE RIDERSHIP PER TRIP</th>
<th>COORDINATED ROUTES AVERAGE RIDERSHIP PER TRIP</th>
<th>RIDERSHIP PER TRIP RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday–Friday</td>
<td>1,123</td>
<td>17.5</td>
<td>19.9</td>
<td>2 of 2</td>
</tr>
<tr>
<td>Saturday</td>
<td>49</td>
<td>1.5</td>
<td>9.7</td>
<td>2 of 2</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit, 2016
Figure 5 | Weekday Ridership by Route

Coordinated Routes
Average = 1,296

- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016

Figure 6 | Weekday Ridership per Trip by Route

Coordinated Routes
Average = 19.9

- Lawrence Transit
- KU on Wheels
- Coordinated

Source: Ride Check, April and May 2016
Figure 7 | Saturday Ridership by Route

Coordinated Routes
Average = 382

Lawrence Transit

Coordinated

Source: Ride Check, April and May 2016

Figure 8 | Saturday Ridership per Trip by Route

Coordinated Routes
Average = 9.7

Lawrence Transit

Coordinated

Source: Ride Check, April and May 2016
RIDERSHIP BY STOP

The highest inbound weekday ridership stops on Route 29 are located on KU’s central campus, indicating the route is primarily utilized by students commuting to and from class (Figure 9). The stop at Budig Hall on Jayhawk Boulevard generates 519 combined daily boardings and alightings, and the stop at 15th Street and Green Hall averages 239 daily boardings and alightings. Stops at the Kansas Union (232 passengers), and Jayhawk Boulevard and Fraser Hall (108 passengers) also record more than 100 combined boardings and alightings. All other stops generate fewer than 90 combined daily boardings and alightings (Figure 10-Figure 13).

Traveling outbound, Bailey Hall Westbound generates 295 combined daily boardings and alightings, and Snow Hall Westbound averages 263 daily boardings and alightings. Other stops that feature more than 100 combined boardings and alightings per weekday include: Engineering, 24th Place and Inverness Drive, Kansas Union, and Jayhawk Boulevard and Lippincott Hall. These stops primarily serve academic buildings on KU’s central campus; the stop at 24th Place and Inverness Drive is located adjacent to several high-density off-campus student housing complexes. All other stops serve fewer than 100 boardings and alightings.

Saturday ridership on Route 29 is drastically lower than weekday ridership volumes (Figure 14-Figure 17). Ridership traveling in the outbound direction totals 39 passengers. Inbound, only 30 combined boardings and alightings are generated on Saturday.

Figure 9 | Top 5 Highest Ridership Stops and Key Trip Generators (Weekday Inbound)

<table>
<thead>
<tr>
<th>BUS STOP</th>
<th>RIDERSHIP*</th>
<th>MAJOR LOCAL DESTINATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jayhawk Boulevard / Budig Hall</td>
<td>519</td>
<td>Budig Hall; KU campus</td>
</tr>
<tr>
<td>15th Street / Green Hall</td>
<td>239</td>
<td>Green Hall; Engineering; KU campus</td>
</tr>
<tr>
<td>Kansas Union</td>
<td>232</td>
<td>Kansas Union; KU campus</td>
</tr>
<tr>
<td>Jayhawk Boulevard / Fraser Hall</td>
<td>108</td>
<td>Fraser Hall; KU campus</td>
</tr>
<tr>
<td>24th Place / Crossgate Drive</td>
<td>88</td>
<td>Off-campus student housing</td>
</tr>
</tbody>
</table>

*Weekday inbound ridership (boardings and alightings) for Route 29 only
Figure 10 | Weekday Outbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 11 | Weekday Inbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 12 | Weekday Outbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 13 | Weekday Inbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 14 | Saturday Outbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 15 | Saturday Inbound Daily Ridership by Stop Map

Source: Ride Check, April and May 2016
Figure 16 | Saturday Outbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
Figure 17 | Saturday Inbound Ridership by Stop Chart

Source: Ride Check, April and May 2016
RIDERSHIP BY TRIP

On weekdays, Route 29 inbound ridership is highest during the mid-morning and early afternoon service periods (9:30 AM to 1:00 PM), and peaks at 9:40 AM (45 passengers). No trips carry more than 12 passengers after 2:40 PM. Overall, 28% of inbound trips carry 20 passengers or more (Figure 18 and Figure 19).

Traveling outbound, ridership is highest during the mid-morning service period, with ridership in both directions peaking between 9:00 and 11:00 AM. Outbound ridership on Route 29 peaks at 10:45 AM, carrying 98 passengers. The second highest outbound trip occurs at 4:05 PM (50 passengers). Overall, 40% of outbound trips carry 20 passengers or more.

As a result of Route 29’s extremely low Saturday ridership no discernable ridership trends by trip are evident (Figure 20 and Figure 21).
Figure 18 | Weekday Outbound Ridership by Trip Chart

Source: Ride Check, April and May 2016. No data was collected for the 7:20 AM, 7:40 AM, 12:00 PM, 1:00 PM, 4:00 PM, and 5:00 PM outbound trips. Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.

Figure 19 | Weekday Inbound Ridership by Trip Chart

Source: Ride Check, April and May 2016. No data was collected for the 8:05 AM, 10:45 AM, 12:25 PM, 1:25 PM, 4:25 PM, and 5:25 PM inbound trips. Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.
Figure 20 | Saturday Outbound Ridership by Trip Chart

Source: Ride Check, April and May 2016
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.

Figure 21 | Saturday Inbound Ridership by Trip Chart

Source: Ride Check, April and May 2016
Note: Seating capacity of a typical 40-foot transit bus is between 35 and 40 passengers.
SERVICE PRODUCTIVITY

In terms of average passengers per hour, Route 29 is the most productive coordinated route (Figure 22). The route carries 38.1 passengers per hour on weekdays, exceeding the system average by 5% (Figure 23). Route 29 carries 4.4 passengers per hour on Saturdays (Figure 24). Decreased average ridership per hour on Saturday is likely a result of fewer KU students traveling from off-campus housing to campus.

Figure 22 | Service Productivity Statistics

<table>
<thead>
<tr>
<th>SERVICE DAY</th>
<th>TYPICAL DAILY RIDERSHIP</th>
<th>SERVICE HOURS</th>
<th>AVERAGE RIDERSHIP PER HOUR</th>
<th>COORDINATED ROUTES AVERAGE RIDERSHIP PER HOUR</th>
<th>SYSTEM RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday–Friday</td>
<td>1,123</td>
<td>29.5</td>
<td>38.1</td>
<td>36.3</td>
<td>1 of 2</td>
</tr>
<tr>
<td>Saturday</td>
<td>49</td>
<td>11.2</td>
<td>4.4</td>
<td>18.4</td>
<td>2 of 2</td>
</tr>
</tbody>
</table>

Source: Lawrence Transit, 2016

Figure 23 | Weekday Ridership per Service Hour by Route

Source: Ride Check, April and May 2016
ON-TIME PERFORMANCE

On weekdays, approximately 26.3% of Route 29 time points were served “on-time” during the survey period (Figure 25). On Saturdays, approximately 12.5% of Route 29 time points were served “on-time” during the survey period. Buses are considered early when they depart a time point before their scheduled departure time. Buses are considered late when they depart a time point more than five minutes behind schedule.

Both weekday and Saturday on-time performance was affected heavily by late departures, with 64.7% of time points served late on weekdays and 82.5% served late on Saturday. Fewer than 10% of time points during each period experienced early departures.

<table>
<thead>
<tr>
<th></th>
<th>WEEKDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Time</td>
<td>26.3%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Early</td>
<td>9.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Late</td>
<td>64.7%</td>
<td>82.5%</td>
</tr>
</tbody>
</table>

Note: Total may not sum to 100% due to rounding.
Source: Ride Check, April and May 2016
POTENTIAL SERVICE IMPROVEMENT OPTIONS

Opportunities to strengthen Route 29 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- **Serve Retail Area at Iowa Street and 31st Street.** Current connections between the multi-family housing in southwest Lawrence and retail, jobs, and other essential services is relatively weak. Clinton Parkway is primarily residential, and most development is set far back from Iowa Street. In addition, ridership patterns suggest that a decent proportion of ridership boards and alights along Jayhawk Boulevard and W. 15th Street. If easy and fast transfer opportunities are maintained between Route 29 and other routes in the system that serve KU, it may be more worthwhile to serve the retail area at Iowa Street and 31st Street instead of the university with Route 29. This would create a one-seat ride to the retail area, and consolidate Jayhawk Boulevard ridership onto a different existing route.

- **Provide Alternate Alignments at Specific Times.** Most riders on Route 29 are students who need to reach the university during class times. To maintain a one-seat connection to the university when riders need it most, the Route 29 alignment could serve the university as it does now on weekdays or on weekdays between the start of service in the morning until about 4:30 PM, when ridership drops precipitously. On weekends and possibly on weekdays after 4:30 PM, Route 29 could serve the retail area at Iowa Street and 31st Street to provide more connections for students to jobs, shopping, and services.

- **Discontinue Saturday Service.** While Route 29 has strong ridership on weekdays, it has very few riders on Saturdays. This is primarily due to the lack of retail connections on the route. By contrast, Route 9, which serves two large retail centers, has higher ridership activity on Saturdays than on weekdays at stops shared with Route 29. If Route 9 continues along its current alignment, Saturday service should be discontinued due to low ridership.