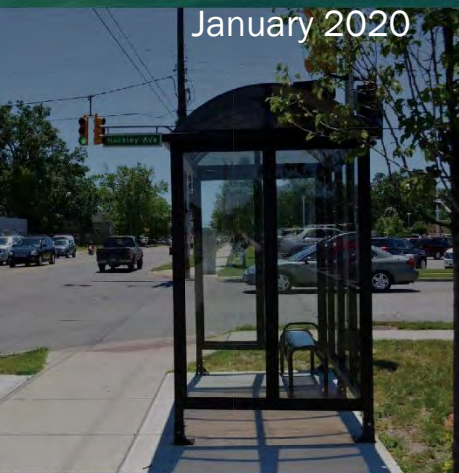


# Muskegon Area Transit System Route Study and Comprehensive Operational Analysis

**FINAL REPORT - APPENDICES**

January 2020



Submitted to:



**MUSKEGON COUNTY**  
M I C H I G A N



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## APPENDIX A: ROUTE PROFILES

### Fixed-Route Profiles

This section provides a detailed, diagnostic profile of each MATS Bus route. If applicable, profile elements are separated by day type. Each profile includes the following elements:

- Service description;
- Operating characteristics;
- Assessment of strengths and weaknesses;
- Service efficiency and productivity in terms of passengers per revenue hour, passengers per revenue trip, and operating cost per passenger (per MATS);
- Ridership by stop and trip (per ridecheck Data);
- On-time performance (per ridecheck data); and
- Service improvement opportunities.

### Data Sources and Limitations

Ridership and on-time performance data for this analysis was collected through a “100% ridecheck” in May 2019. A ridecheck is a manual survey of weekday boardings, alightings, and on-time performance covering all scheduled trips on every route. Data was collected by a group of local surveyors with oversight from the Foursquare ITP team. The May 2019 ridecheck focused on weekday service only. The service performance of routes operating on Saturdays was assessed using ridership data collected by MATS staff in October 2018. Data supplied by MATS staff was also used to assess key productivity and efficiency metrics for each route, such as passengers per revenue hour, passengers per trip, and operating cost per passenger.

It should be noted that in the profiles that follow, maximum loads, or the maximum number of people on board a bus at any one time over the course of a trip, can sometimes exceed total boardings for a given trip. This is a reflection of the fact that while trips are presented by direction (i.e. outbound and inbound), actual ridership overlaps the transition from outbound to inbound service. For example, riders may board a bus at the end of an outbound trip, but then remain on the vehicle as it transitions to inbound service. Thus, the number of passengers on an inbound bus may exceed the number of boardings that occurred while the bus was on the inbound leg of its trip.

On-time performance is measured in terms of the percentage of timepoint samples during a ridecheck period that fall within the definition of “on-time” service. MATS defines on-time service as a vehicle arriving at a timepoint no earlier than, and up to three minutes later than, a scheduled arrival time.

### Discontinued Routes

In evaluating existing routes, it may also be significant to consider discontinued routes. This is the case with MATS Route 70, Marquette Express which was eliminated in May 2019 after just two academic years of operation. Previously, the route provided service between Herman Ivory Terminal and Muskegon Community College travelling along Marquette Avenue. Service operated exclusively during college terms(Aug-Dec and Jan-May) and only Monday through Thursday. Trips departed every-thirty minutes from 6:28 am to 7:40 pm. Route 70’s strength was its frequent service. Weaknesses of the route included a lack of diversity in trip generators(Baker College, Muskegon Community College), a seasonal offering, and of lack of Friday, late-night and weekend service. A ridecheck conducted from April 15 through 18, 2019 revealed exceedingly low ridership with just 50 total boardings daily.

## Route 10

### Service Description

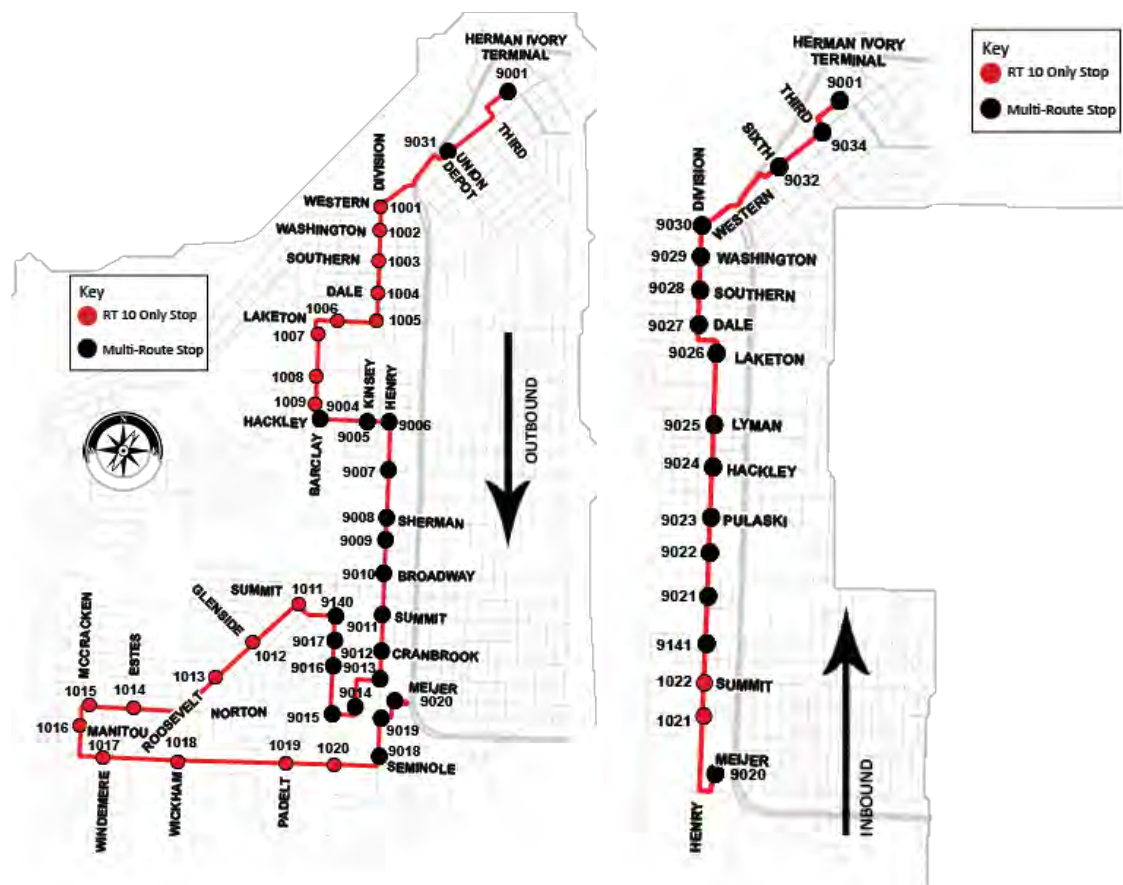
Route 10 (**Figure 1**) provides weekday service from Herman Ivory Terminal to Meijer on Henry Street. Inbound and outbound buses take different routes, but both provide coverage along Division, Henry and Western. Hourly service frequency is provided as follows:

- Outbound service departs from Herman Ivory Terminal every hour, from 7:20 am to 5:20 pm.
- Inbound service departs Meijer every hour, from 6:55 am to 5:08 pm.

Route 10 outbound service travels primarily along Western, Division, Laketon, Barclay, Hackley, Henry, Maple Grove, Roosevelt and Seminole. While inbound service travels along Henry, Division, and Western. Major destinations served by the route include Walmart and Meijer. Passengers may transfer from Route 10 to other routes at Herman Ivory Terminal (Routes 15, 20, 25, 30, 35, 40/45, 55, 115), Meijer (Routes 15,) and along Barclay (Route 35).

Figure 1 | A. Route 10 Outbound (Source: MATS)

B. Route 10 Inbound (Source: MATS)



*Operating Characteristics*

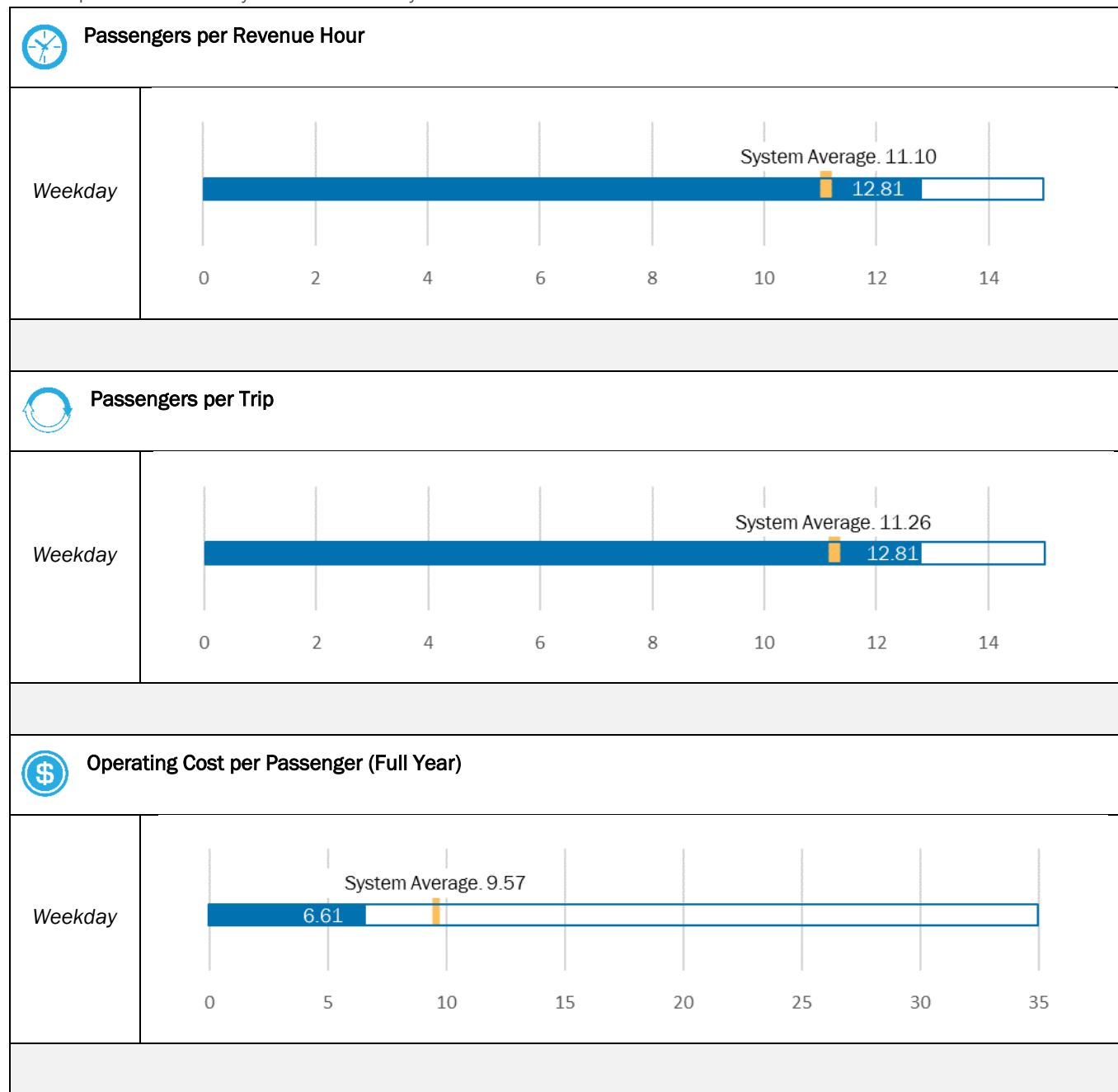
Table 1 | Route 10 Operating Characteristics

| Origin and Destination         |         | Herman Ivory Terminal<br>Meijer 3278 Henry Street                                                                                   |
|--------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| Route Connections              |         | Herman Ivory Terminal (Routes 15, 20, 25, 30, 35, 40/45, 55, 115), Meijer (Route 15)<br>Along Barclay (Routes 35)                   |
| Key Points of Interest         |         | Walmart, Meijer, Retail Cluster at W Sherman and Henry, apartments and housing complexes along Barclay, Maple Grove, and Roosevelt. |
| Annual Weekday Operating Costs |         | \$236,372.40                                                                                                                        |
| Annual Ridership               |         | 35,782                                                                                                                              |
| Average Daily Ridership        | Weekday | 141                                                                                                                                 |
| Span                           | Weekday | 6:55 am to 5:51 pm                                                                                                                  |
| Frequency                      | Weekday | 60 minutes                                                                                                                          |

## Service Analysis

### Weekday Service Efficiency and Productivity

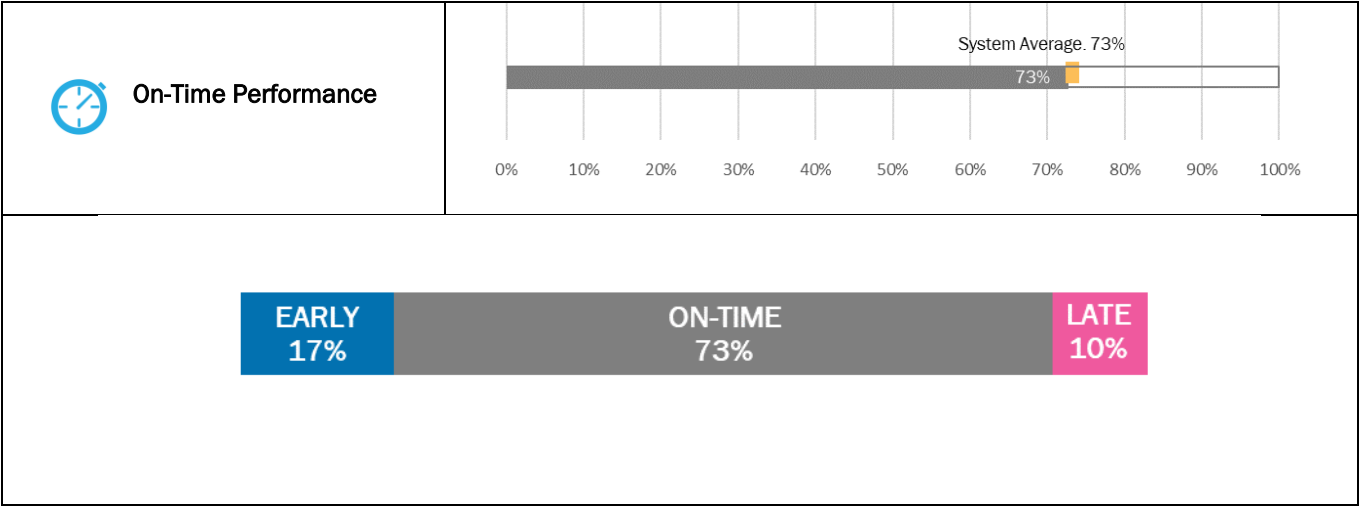
Table 2 | Route 10 Weekday Service Productivity Metrics





Weekday On-Time Performance

Table 3 | Route 10 Weekday On-Time Performance Analysis (From COA May 2019 Ridecheck)



## Weekday Ridership by Stop

Figure 2 | Route 10 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)



Figure 3 | Route 10 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

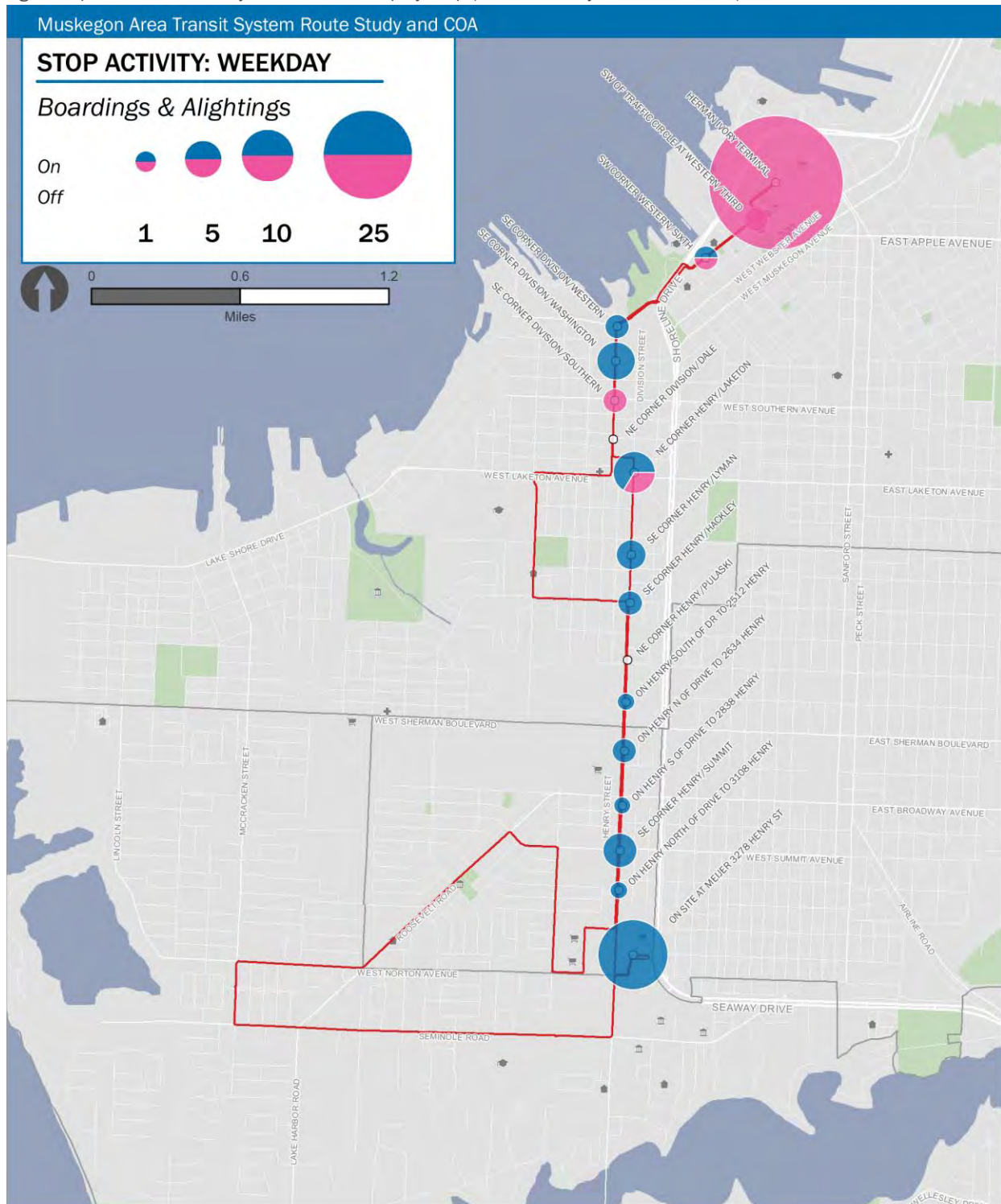




Figure 4 | Route 10 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

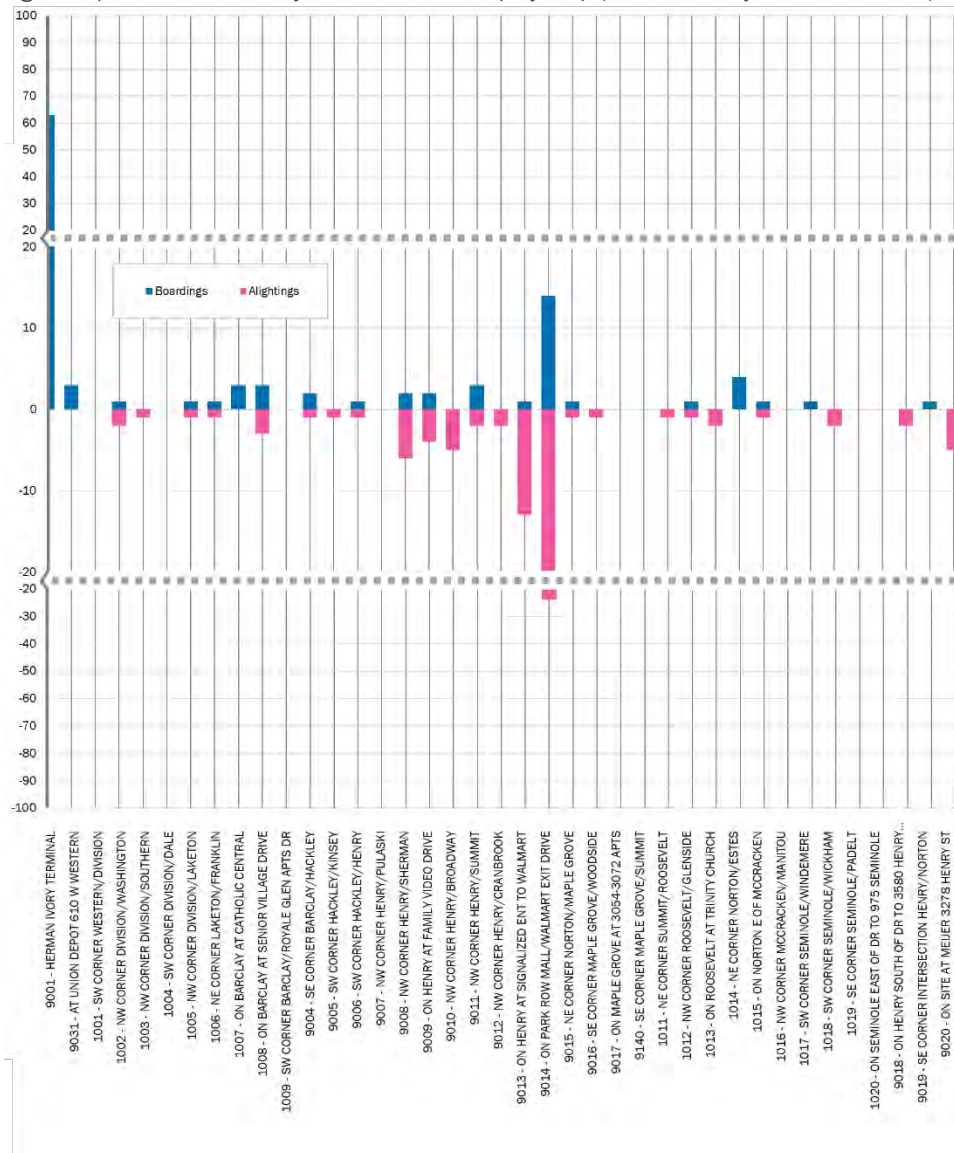
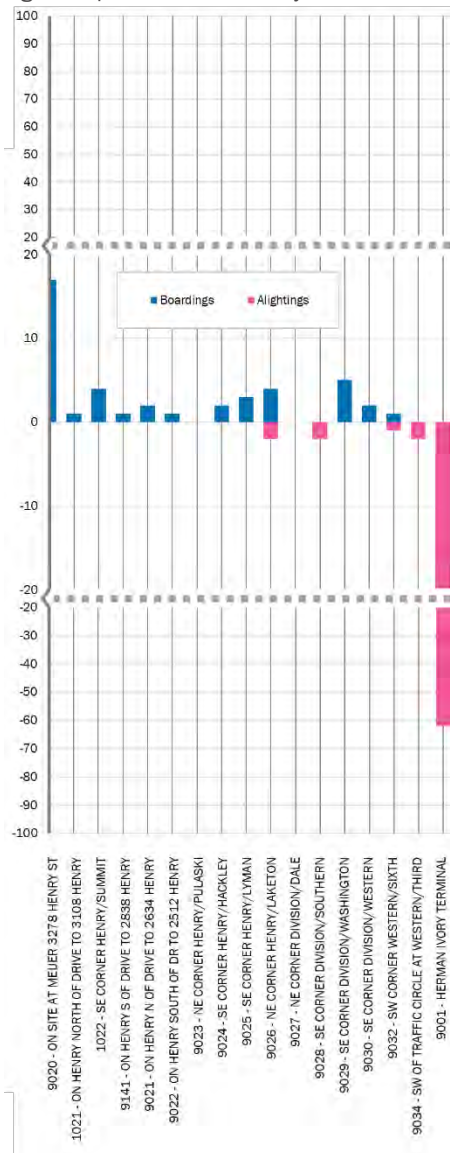


Figure 5 | Route 10 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)





*Weekday Ridership by Trip*

Figure 6 | Route 10 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

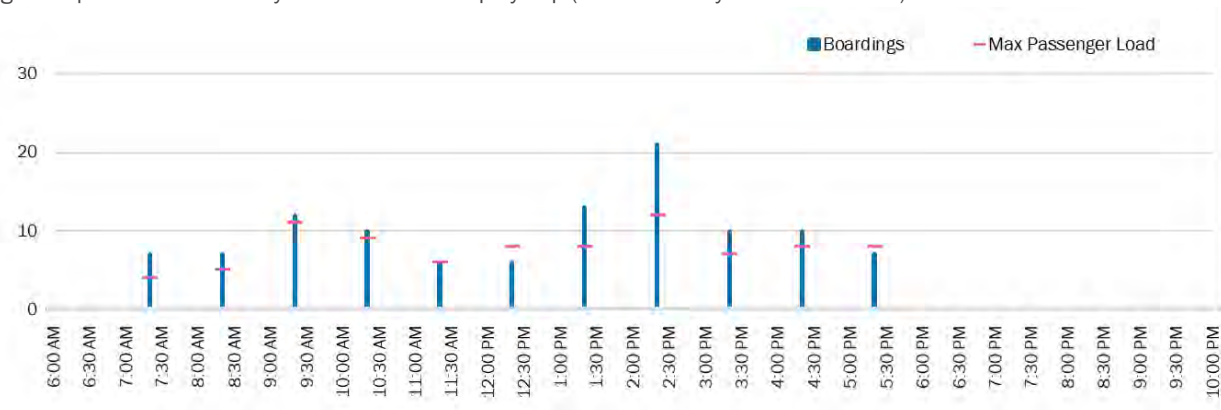
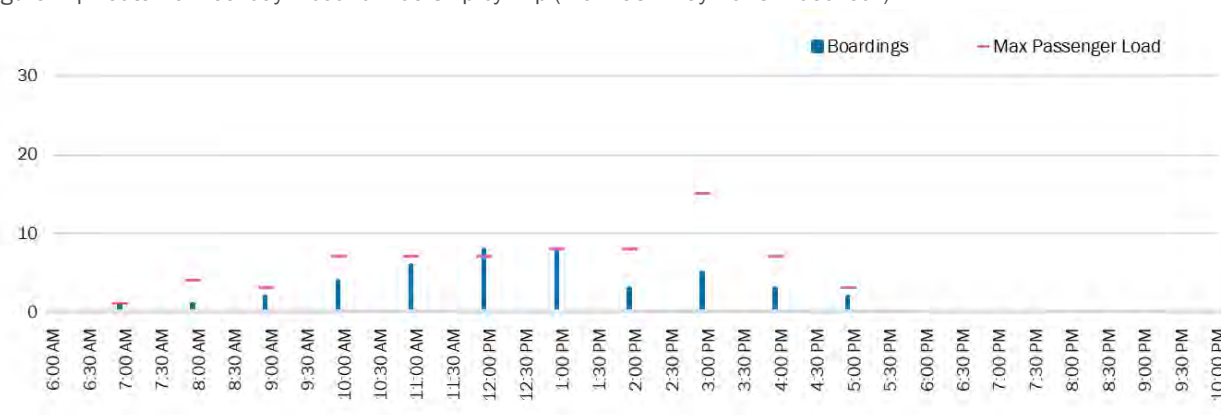


Figure 7 | Route 10 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)

**Service Assessment***Strengths*

- Consistent clockface frequency.
- Serves a number of strong anchors (Meijer, Walmart, Aldi).
- Below-average operating cost per passenger.
- Above-average productivity (passengers per revenue hour and passengers per trip).

*Weaknesses*

- Infrequent service (hourly).
- No service on Saturdays or after 6:00 pm on weekdays (although major portions of the route are covered by Route 60 at these times).
- Large one-way loop at the southern end of the route.
- Inconsistent inbound and outbound alignments between Laketon Avenue and Hackley Avenue.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 10 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Simplify route with a single consistent alignment*

Route 10 currently includes a large one-way loop on its southern end. While this loop provides broad service coverage and connects several neighborhoods to major retail destinations, it only allows for travel in one direction. Passengers who board Route 10 along Roosevelt Road or Seminole Road, for example, cannot travel to Meijer and back without either a long deviation to downtown Muskegon or a walk across a busy street from Meijer to Walmart/Goodwill across Henry Street (which has few signalized or marked crosswalks). In addition, Route 10 operates southbound along Barclay Street, between Laketon and Hackley Avenue, but northbound along Henry Street some seven blocks away. These one-way route segments inconvenience many existing passengers and may limit the appeal of the route for prospective riders.

To simplify the route, service should operate along a consistent alignment in both directions. Based on existing ridership and ridership potential, Route 10 buses should follow the current alignment from downtown to Barclay Street and then turn west, instead of east, on Hackley Avenue; continue along Hackley to Glenside Boulevard; and then turn east on Sherman Boulevard. From Sherman, the route could continue south along Henry Street before terminating with a loop through the Walmart and Meijer shopping centers. Northbound buses could follow the same alignment but in reverse. This proposed alignment would improve access to several large apartment complexes along Hackley Avenue while removing service from a stretch of Henry Street that is lined primarily with car dealerships. In addition, residents of apartments in the Roosevelt Park Neighborhood could walk to Henry in order to access service. Service along the eliminated one-way loop west of Henry could be replaced with a different route or even microtransit service anchored at Meijer.

### *Operate Route 10 on Saturdays and later on weekdays*

Route 10 currently operates on weekdays only, with no service after 6:00 pm. Portions of the route are picked up by Route 60 during these periods, but with a more circuitous alignment overall. Transit riders (like all people) tend to be creatures of habit, and when service in a corridor is provided by different routes during different periods, ridership generally suffers. The modifications proposed above would strengthen Route 10 and could justify later weekday and Saturday service, with the aim of establishing more consistency across service periods.

### *Consider periods of higher frequency on Route 10*

The alignment modifications proposed to Route 10, would make it a stronger route overall. Operating the route with 30-minute frequency, at least during peak periods, could help generate more ridership on the route by attracting new riders and allowing current passengers to take more trips over the course of the service day.

## Route 15

### Service Description

Route 15 (**Figure 8**) provides hourly weekday and Saturday service between Herman Ivory Terminal and Meijer on Henry Street. Inbound and outbound alignments have several differences, but both provide coverage along 6<sup>th</sup> Street and Baker Street. Hourly service is provided as follows:

#### Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 6:50 am to 9:50 pm.

Inbound service departs Meijer every hour, from 7:18 am to 10:18 pm. However, the first inbound trip of the day departs from Muskegon Heights Transfer point at 6:28 am.

#### Saturdays

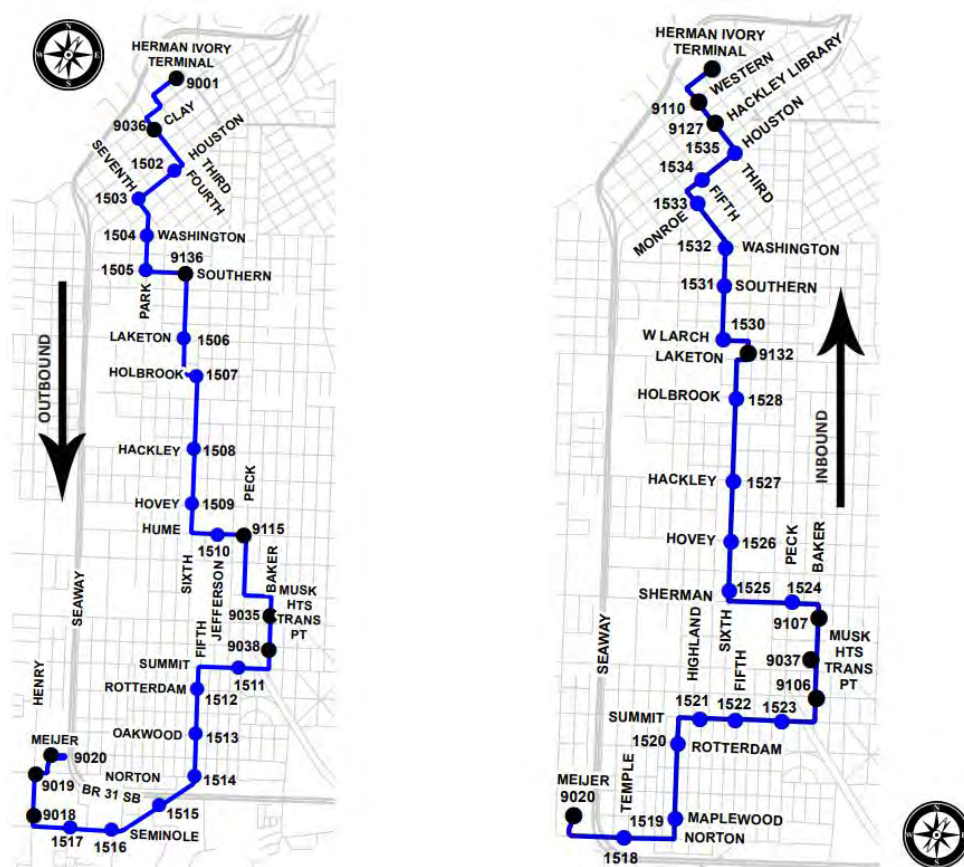
Outbound service departs from Herman Ivory Terminal every hour, from 9:50 am to 4:50 pm.

Inbound service departs Meijer every hour, from 10:18 am to 5:18 pm.

Major destinations served by the route include Meijer, Muskegon DHS, Hackley Community Care and Walmart. Passengers may transfer from Route 15 to other routes at Herman Ivory Terminal (Routes 10, 20, 25, 30, 35, 40/45, 55, 115), Meijer (Routes 10, 60), Muskegon Heights Transfer Point (Route 30, 40, 50, 55) and several other stops along the route.

Figure 8 | A. Route 15 Outbound (Source: MATS)

B. Route 15 Inbound (Source: MATS)



*Operating Characteristics*

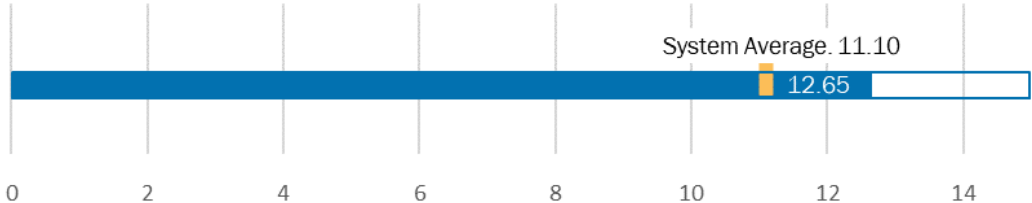
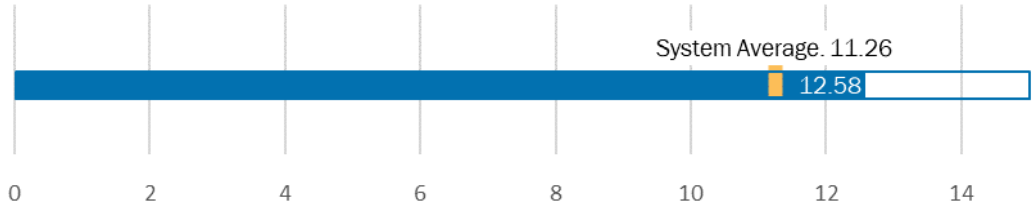
Table 4 | Route 15 Operating Characteristics

|                         |                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                          |
| Route Connections       | Herman Ivory Terminal (Routes 10, 20, 25, 30, 35, 40/45, 55, 115), Meijer (Routes 10, 60) and at Muskegon Heights Transfer Point (Route 30, 40, 50, 55). |
| Key Points of Interest  | Meijer, MAP, Muskegon DHS, Norton Shores Library, Folkert Community Hub, Hackley Community Care, Tanglewood Park, Walmart.                               |
| <b>Weekday</b>          |                                                                                                                                                          |
| Annual Operating Costs  | \$348,112.08                                                                                                                                             |
| Annual Ridership        | 52,066                                                                                                                                                   |
| Average Daily Ridership | 205                                                                                                                                                      |
| Span                    | 6:28 am to 10:40 pm                                                                                                                                      |
| Frequency               | 60 minutes                                                                                                                                               |
| <b>Saturday</b>         |                                                                                                                                                          |
| Annual Operating Costs  | \$34,445.74                                                                                                                                              |
| Annual Ridership        | 6,254                                                                                                                                                    |
| Average Daily Ridership | 120                                                                                                                                                      |
| Span                    | 9:50 am to 5:40 pm                                                                                                                                       |
| Frequency               | 60 minutes                                                                                                                                               |

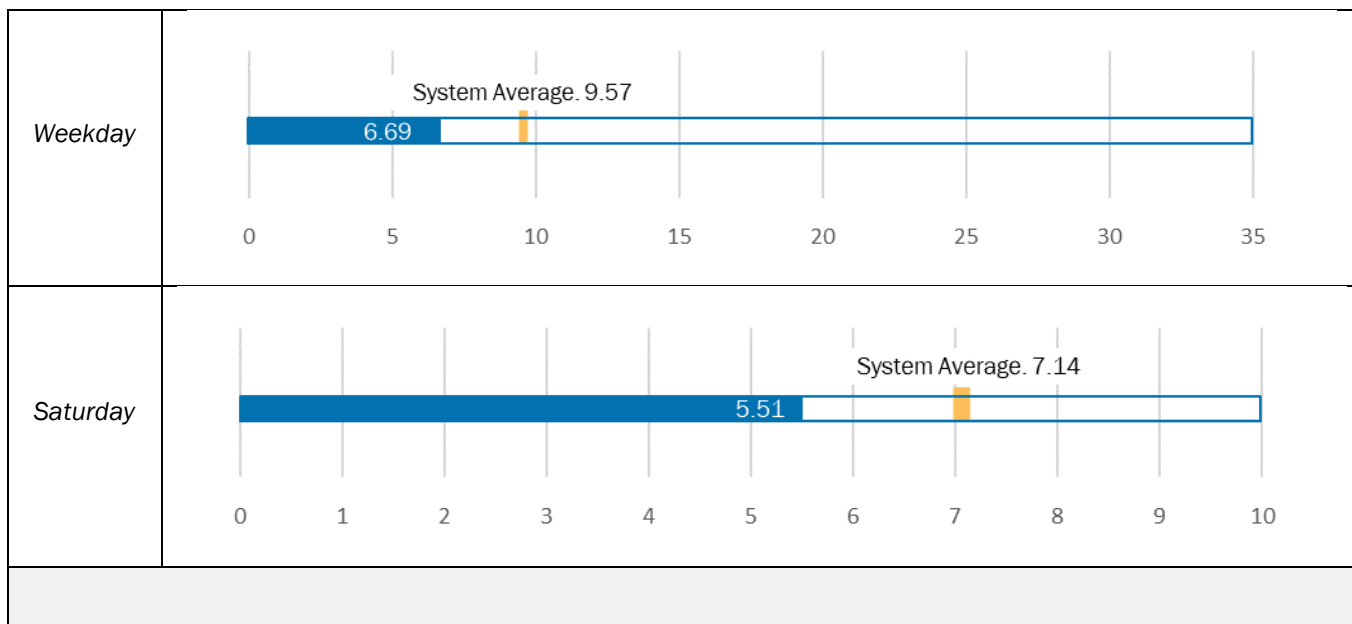
## Service Analysis

### Service Efficiency and Productivity

Table 5 | Route 15 Service Productivity Metrics

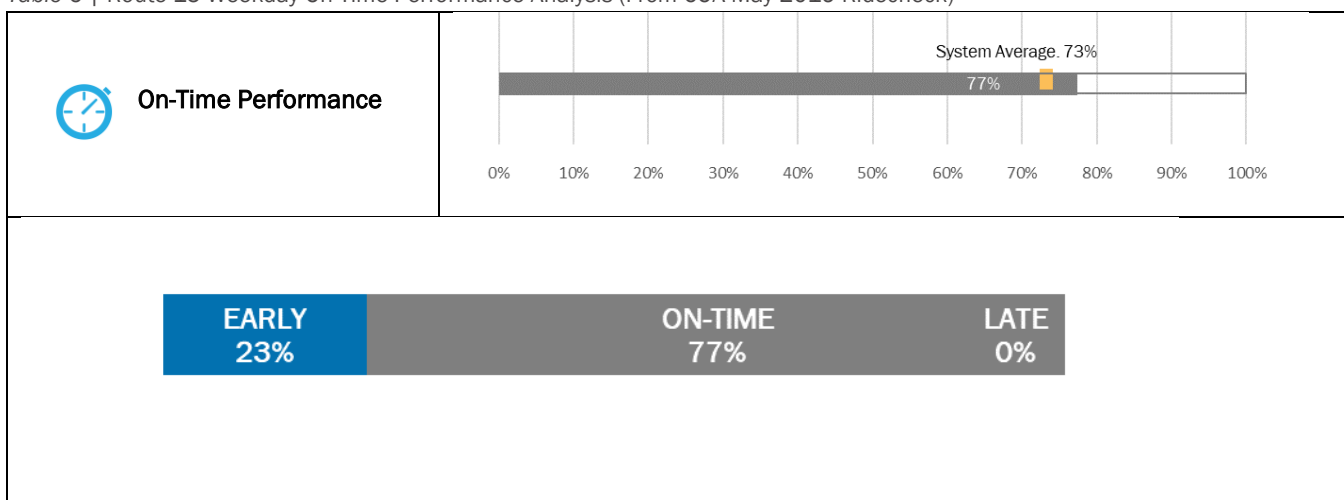
|  <b>Passengers per Revenue Hour</b>                |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Weekday                                                                                                                             |  <p>System Average. 11.10</p> <p>12.65</p>   |
| Saturday                                                                                                                            |  <p>System Average. 12.26</p> <p>15.36</p>   |
|  <b>Passengers per Trip</b>                      |                                                                                                                                |
| Weekday                                                                                                                             |  <p>System Average. 11.26</p> <p>12.58</p> |
| Saturday                                                                                                                            |  <p>System Average. 12.03</p> <p>15.03</p> |
|  <b>Operating Cost per Passenger (Full Year)</b> |                                                                                                                                |





### Weekday On-Time Performance

Table 6 | Route 15 Weekday On-Time Performance Analysis (From COA May 2019 Ridecheck)



## Weekday Ridership by Stop

Figure 9 | Route 15 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)



Figure 10 | Route 15 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

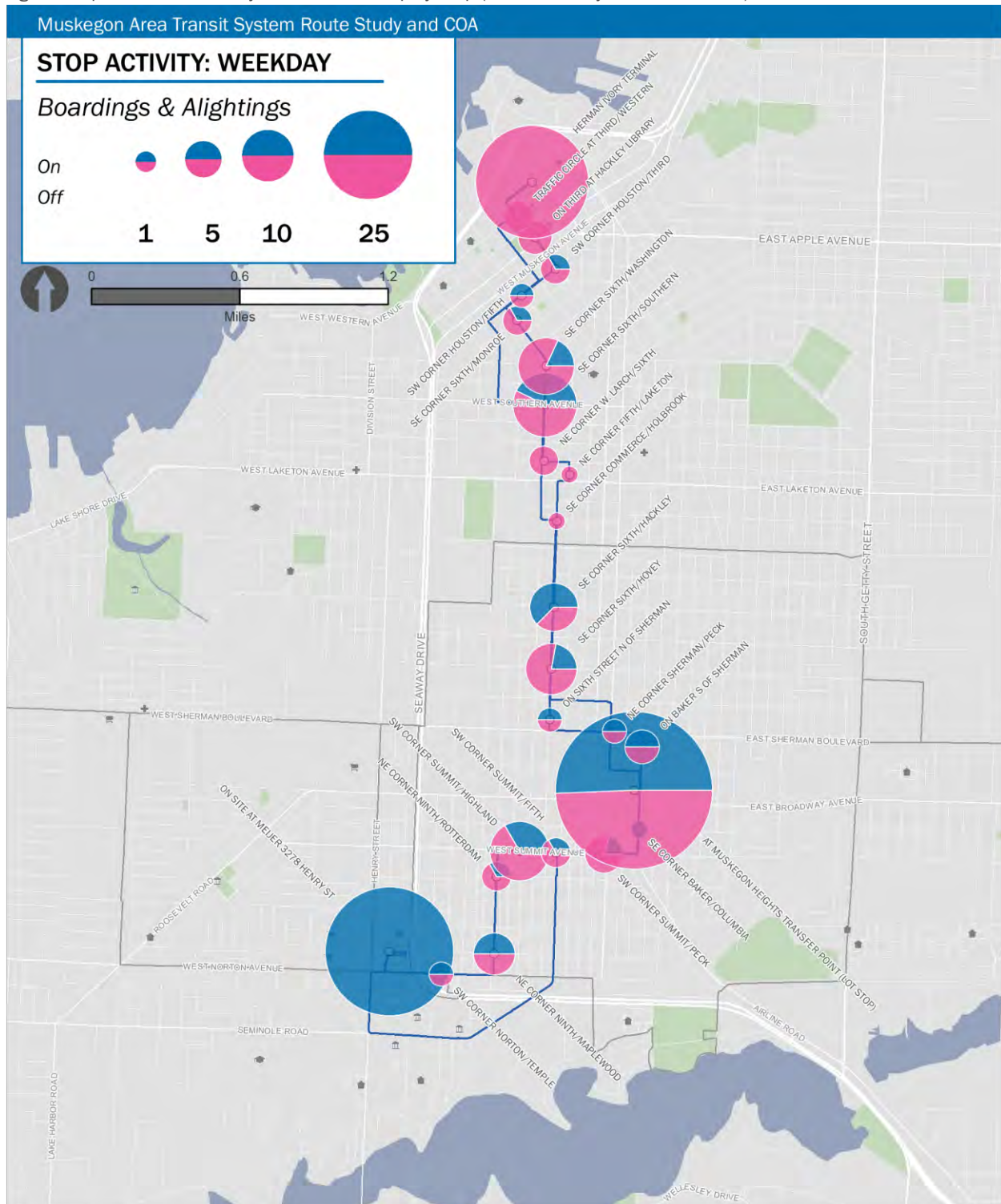


Figure 11 | Route 15 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

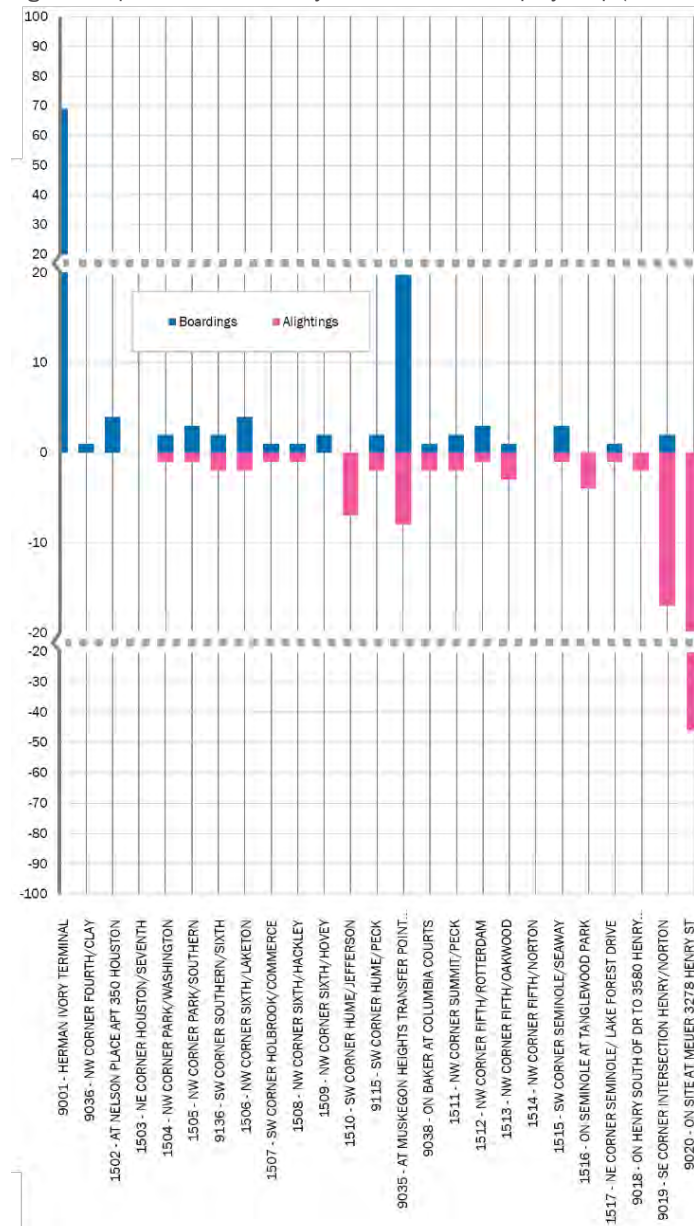
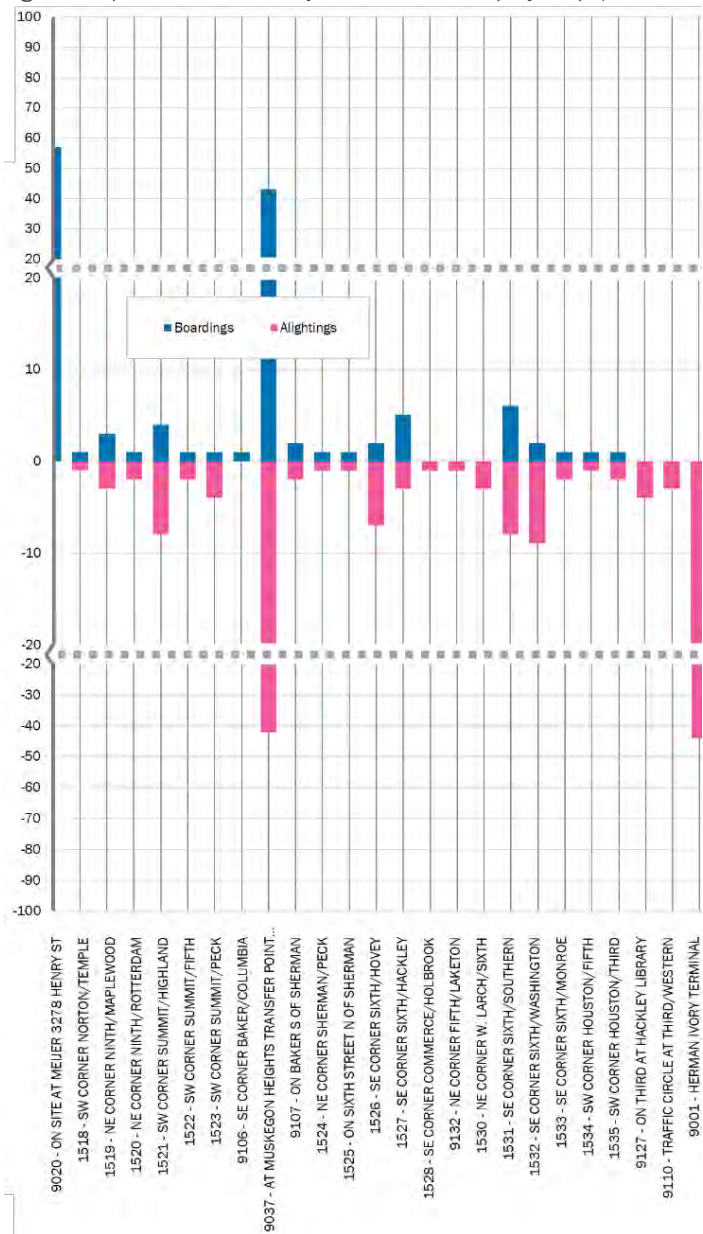




Figure 12 | Route 15 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)





## Saturday Ridership by Stop

Figure 13 | Route 15 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

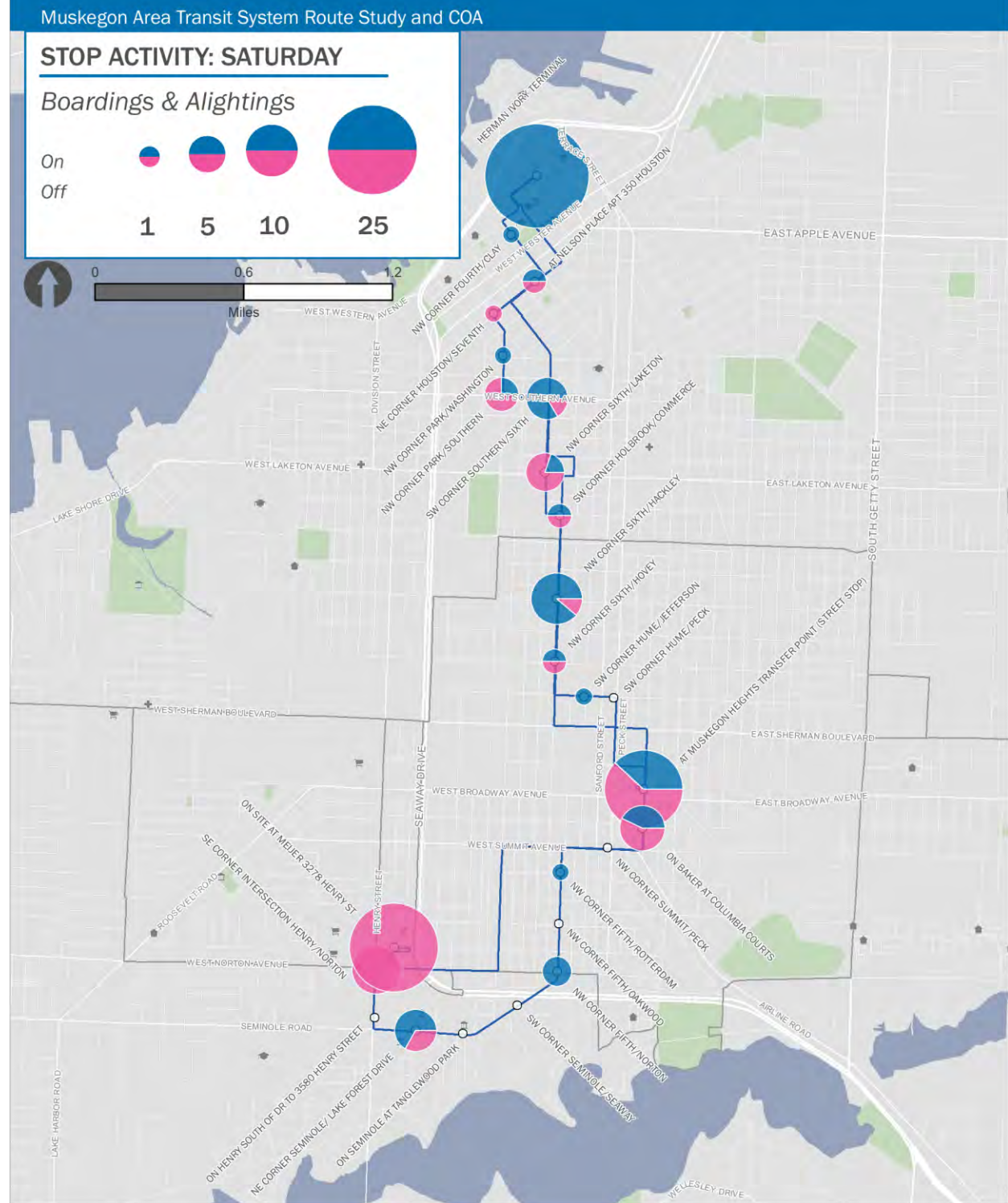


Figure 14 | Route 15 Weekday Inbound Ridership by Stop (From October 2018 Ridecheck)

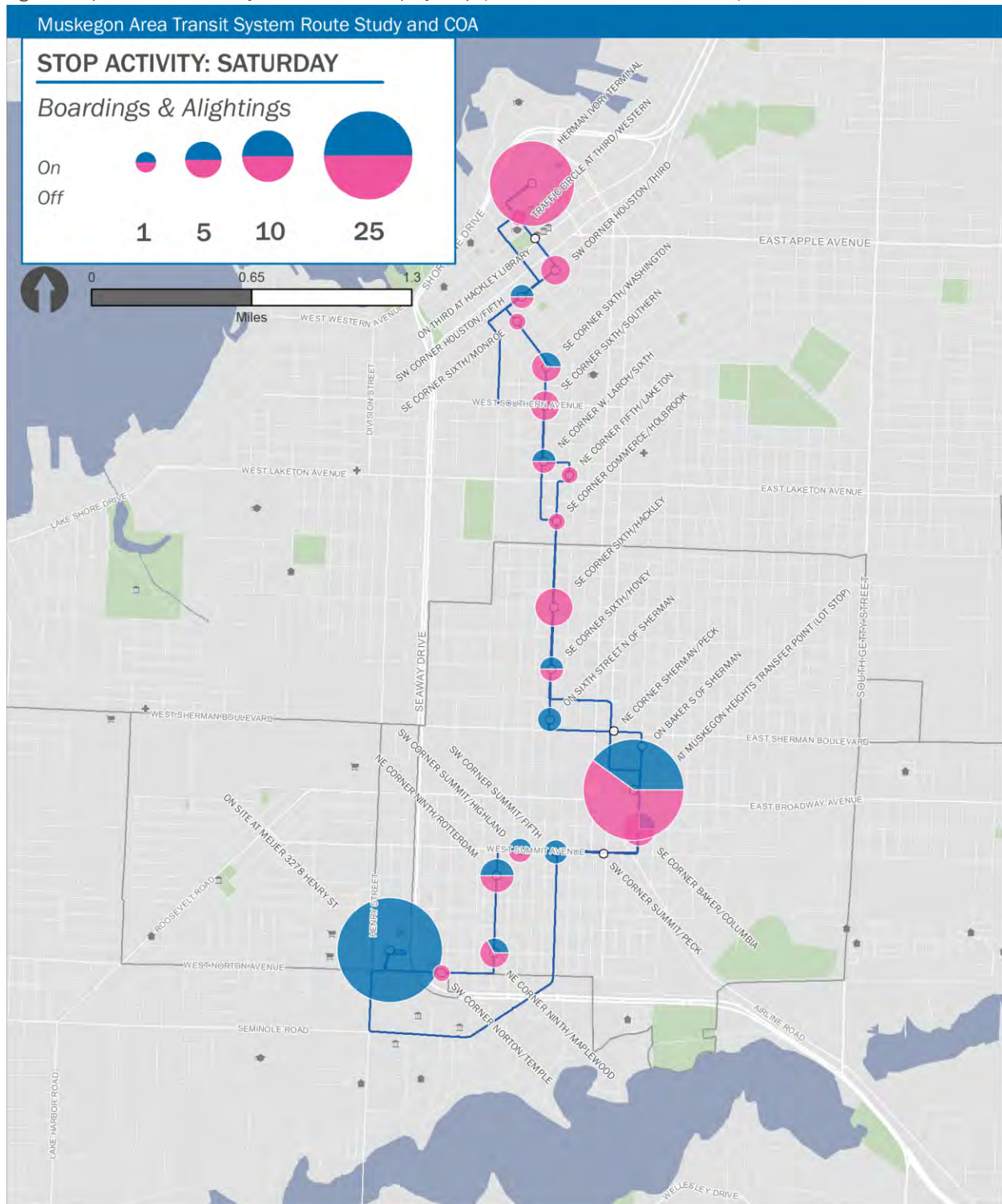


Figure 15 | Route 15 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

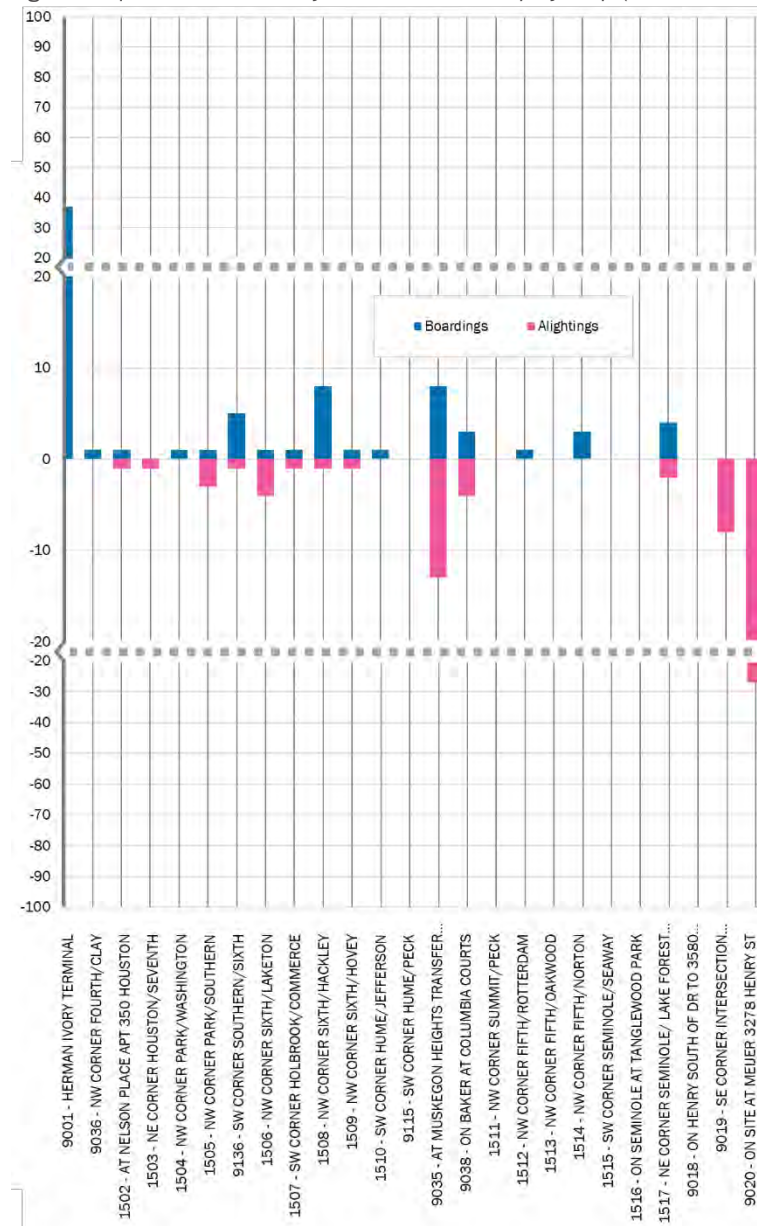
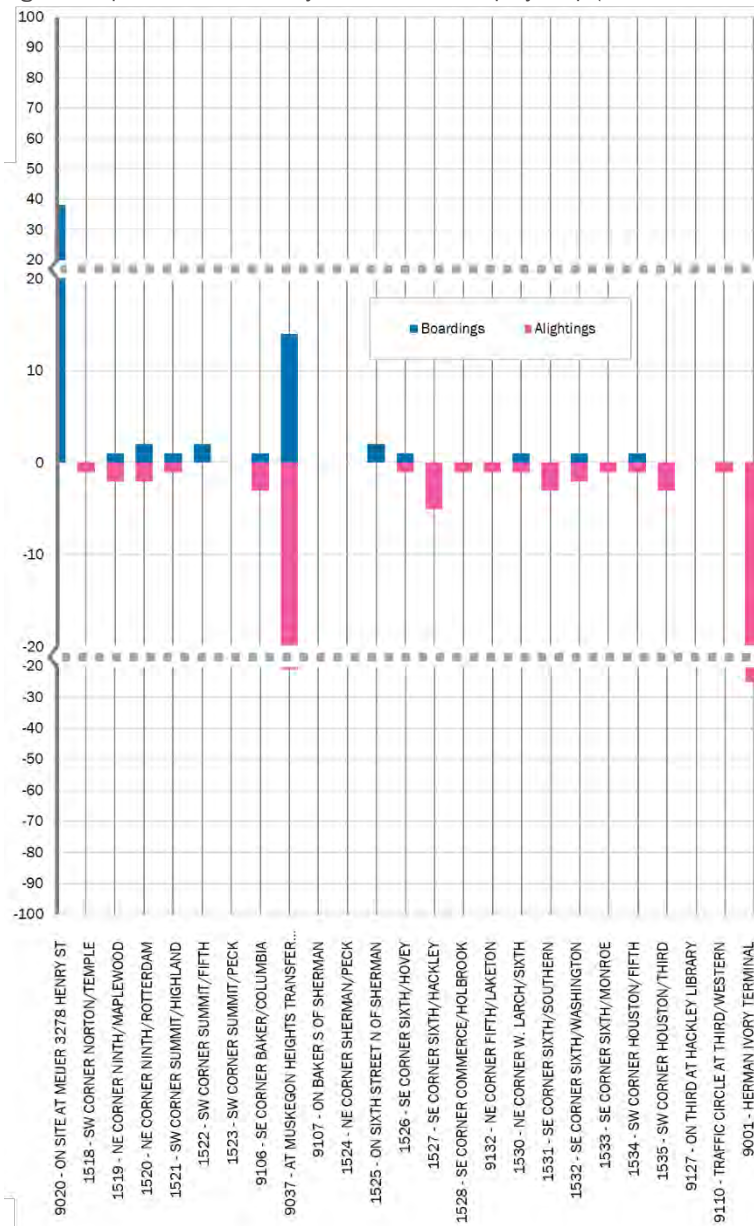




Figure 16 | Route 15 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



### Weekday Ridership by Trip

Figure 17 | Route 15 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

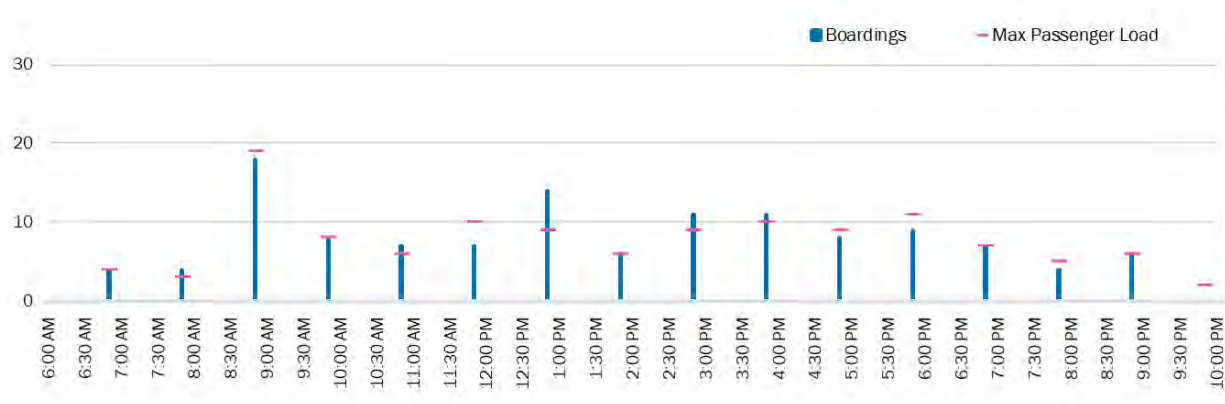
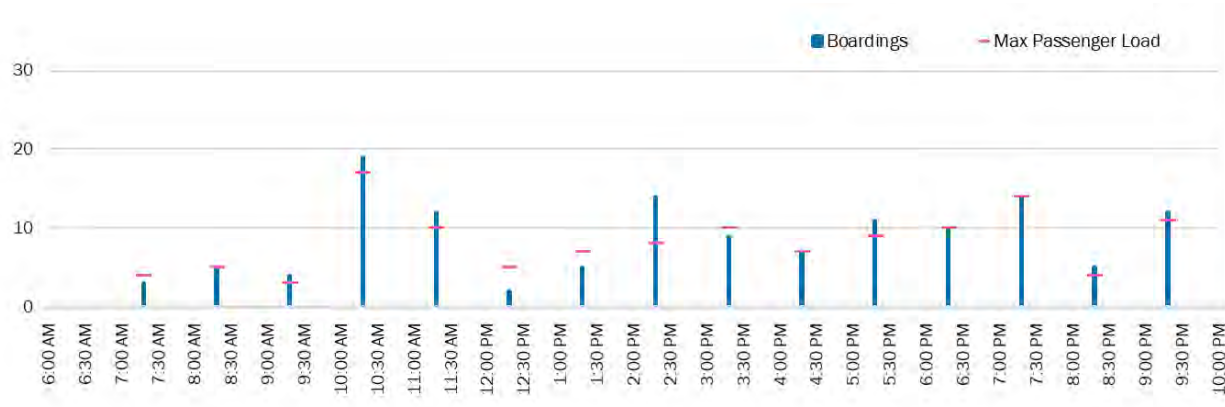


Figure 18 | Route 15 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Serves a number of strong anchors (Meijer, Muskegon Heights Transfer Point, Herman Ivory Terminal).
- Above-average productivity for weekdays and Saturdays (passengers per revenue hour and passengers per trip).
- Below-average cost per passenger for weekdays and Saturdays.

### Weaknesses

- Infrequent service (hourly).
- Inconsistent inbound and outbound alignments, especially south of Summit Avenue.
- A high rate of early departures (according to data sampled).



## Service Improvement Opportunities

Potential opportunities to strengthen Route 15 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Consolidate Route 15 with Route 40/45*

Route 15 has above-average productivity, but its ridership is heavily concentrated at a few key locations including Meijer, Muskegon Heights Transfer Point, and Herman Ivory Terminal. The same is true of Route 40/45 which also serves the Muskegon Heights Transfer Point, as well as Muskegon High School and the Mercy Health Hackley Campus. Most other stops along both routes generate relatively little ridership. Consolidating the two routes, which operate just blocks apart for much of their respective alignments, could create a stronger route serving more key ridership generators (i.e. Meijer, high school, hospital, several apartment complexes) than either route does individually.

### *Consider periods of higher frequency on Route 15*

If Route 15 is consolidated with Route 40/45, it could allow for the reinvested of resources into relatively high service frequency for the resulting route. Operating the route with 30-minute frequency, at least during peak periods, could help generate more ridership on the route by attracting new riders and allowing current passengers to take more trips over the course of the service day. Providing 30-minute service under a single route number, rather than the current approach of Route 40/45 would also help simplify the service for prospective riders and make it more obvious that the route provides high-frequency service.

### *Review schedule to improve on-time performance*

Based on timepoint observations in May 2019, Route 15 buses depart from timepoints earlier than scheduled more than 20% of the time. Early departures are often more disruptive to passengers than late arrivals, because if a bus leaves a stop before a passenger arrives, that passenger may face a wait-time of more than one hour for the next scheduled bus. To address this situation, schedules should be recalibrated based on field testing and observations.

## Route 20

### Service Description

Route 20 (**Figure 19** and **Figure 20**) provides weekday service between Herman Ivory Terminal and Muskegon Community College. The route operates primarily as a one-way loop, but shares much of its alignment with Route 25, effectively resulting in bi-directional service when both routes are operating. Route 20 provides hourly service frequency as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 7:20 am to 5:20 pm. The first outbound trip of the day begins on Shonat at Great Lakes Market at 6:35 am.

Inbound service departs Muskegon Community College every hour, from 6:43 am to 5:43 pm. The last inbound trip of the day terminates at the Park Woods Apartments at 5:54 pm.

Major destinations served by the route include Community Mental Health, Great Lakes Fresh Market, Mercy Health General Campus, Baker College, Muskegon Community College, Save-a-lot, Disability Network West Michigan, and Cherry Health. Passengers may transfer from Route 20 to other routes at Herman Ivory Terminal (Routes 10, 15, 25, 30, 35, 40/45, 55, 115), Muskegon Community College (25, 30), and at various stops along the route (25, 45, 55).

Figure 19 | A. Route 20 Outbound (Source: MATS)

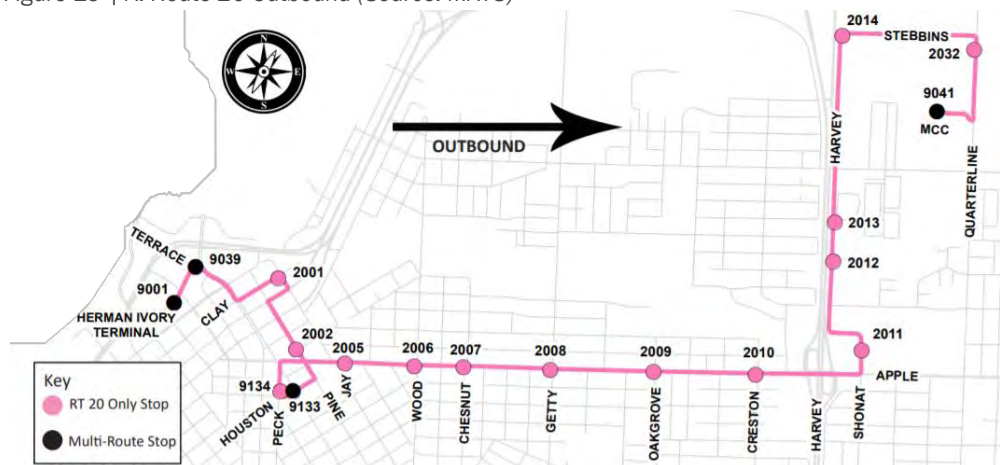
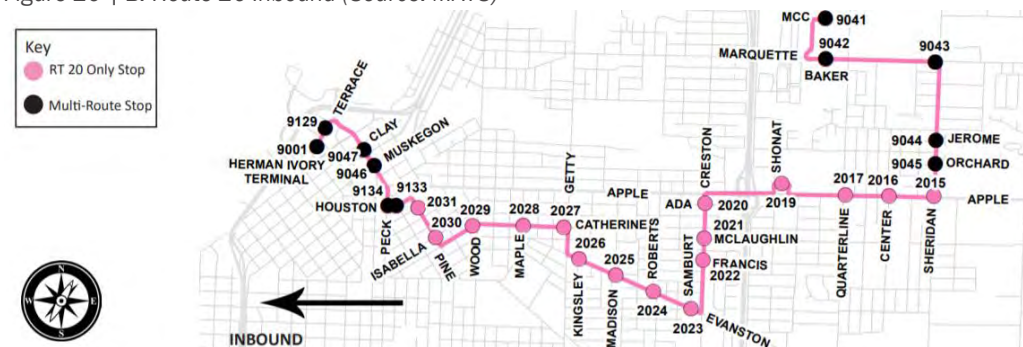


Figure 20 | B. Route 20 Inbound (Source: MATS)



## Operating Characteristics

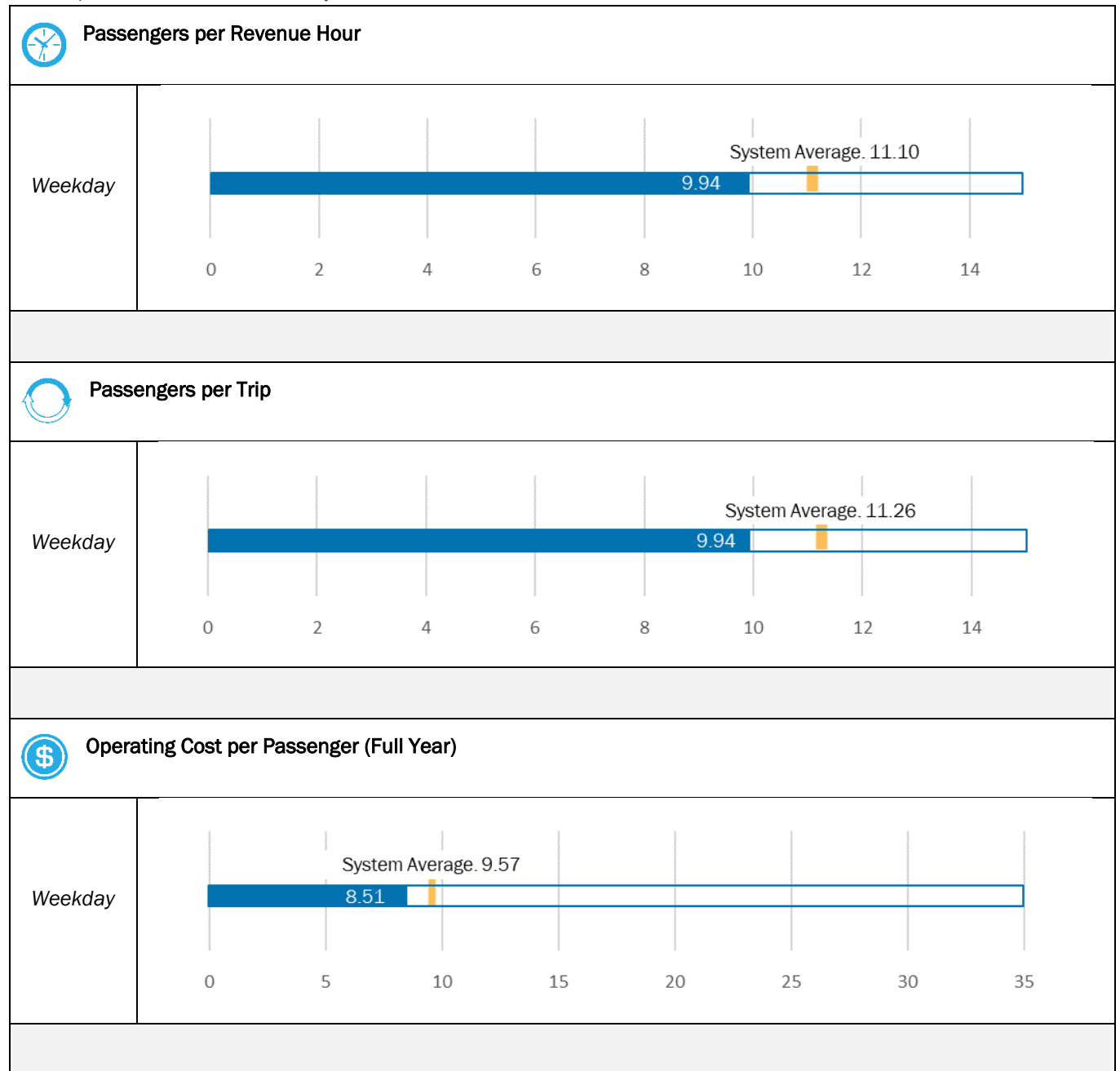
Table 7 | Route 20 Operating Characteristics

|                         |                                                                                                                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                                                                                                                    |
| Route Connections       | Herman Ivory Terminal (Routes 10, 15, 25, 30, 35, 40/45, 55, 115), Muskegon County Community College (25, 30), and at various stops along the route (25, 45, 55).                                                                                  |
| Key Points of Interest  | Community Mental Health, Great Lakes Fresh Market, Mercy Health General Campus, Baker College, Muskegon Community College, Save-a-lot, Disability Network West Michigan, Cherry Health, Apartments along Hartford, Sheridan, Apple and Oak Streets |
| <b>Weekday</b>          |                                                                                                                                                                                                                                                    |
| Annual Operating Costs  | \$243,678.46                                                                                                                                                                                                                                       |
| Annual Ridership        | 28,642                                                                                                                                                                                                                                             |
| Average Daily Ridership | 113                                                                                                                                                                                                                                                |
| Span                    | 6:35 am to 5:54 pm                                                                                                                                                                                                                                 |
| Frequency               | 60 minutes                                                                                                                                                                                                                                         |

## Service Analysis

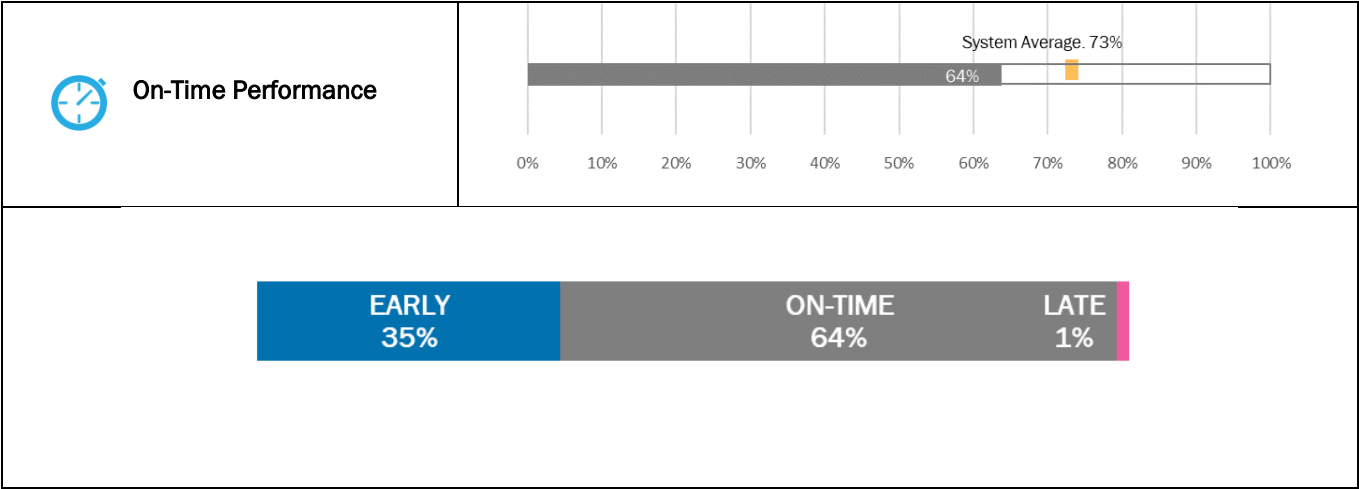
### Service Efficiency and Productivity

Table 8 | Route 20 Service Productivity Metrics



Weekday On-Time Performance

Table 9 | Route 20 Weekday On-Time Performance Analysis (From COA May 2019 Ridecheck)





## Weekday Ridership by Stop

Figure 21 | Route 20 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

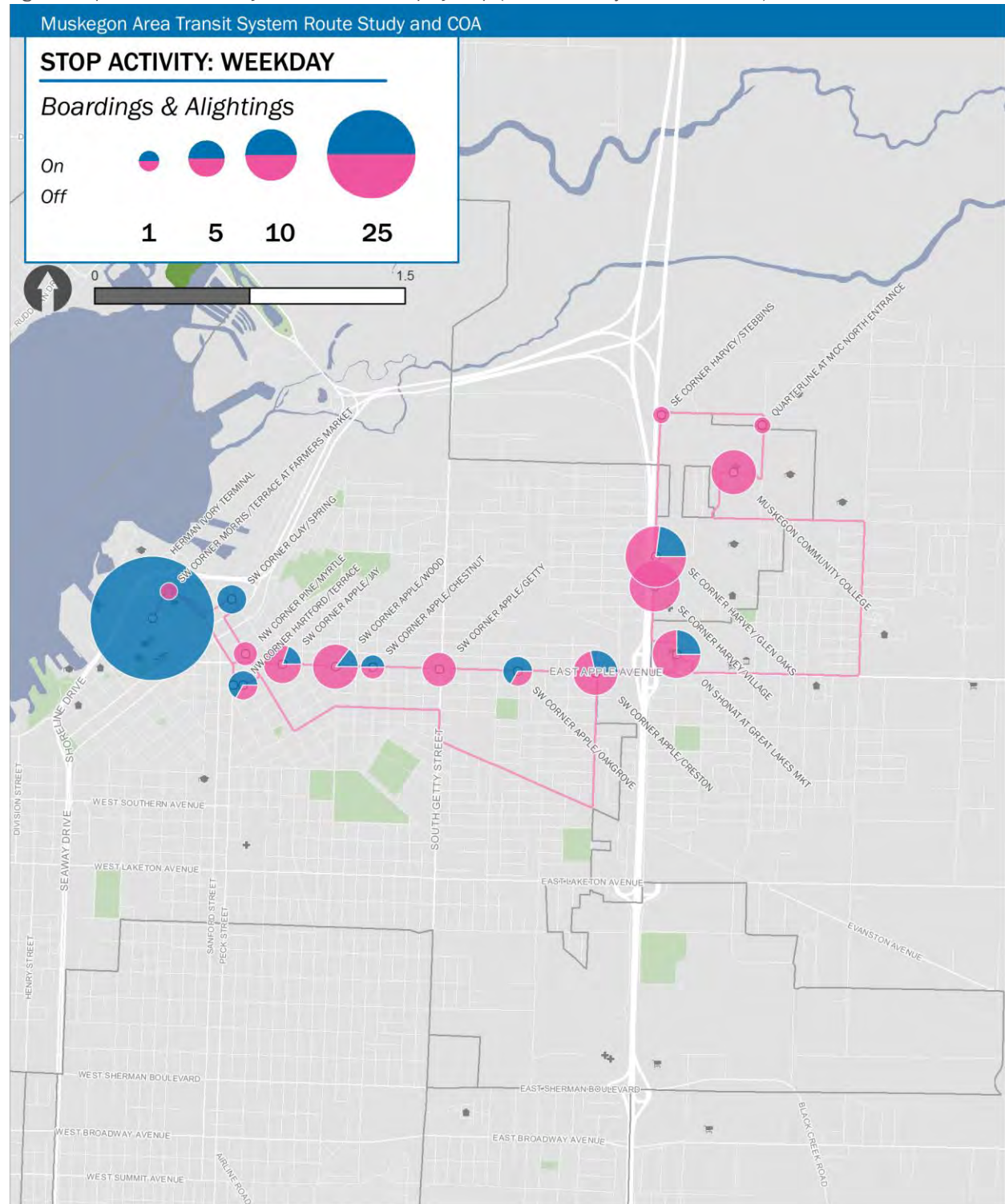




Figure 23 | Route 20 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

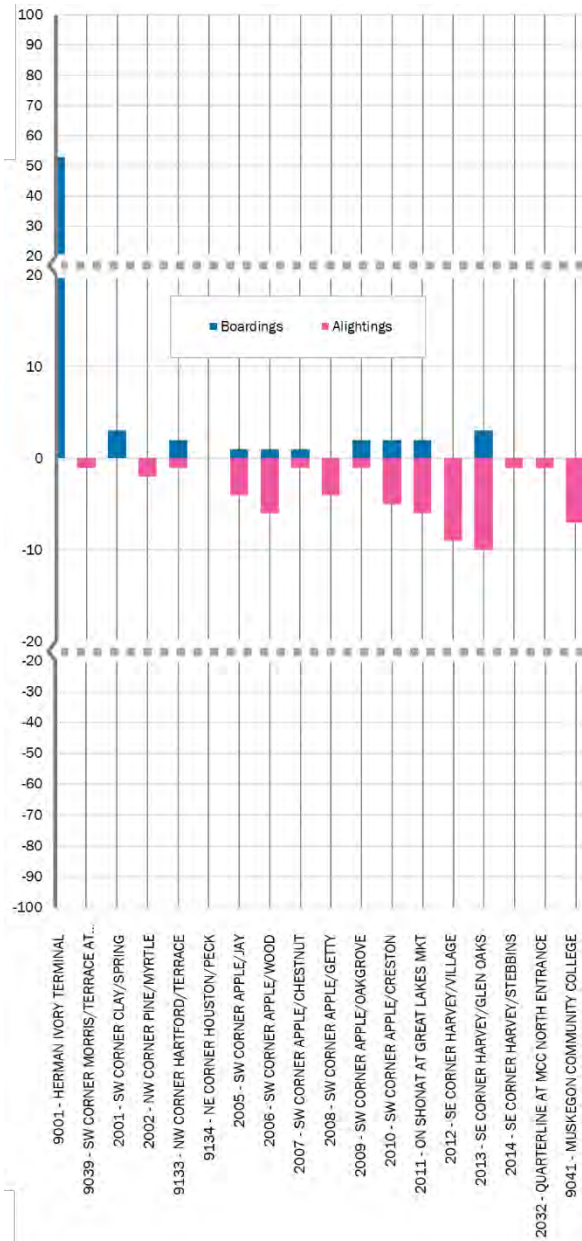
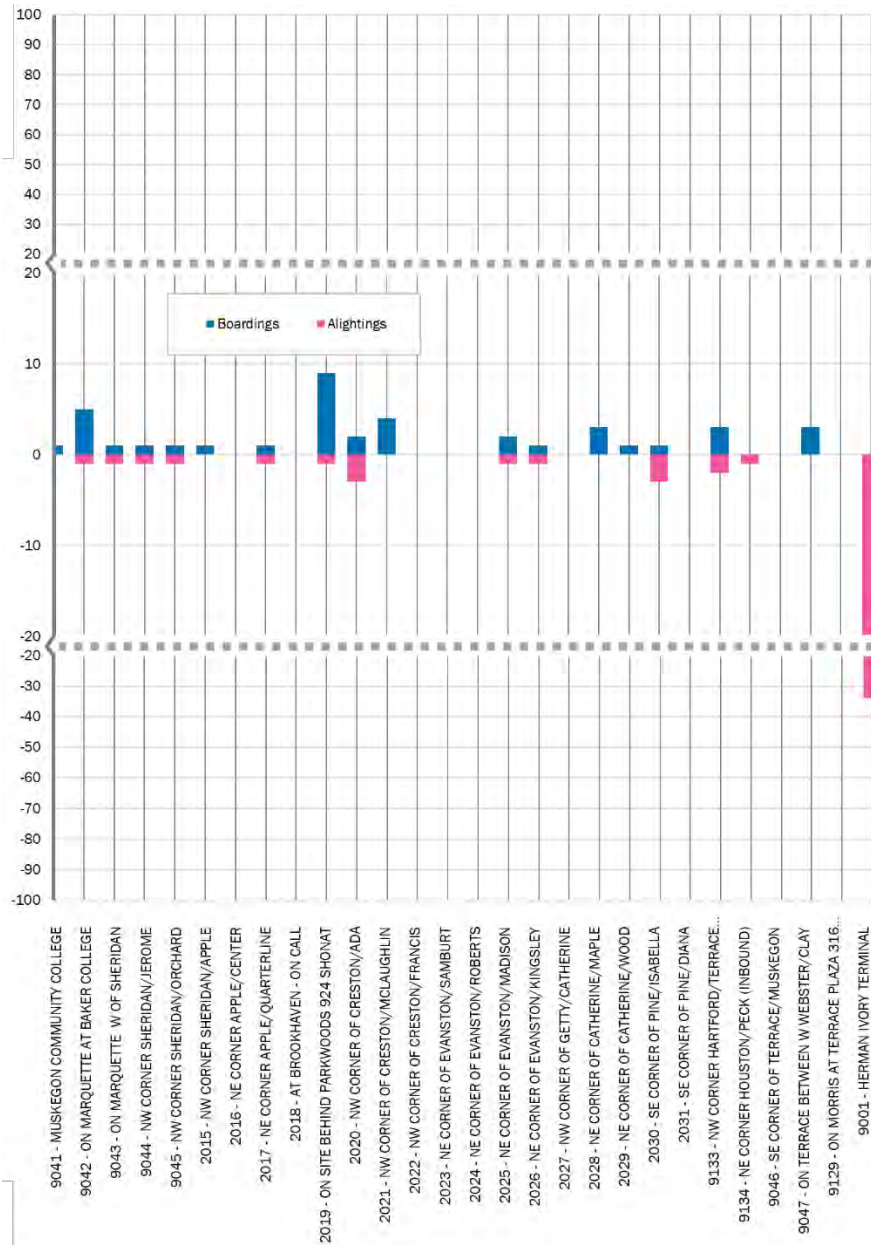




Figure 24 | Route 20 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



### Weekday Ridership by Trip

Figure 25 | Route 20 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

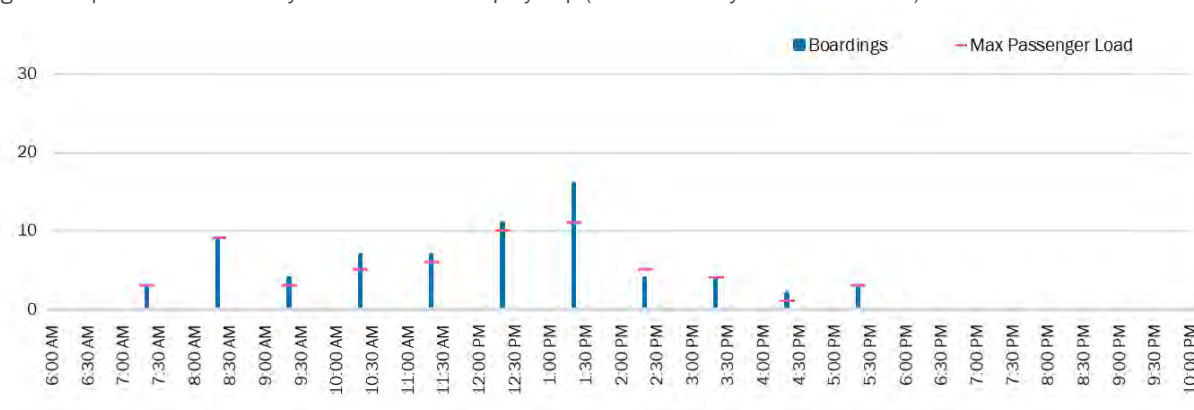
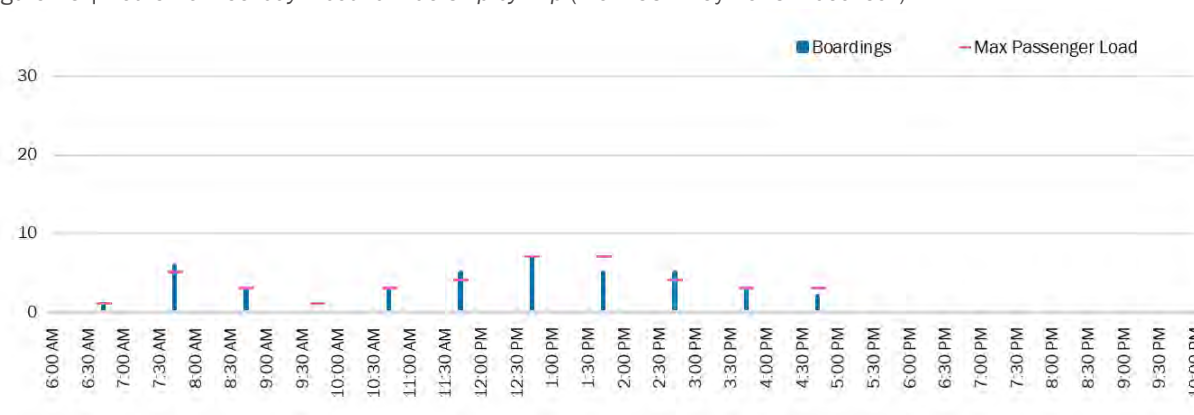


Figure 26 | Route 20 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Below-average operating cost per passenger.
- Strong anchors (Baker College, Cherry Health, Great Lakes Fresh Market, Mercy Health General Campus, Muskegon Community College).

### Weaknesses

- Inconsistent inbound and outbound alignment.
- Complex service design (requires reliance of Route 25 for bi-directional service).
- Circuitous alignment.
- Below-average productivity (passengers per revenue hour and passengers per trip).
- No service on Saturdays or after 6:00 pm on weekdays.
- A high rate of early departures (according to data sampled).



## Service Improvement Opportunities

Potential opportunities to strengthen Route 20 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Streamline Route 20 to focus on key corridors and ridership generators*

Route 20 operates along a fairly circuitous alignment that is also inconsistent between inbound and outbound trips. This design forces riders to travel out-of-direction on either their inbound or outbound trip or to rely on Route 25 for more direct service. Both of these options complicate service and reduce the likelihood of transit use among prospective riders. Route 20 could be streamlined by focusing service along the highest ridership and ridership-potential segments of the route. This includes Apple Avenue and academic and medical campuses north of Apple Avenue between Harvey Street and Quarterline Road. Other segments of the route could be picked up by other restructured MATS routes, or potentially a microtransit service.

### *Consolidate Route 20 with Route 25*

Route 20 and Route 25 provide similar geographic coverage, linking downtown Muskegon to Muskegon Community College, Baker College, and destinations along the Apple Avenue corridor. When both routes are in service, they allow for increased frequency and bi-directional service along their common segments. However, Route 20 has no service on Saturdays or after 6:00 pm on weekdays, so passengers do not always have the benefit of these service characteristics. Consolidating the two routes under a single name and consistent schedule and alignment would help simplify service for current and prospective riders. If the consolidated route were also streamlined as described above, resources could be allocated toward providing higher service frequency, at least during peak periods.

### *Review schedule to improve on-time performance*

Based on timepoint observations in May 2019, Route 20 buses depart from timepoints earlier than scheduled 35% of the time. Early departures are often more disruptive to passengers than late arrivals, because if a bus leaves a stop before a passenger arrives, that passenger may face a wait-time of more than one hour for the next scheduled bus. To address this situation, schedules should be recalibrated based on field testing and observations.

## Route 25

### Service Description

Route 25 (**Figure 27** and **Figure 28**) provides weekday and Saturday service between Herman Ivory Terminal and Orchard View Adult Education. The route operates primarily as a one-way loop, but shares much of its alignment with Route 20, effectively resulting in bi-directional service when both routes are operating. Route 25 provides hourly service frequency as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 6:50 am to 9:50 pm.

Inbound service departs Orchard View Adult Education every hour, from 7:11 am to 10:11 pm.

#### ■ Saturdays

Outbound service departs from Herman Ivory Terminal every hour, from 9:50 am to 4:50 pm.

Inbound service departs Orchard View Adult Education every hour, from 10:11 am to 5:11 pm.

Major destinations served by the route include Baker College, Cherry Health, Muskegon's County Offices, and Muskegon Community College. Passengers may transfer from Route 25 to other routes at Herman Ivory Terminal (Routes 10, 15, 20, 30, 35, 40/45, 55, 115), Muskegon Community College (Route 20, 30) and at Laketon Avenue (Route 55).

Figure 27 | A. Route 25 Outbound (Source: MATS)

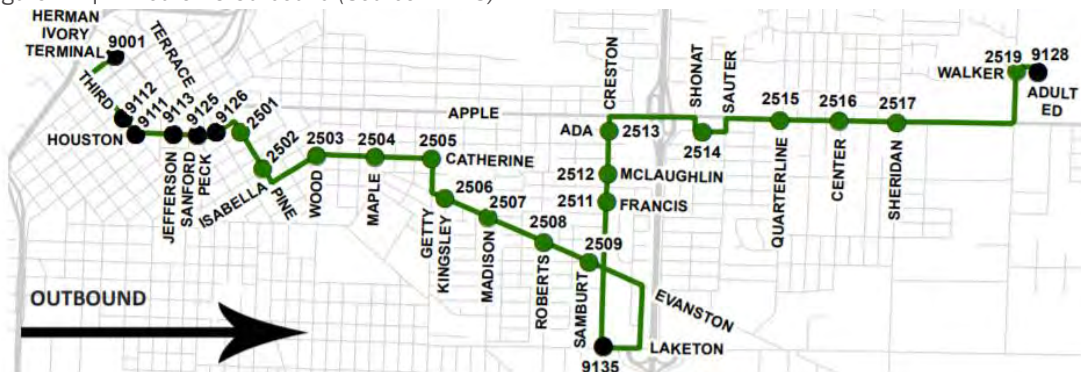
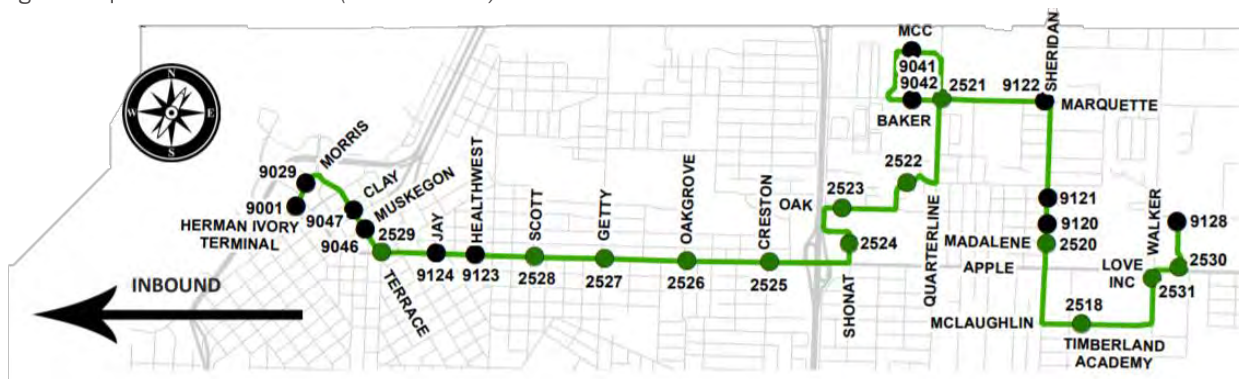


Figure 28 | B. Route 25 Inbound (Source: MATS)



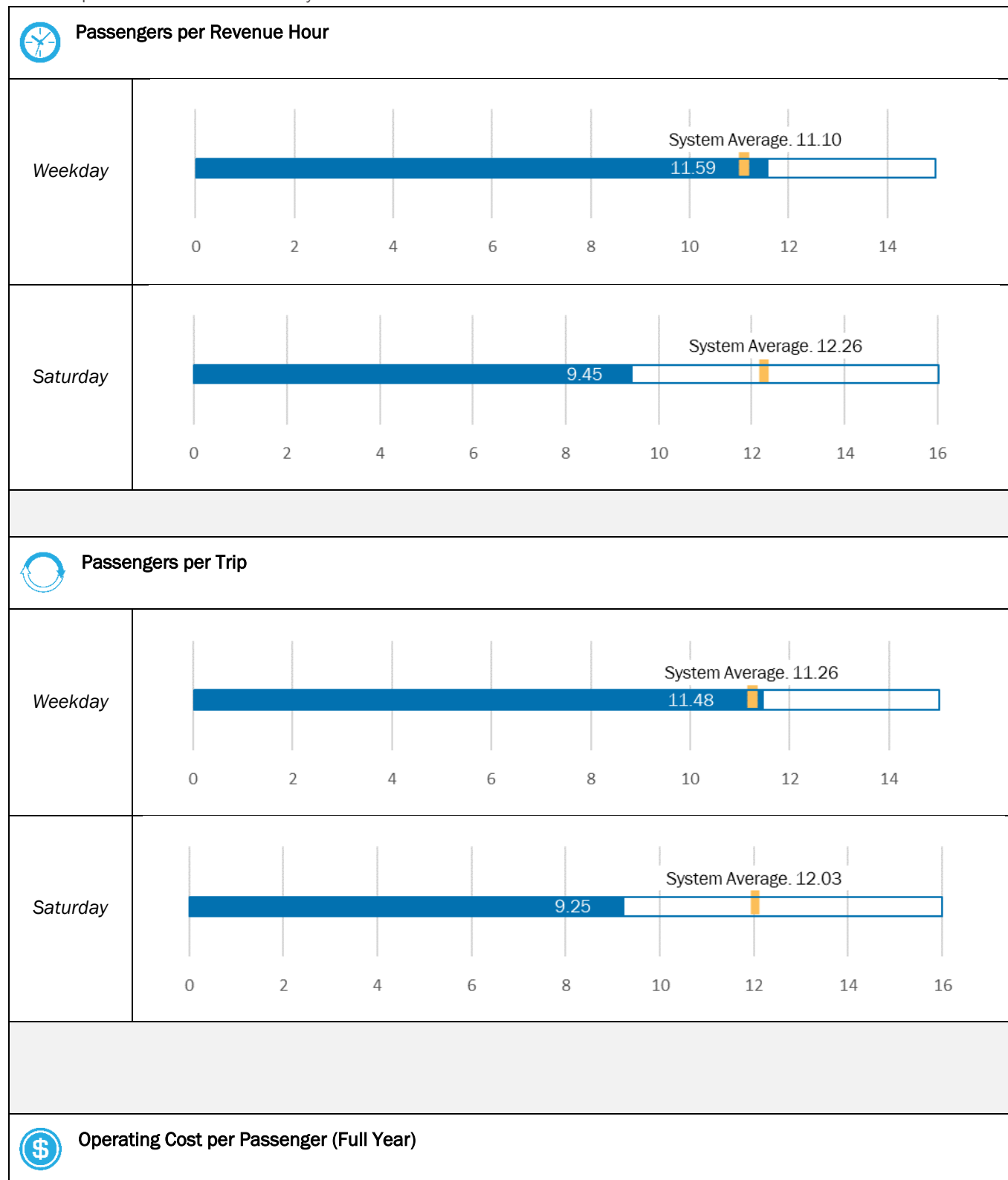
*Operating Characteristics**Table 10 | Route 25 Operating Characteristics*

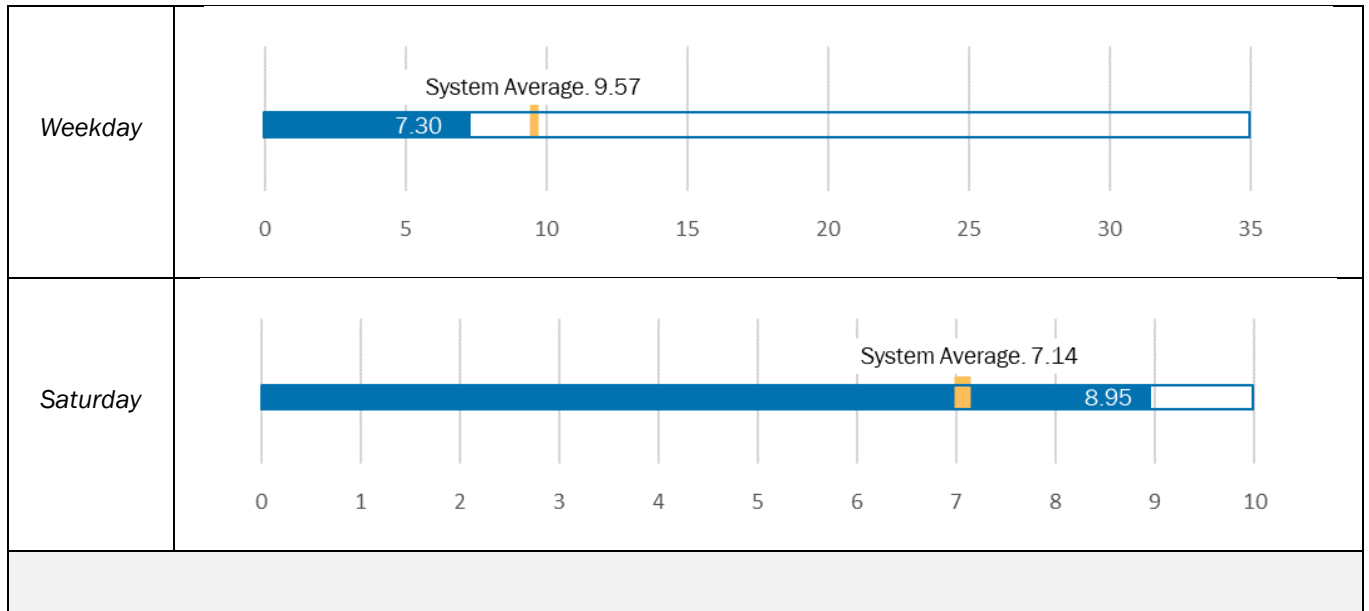
|                         |                                                                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Origin and Destination  | Herman Ivory Terminal<br>Orchard View Adult Education                                                                                                                     |
| Route Connections       | Herman Ivory Terminal (Routes 10, 15, 20, 30, 35, 40/45, 55, 115)<br>Muskegon Community College (Route 20, 30)<br>Laketon Avenue (Route 55)                               |
| Key Points of Interest  | Baker College, Cherry Health, HealthWest, Love INC., Muskegon's County Offices, Muskegon Community College, and apartments along Sheridan Drive, Apple Ave and Oak Street |
| <b>Weekday</b>          |                                                                                                                                                                           |
| Annual Operating Costs  | \$340,376.26                                                                                                                                                              |
| Annual Ridership        | 46,647                                                                                                                                                                    |
| Average Daily Ridership | 184                                                                                                                                                                       |
| Span                    | 6:50 am to 10:40 pm                                                                                                                                                       |
| Frequency               | 60 minutes                                                                                                                                                                |
| <b>Saturday</b>         |                                                                                                                                                                           |
| Annual Operating Costs  | \$34,445.74                                                                                                                                                               |
| Annual Ridership        | 3,847                                                                                                                                                                     |
| Average Daily Ridership | 74                                                                                                                                                                        |
| Span                    | 9:50 am to 5:40 pm                                                                                                                                                        |
| Frequency               | 60 minutes                                                                                                                                                                |

## Service Analysis

### Service Efficiency and Productivity

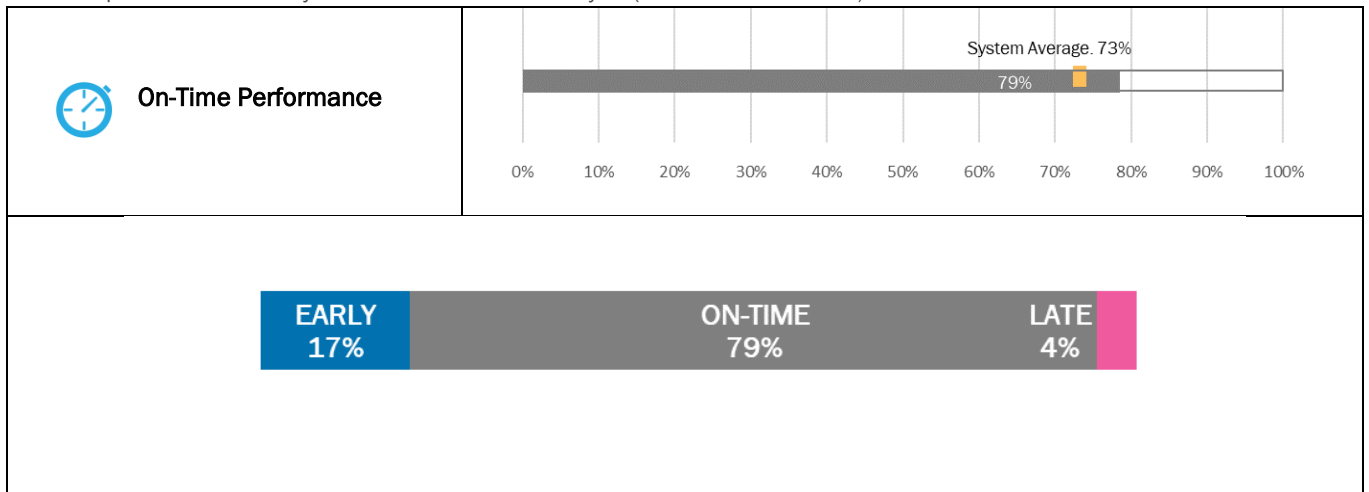
Table 11 | Route 25 Service Productivity Metrics





### Weekday On-Time Performance

Table 12 | Route 25 Weekday On-Time Performance Analysis (From Ridecheck Data)





## Weekday Ridership by Stop

Figure 29 | Route 25 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

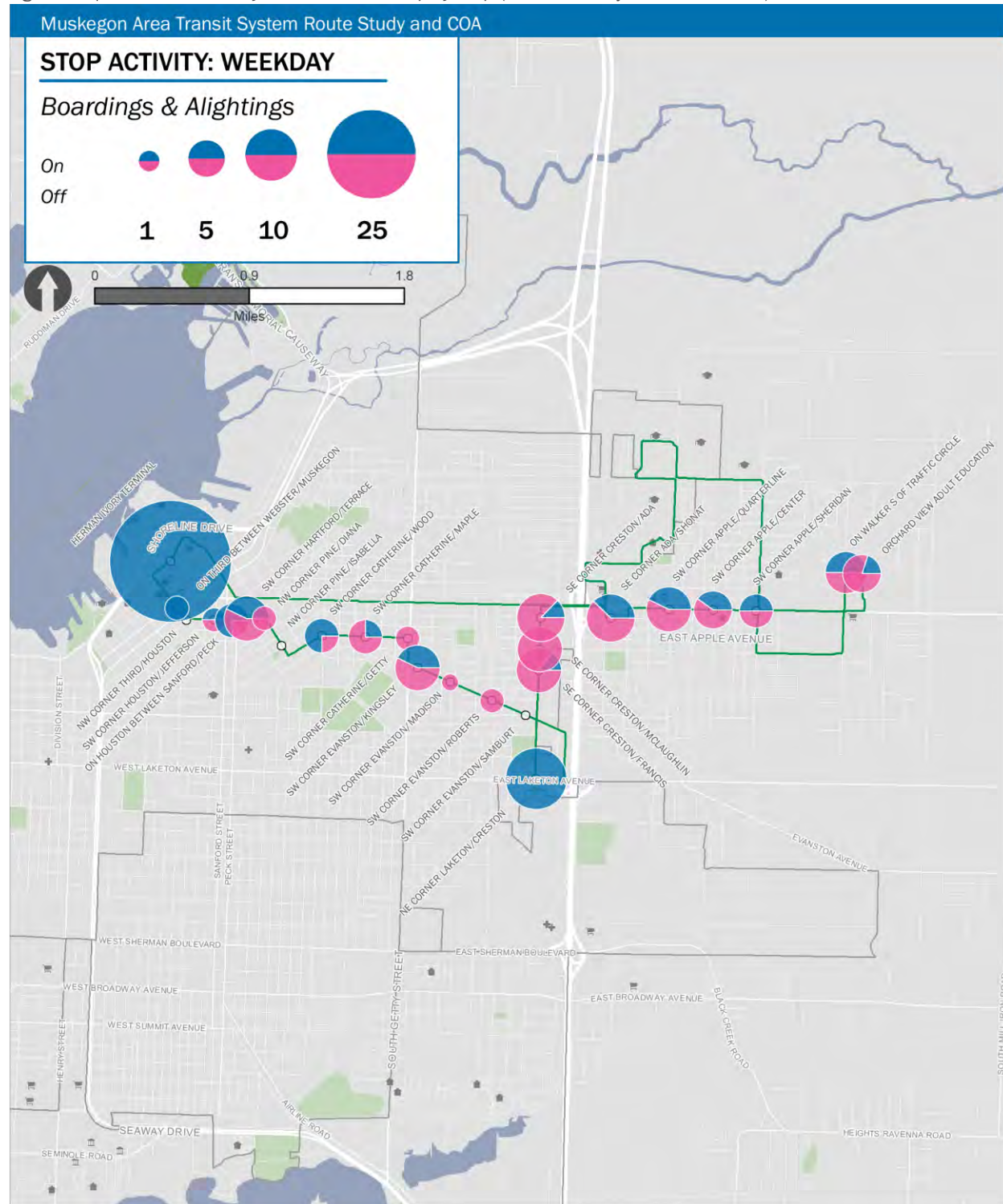


Figure 30 | Route 25 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

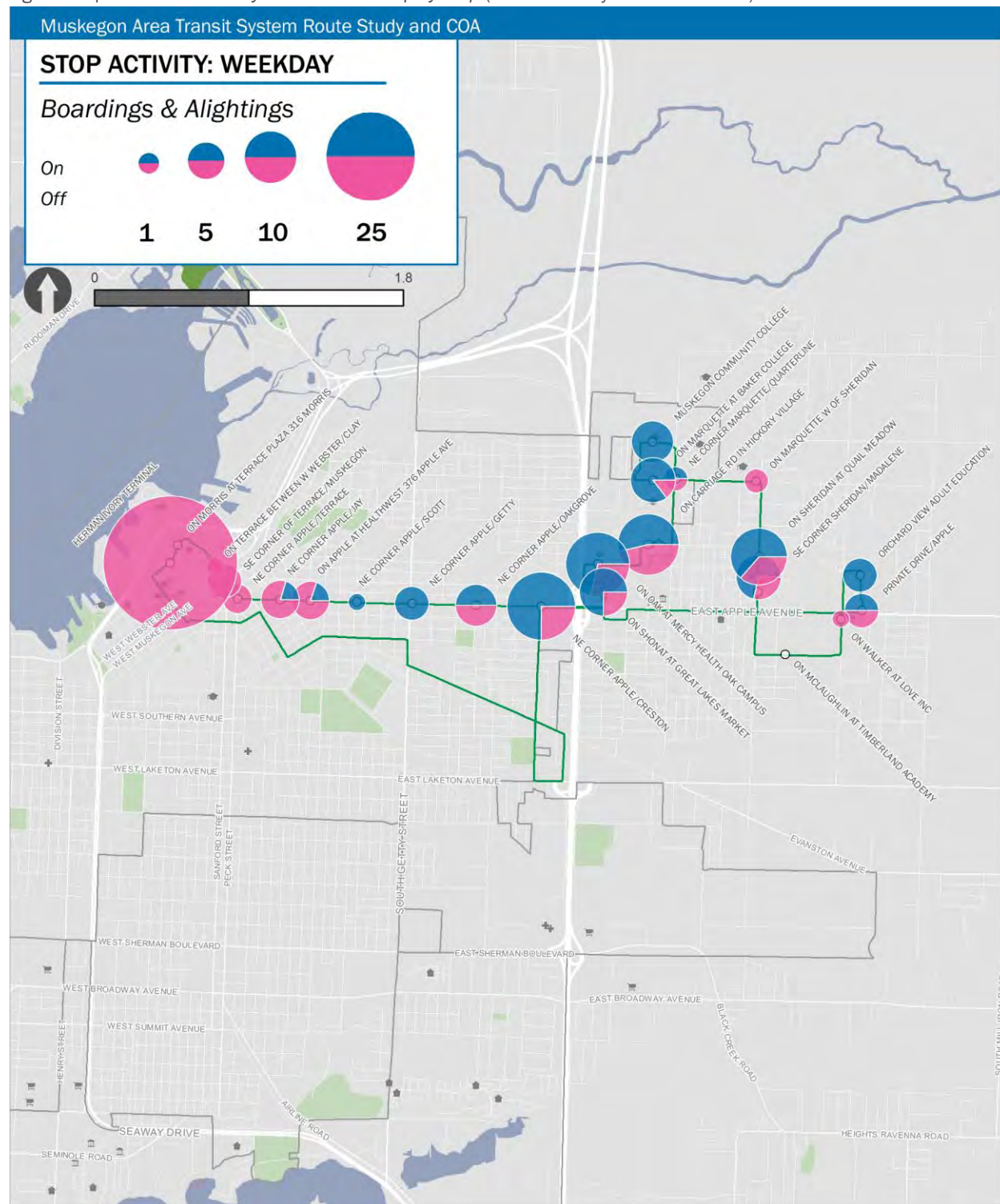


Figure 31 | Route 25 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

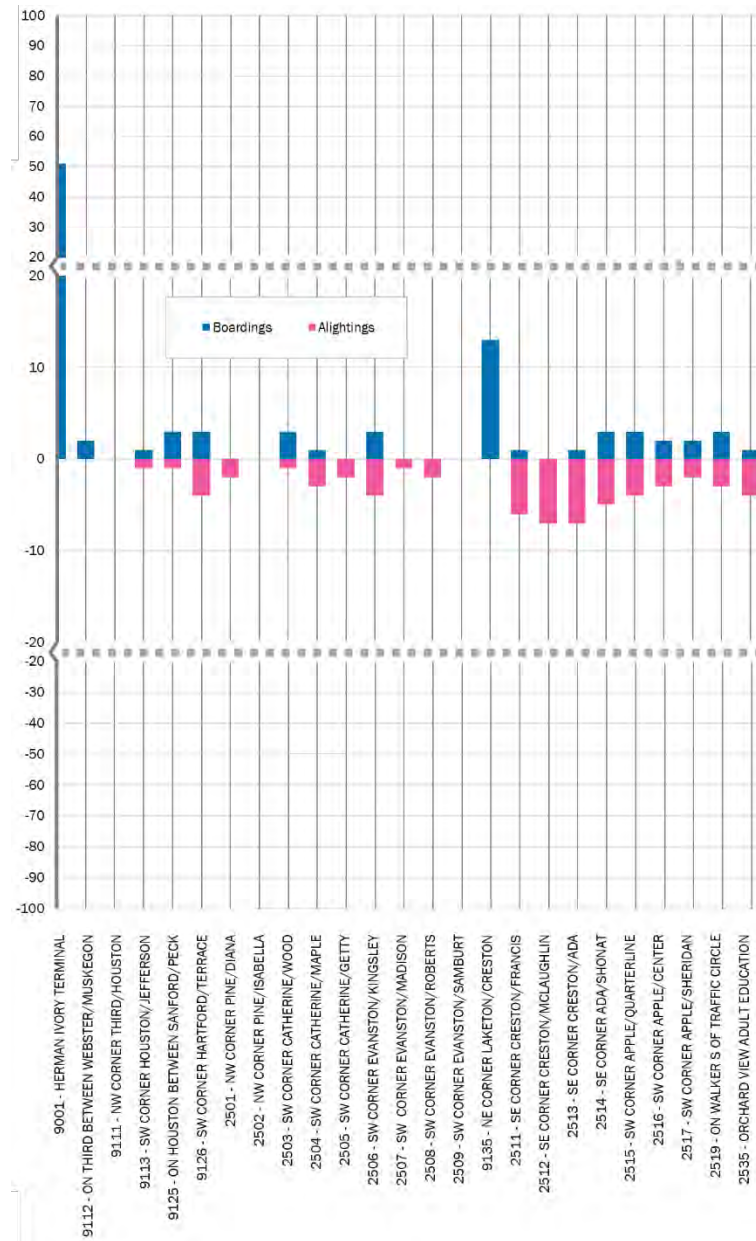
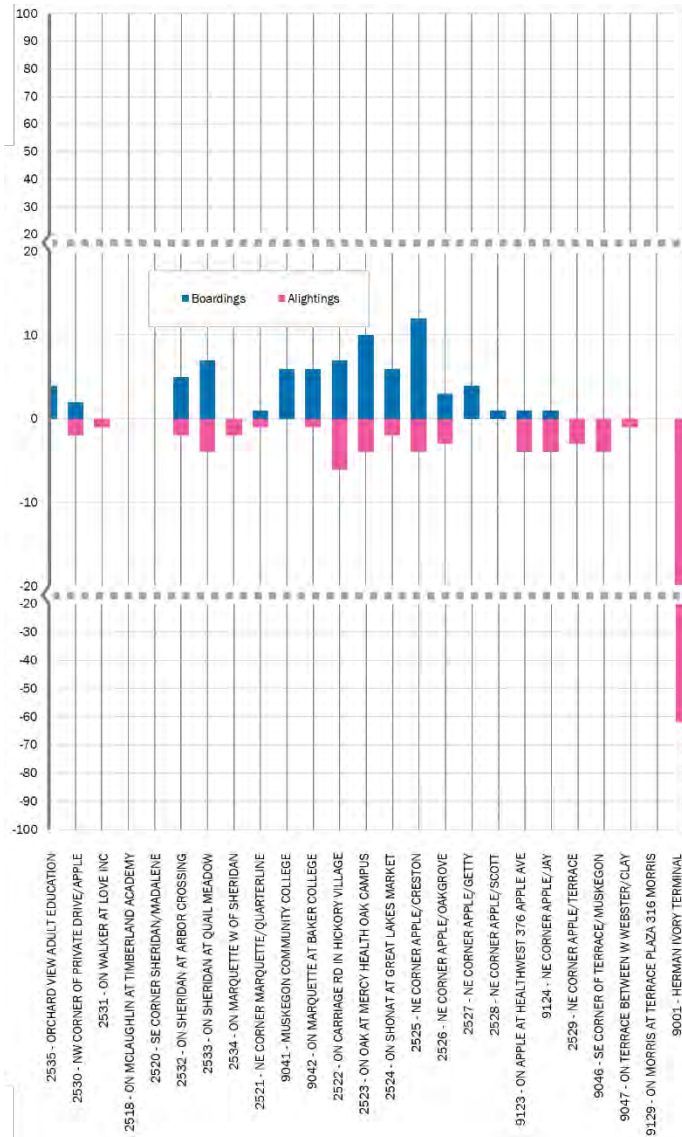




Figure 32 | Route 25 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



## Saturday Ridership by Stop

Figure 33 | Route 25 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

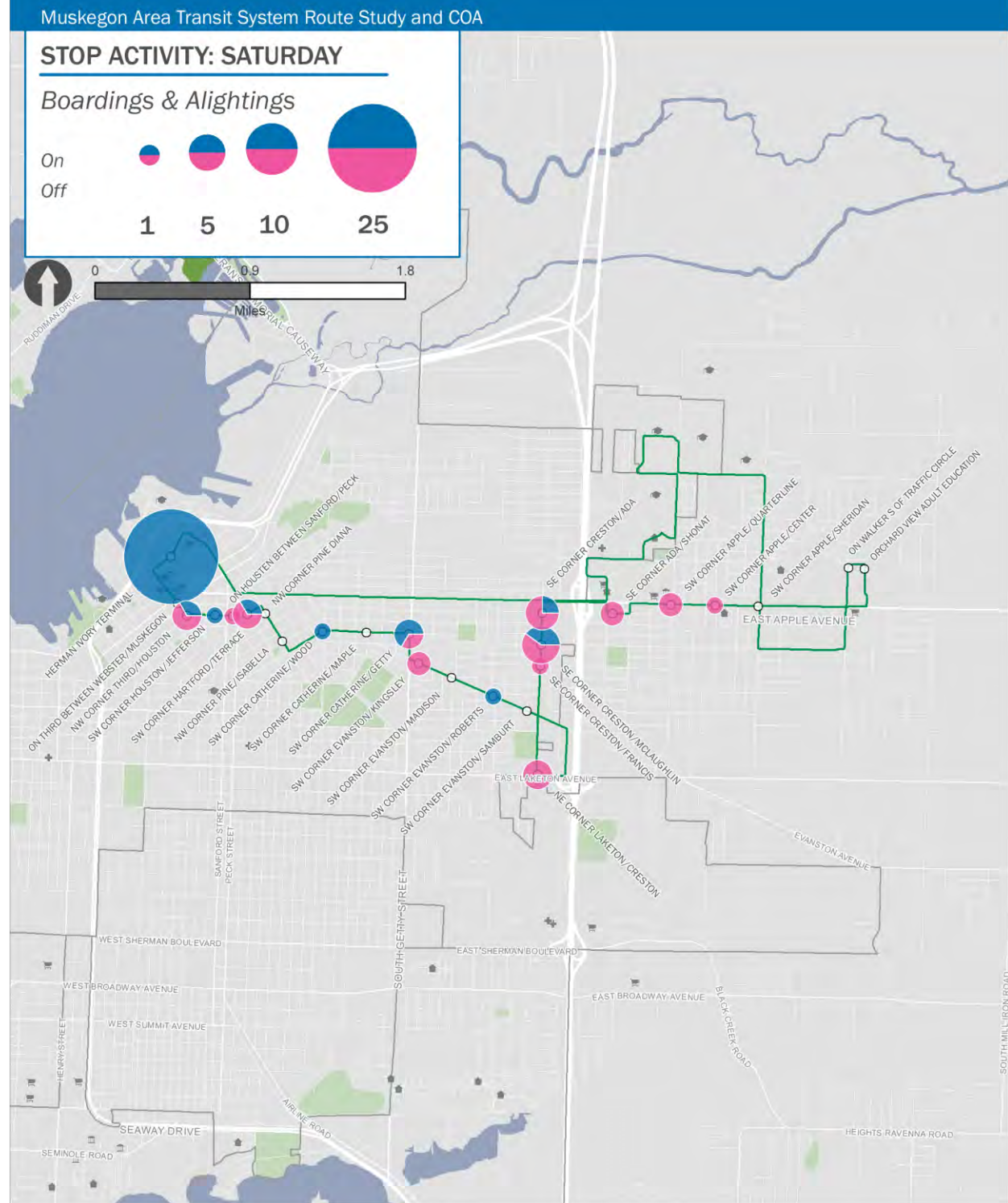




Figure 34 | Route 25 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)

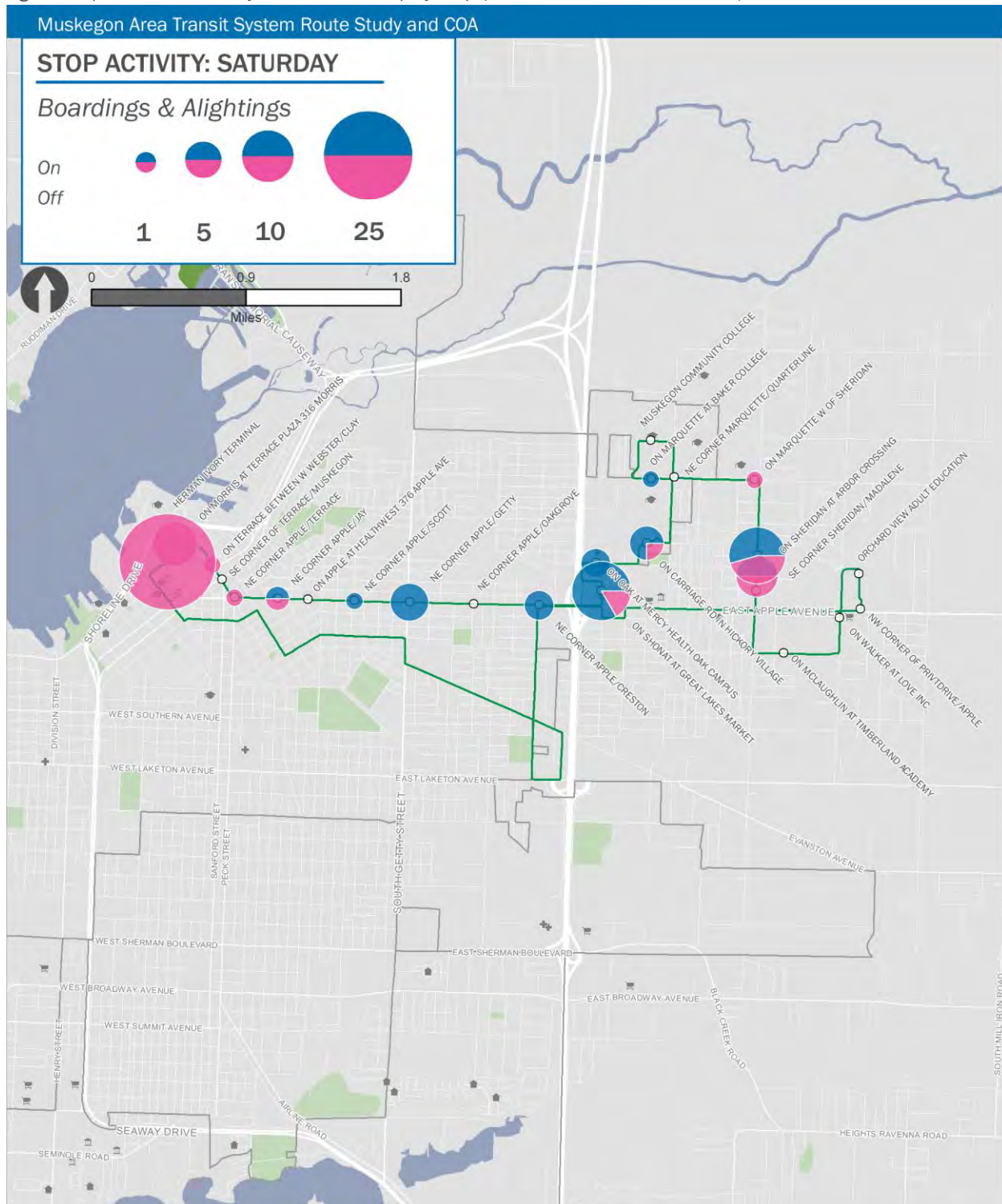


Figure 35 | Route 25 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

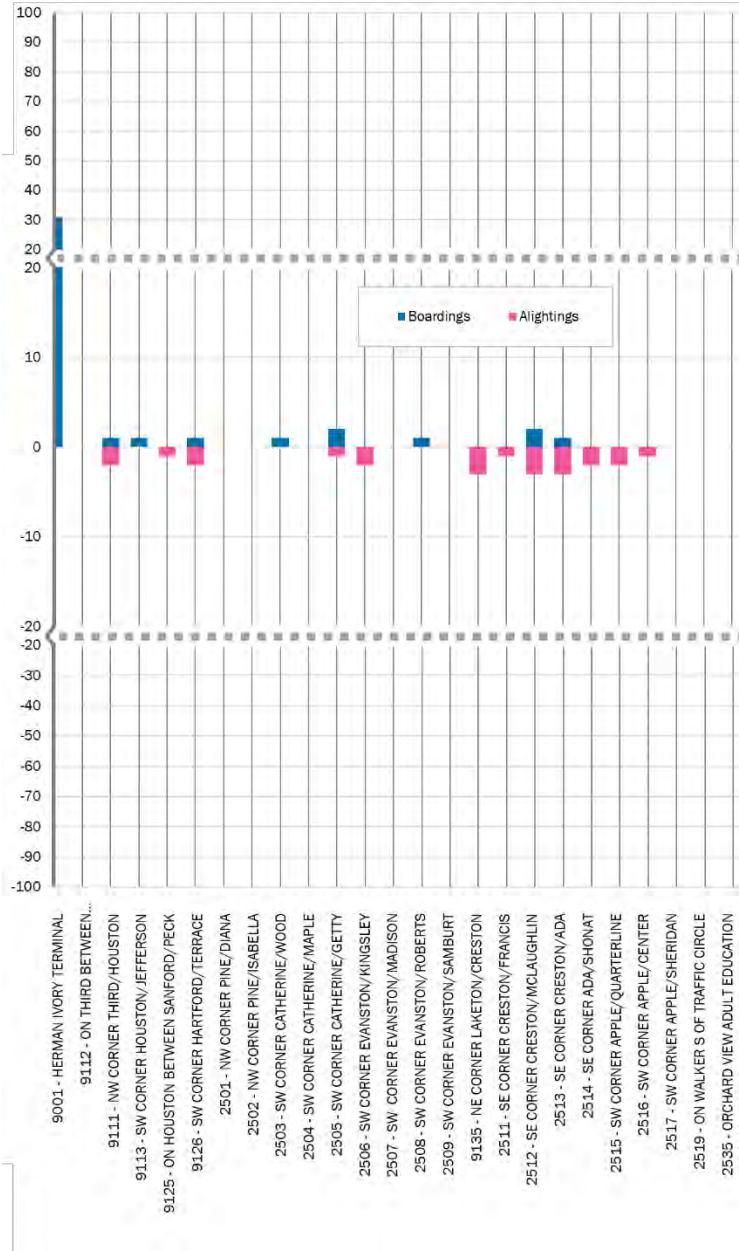
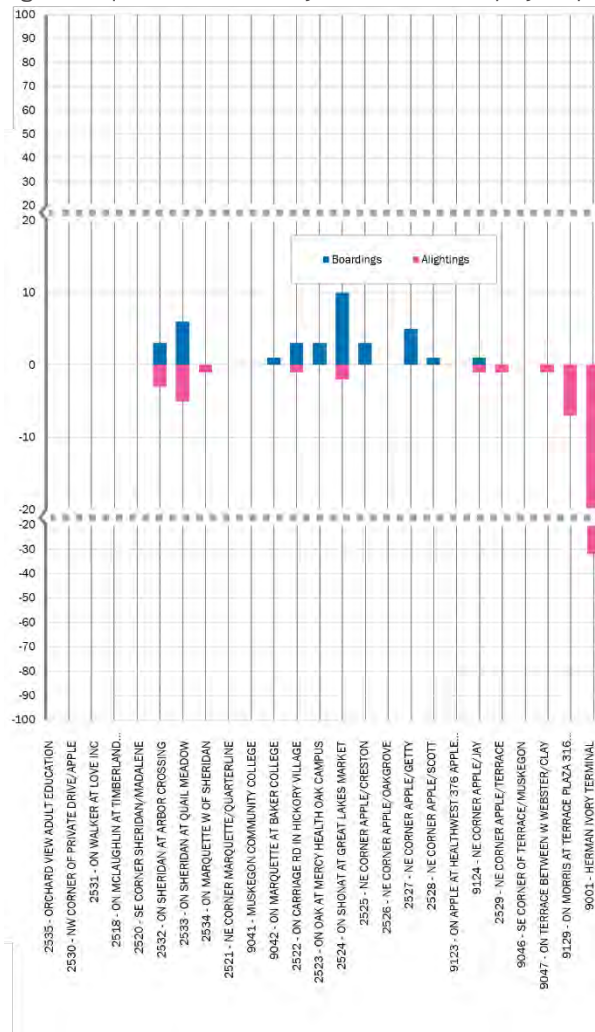


Figure 36 | Route 25 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



## Weekday Ridership by Trip

Figure 37 | Route 25 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

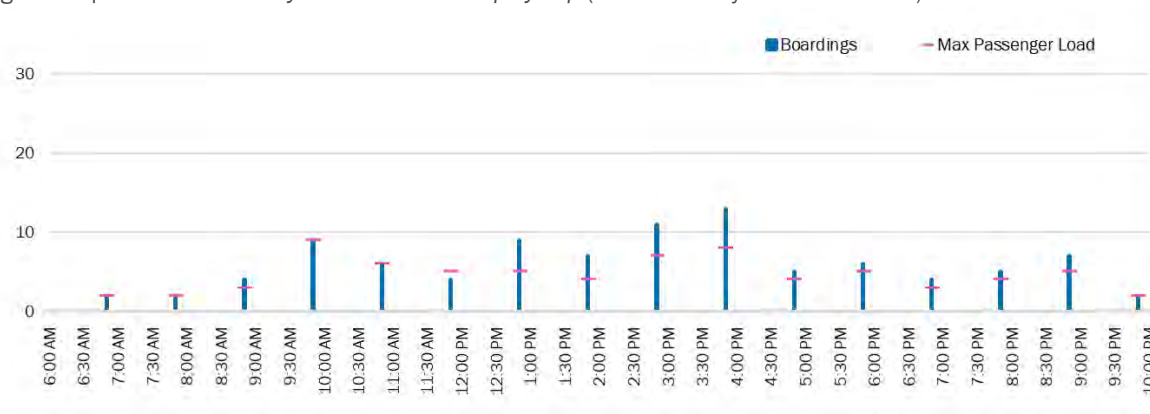
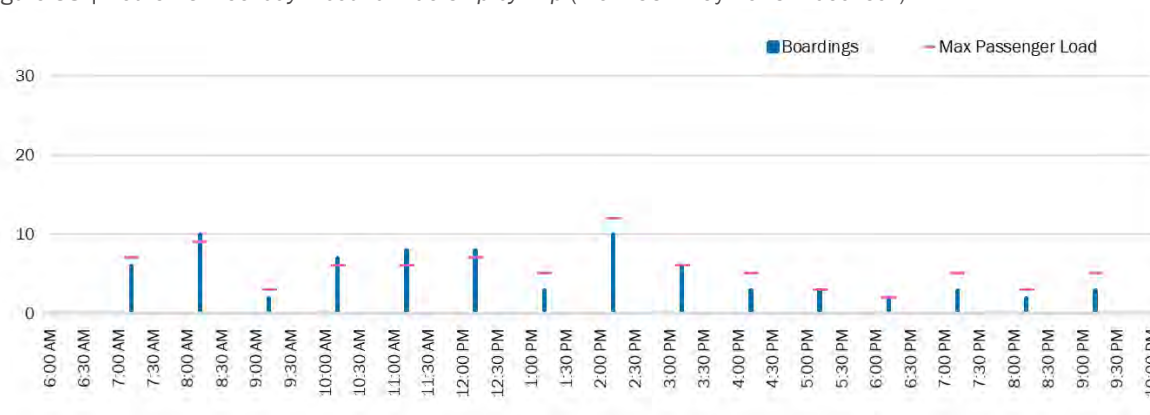


Figure 38 | Route 25 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Below-average weekday operating cost per passenger.
- Above-average weekday productivity (passengers per revenue hour and passengers per trip).
- Strong anchors (Baker College, Cherry Health, and Muskegon Community College).

### Weaknesses

- Inconsistent inbound and outbound alignments.
- Complex service design (requires reliance on Route 20 for bi-directional service).
- Below-average productivity on Saturdays (passengers per revenue hour and passengers per trip).
- Above-average operating cost per passenger on Saturdays.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 25 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Streamline Route 25 to focus on key corridors and ridership generators*

Route 25 operates along a fairly circuitous alignment that is also inconsistent between inbound and outbound trips. This design forces riders to travel out-of-direction on either their inbound or outbound trip or to rely on Route 20 for more direct service. Both of these options complicate service and reduce the likelihood of transit use among prospective riders. Route 25 could be streamlined by focusing service along the highest ridership and ridership-potential segments of the route. This includes the academic and health destinations north of Apple Avenue between Harvey Street and Quarterline Road. Other segments of the route could be picked up other restructured MATS routes, or potentially a microtransit service.

### *Consolidate Route 25 with Route 20*

Route 25 and Route 20 provide similar geographic coverage, linking downtown Muskegon to Muskegon Community College, Baker College, and destinations along the Apple Avenue corridor. When both routes are in service, they allow for increased frequency and bi-directional service along their common segments. However, Route 20 has no service on Saturdays or after 6:00 pm on weekdays, so passengers do not always have the benefit of these service characteristics. Consolidating the two routes under a single name and consistent schedule and alignment would help simplify service for current and prospective riders. If the consolidated route were also streamlined as described above, resources could be allocated toward providing higher service frequency, at least during peak periods.

### *Restructure Route 25 to cover segments of current Routes 30, 25, and 20*

A streamlined Route 25 (as described above) would leave stops served by the current Route 25 uncovered. This includes stops south of Apple Avenue, along Catherine Avenue, and stops east of Quarterline Road, along Sheridan Drive and Walker Road. These stops could be combined with segments of Route 30 serving Marquette Avenue to allow a new alignment for Route 25. This restructured route could follow the outbound alignment of Route 25 to Getty Street and then take Getty Street north to Marquette Avenue; follow the Route 30 alignment to MCC, continue along the Route 20 alignment to Apple Avenue; and finally follow the current Route 25 alignment to Orchard View Adult Education. Buses would follow a similar alignment in the return direction.



## Route 30

### Service Description

Route 30 (**Figure 39**) provides weekday and Saturday service between Herman Ivory Terminal and the Muskegon Heights Transfer Point. The route operates primarily as a one-way loop connecting downtown Muskegon to Muskegon Heights, with a mid-route deviation to MCC and Baker College. Route 30 provides hourly service frequency as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 6:50 am to 9:50 pm

Inbound service departs Muskegon Heights Transfer Point every hour, from 6:28 am to 10:28 pm.

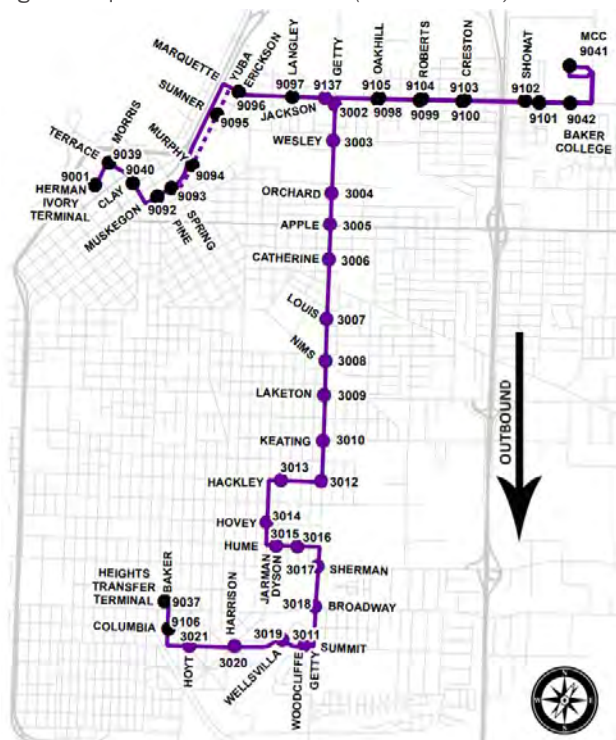
#### ■ Saturdays

Outbound service departs from Herman Ivory Terminal every hour, from 9:50 am to 4:50 pm

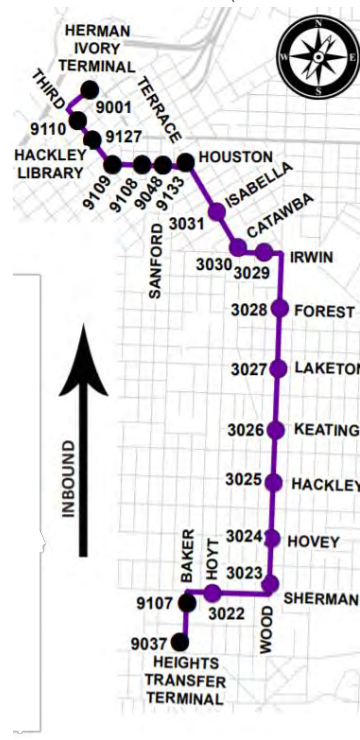
Inbound service departs Muskegon Heights Transfer Point every hour, from 9:28 am to 5:28 pm

Major destinations served by the route include Baker College, East Park Manor, Hackley Public Library, Muskegon DHS, Muskegon Family Care, and Muskegon Community College. Passengers may transfer from Route 30 to other routes at Herman Ivory Terminal (Routes 10, 15, 20, 25, 35, 40/45, 55, 115), Muskegon Community College (Route 20, 25), and at the Muskegon Heights Transfer Point (15, 40, 50, 55).

Figure 39 | A. Route 30 Outbound (Source: MATS)



B. Route 30 Inbound (Source: MATS)



*Operating Characteristics*

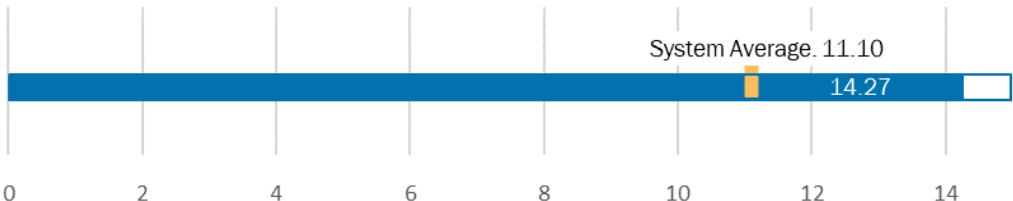
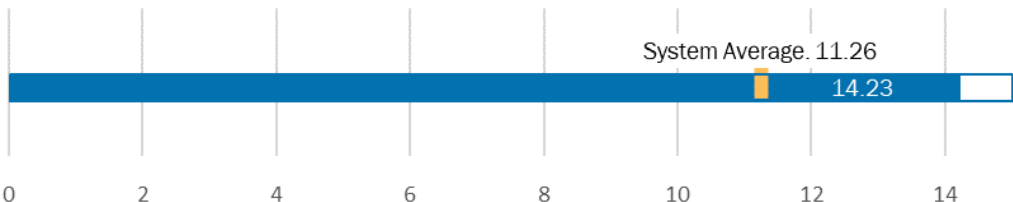
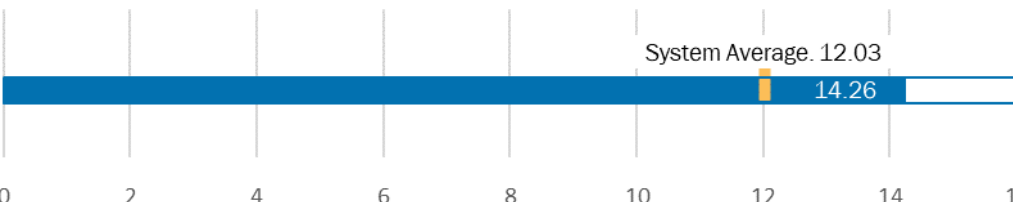
Table 13 | Route 30 Operating Characteristics

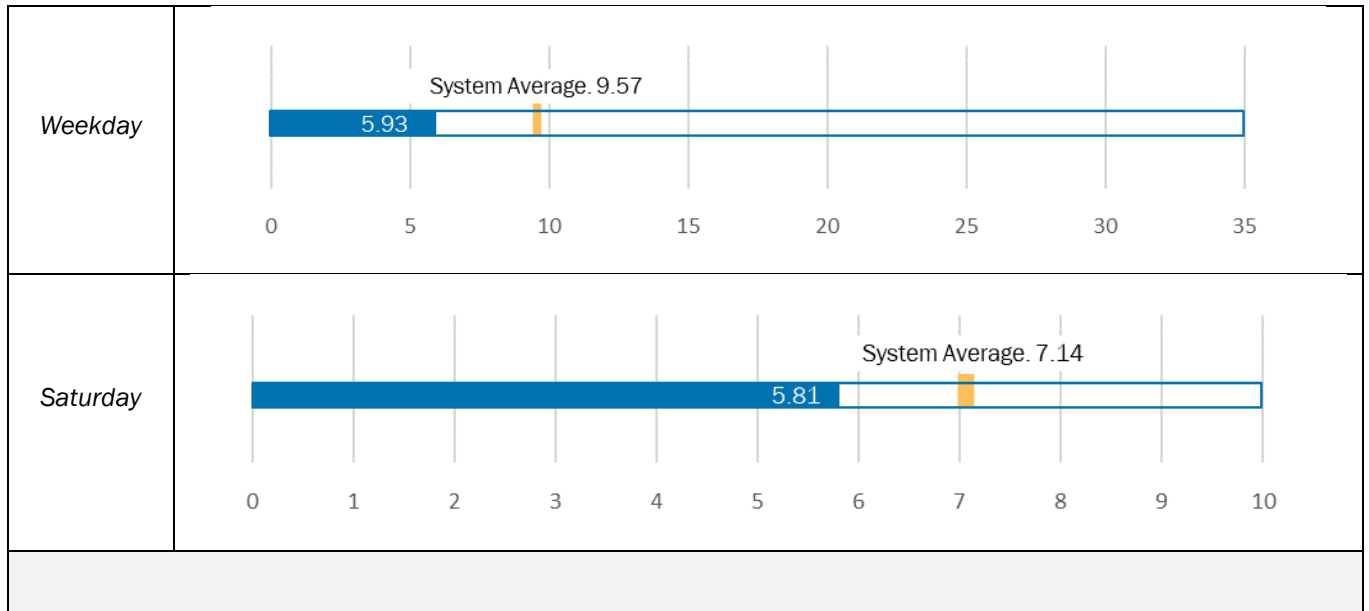
|                         |                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Origin and Destination  | Herman Ivory Terminal<br>Muskegon Heights Transfer Point                                                                                                           |
| Route Connections       | Herman Ivory Terminal (Routes 10, 15, 20, 25, 35, 40/45, 55, 115)<br>Muskegon Community College (Route 20, 25)<br>Muskegon Heights Transfer Point (15, 40, 50, 55) |
| Key Points of Interest  | Baker College, East Park Manor, Hackley Public Library, Hackley Community Care, Muskegon DHS, Muskegon Family Care, and Muskegon Community College                 |
| <b>Weekday</b>          |                                                                                                                                                                    |
| Annual Operating Costs  | \$348,112.08                                                                                                                                                       |
| Annual Ridership        | 58,722                                                                                                                                                             |
| Average Daily Ridership | 231                                                                                                                                                                |
| Span                    | 6:28 am to 10:40 pm                                                                                                                                                |
| Frequency               | 60 minutes                                                                                                                                                         |
| <b>Saturday</b>         |                                                                                                                                                                    |
| Annual Operating Costs  | \$34,445.74                                                                                                                                                        |
| Annual Ridership        | 3,847                                                                                                                                                              |
| Average Daily Ridership | 114                                                                                                                                                                |
| Span                    | 9:50 am to 5:40 pm                                                                                                                                                 |
| Frequency               | 60 minutes                                                                                                                                                         |

## Service Analysis

### Service Efficiency and Productivity

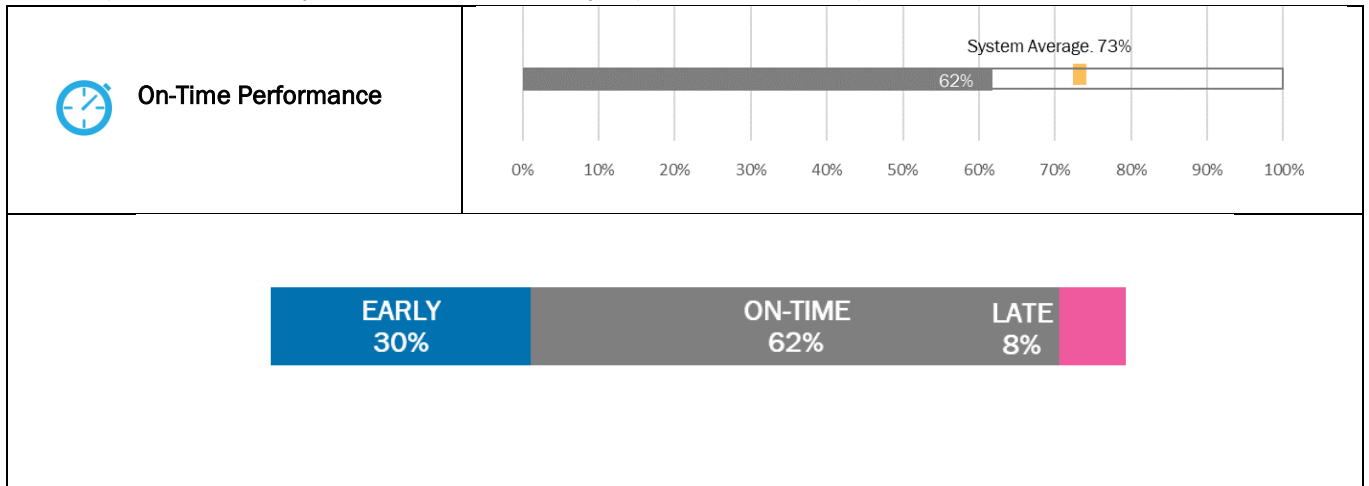
Table 14 | Route 30 Service Productivity Metrics

|  <b>Passengers per Revenue Hour</b>                |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Weekday                                                                                                                             |  <p>System Average: 11.10</p> <p>14.27</p>   |
| Saturday                                                                                                                            |  <p>System Average: 12.26</p> <p>14.57</p>   |
|  <b>Passengers per Trip</b>                      |                                                                                                                                |
| Weekday                                                                                                                             |  <p>System Average: 11.26</p> <p>14.23</p> |
| Saturday                                                                                                                            |  <p>System Average: 12.03</p> <p>14.26</p> |
|  <b>Operating Cost per Passenger (Full Year)</b> |                                                                                                                                |



### Weekday On-Time Performance

Table 15 | Route 30 Weekday On-Time Performance Analysis (From Ridecheck Data)



## Weekday Ridership by Stop

Figure 40 | Route 30 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

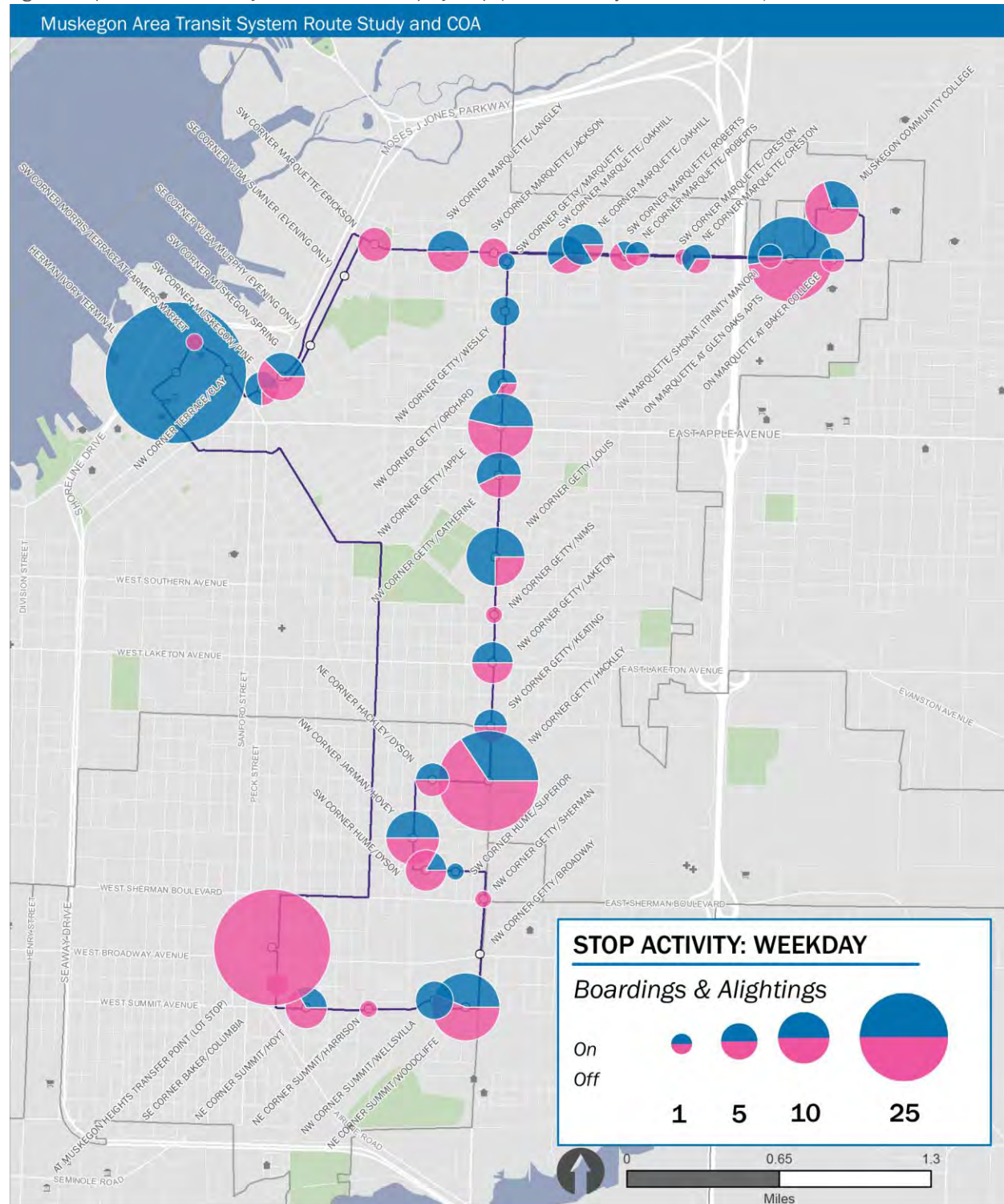




Figure 41 | Route 30 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

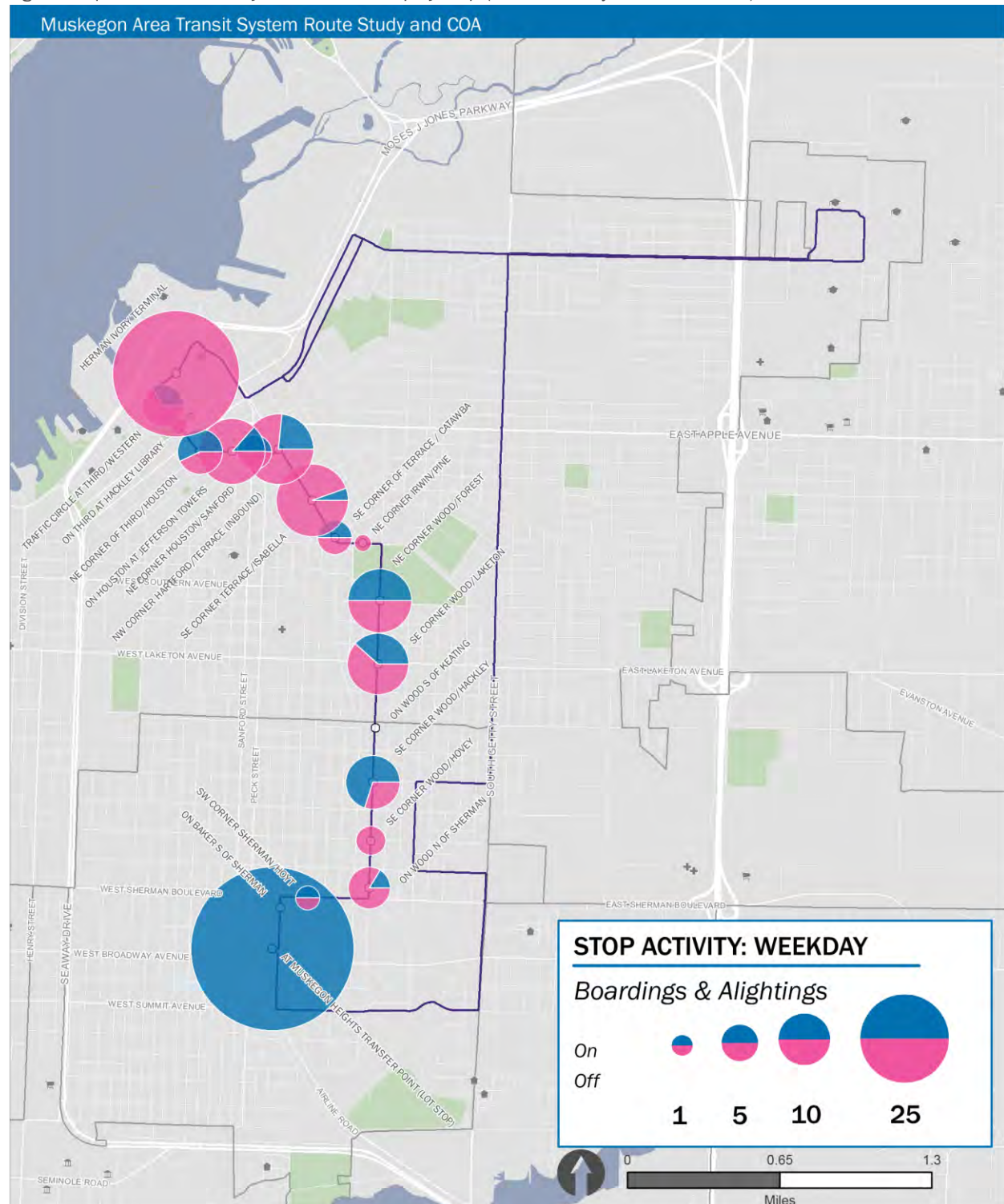


Figure 42 | Route 30 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

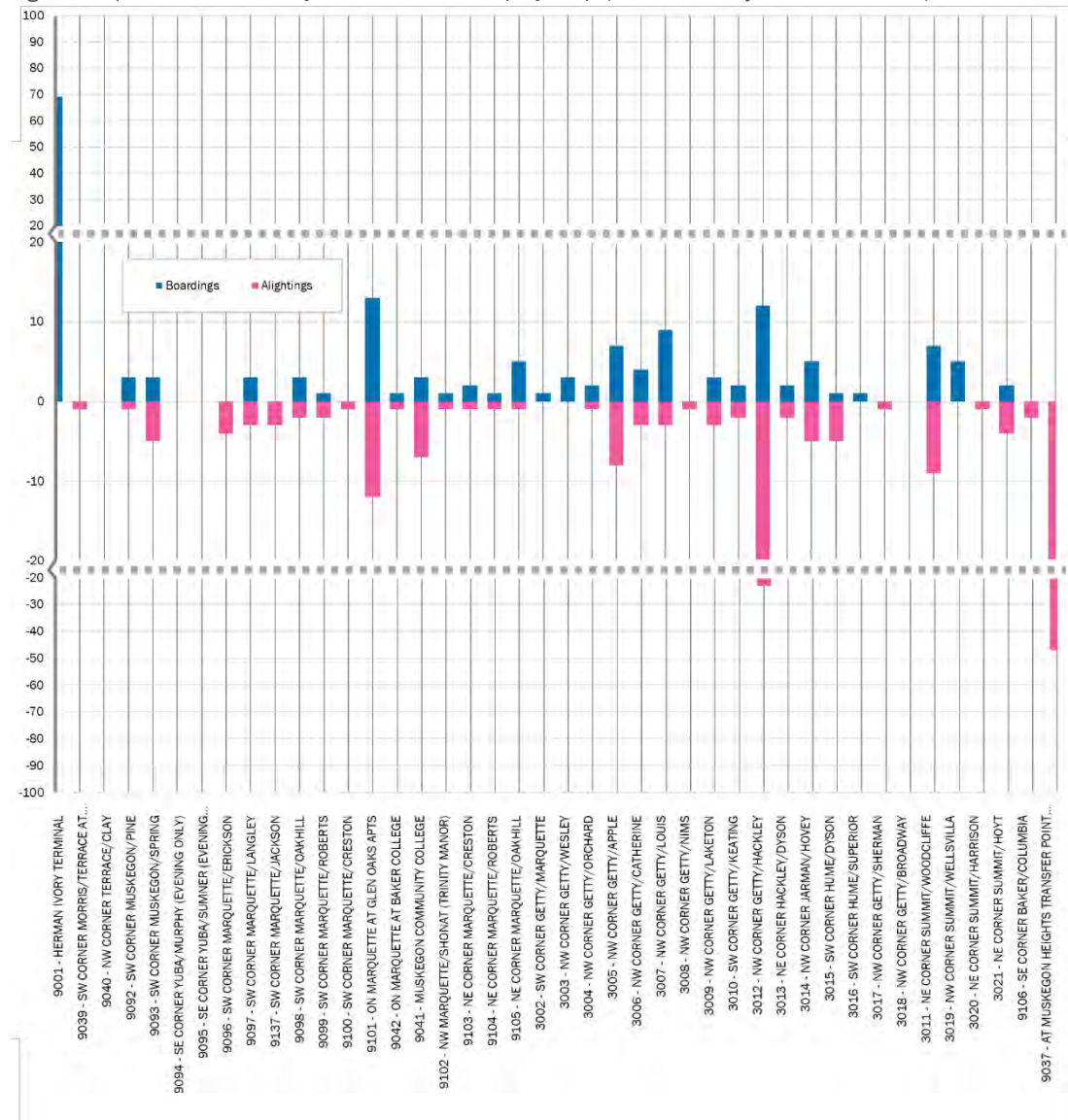
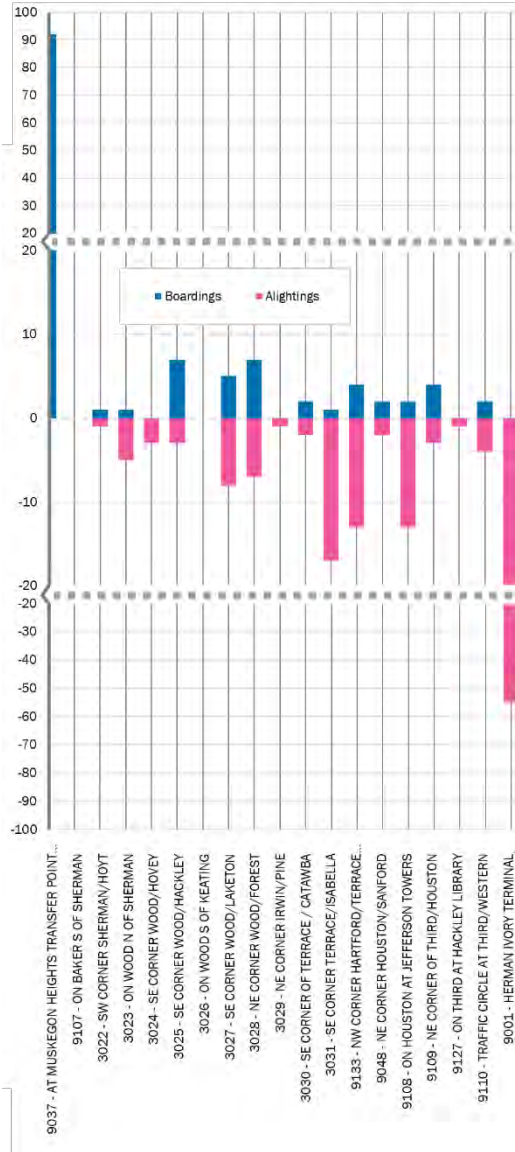


Figure 43 | Route 30 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)





## Saturday Ridership by Stop

Figure 44 | Route 30 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

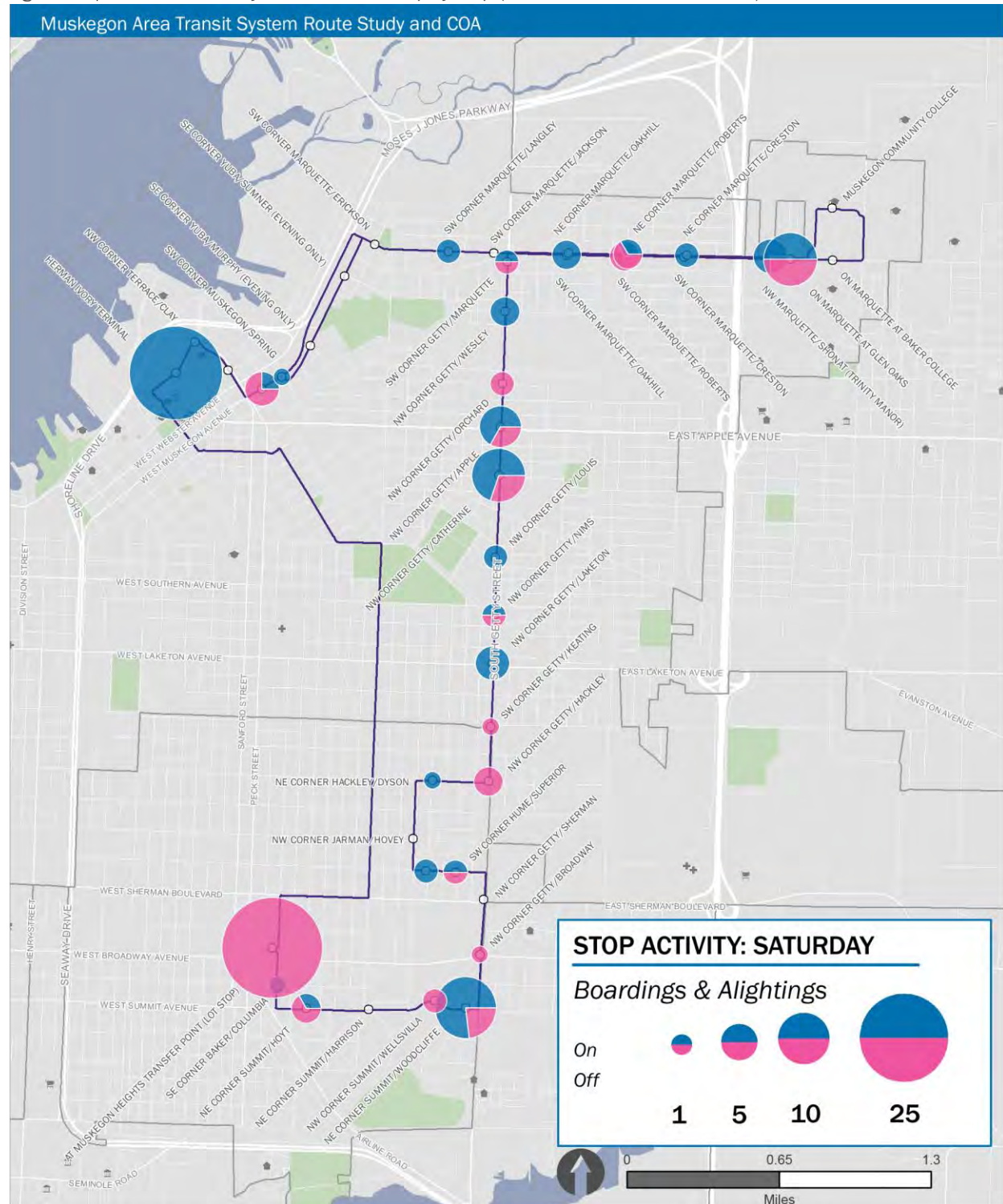


Figure 45 | Route 30 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)

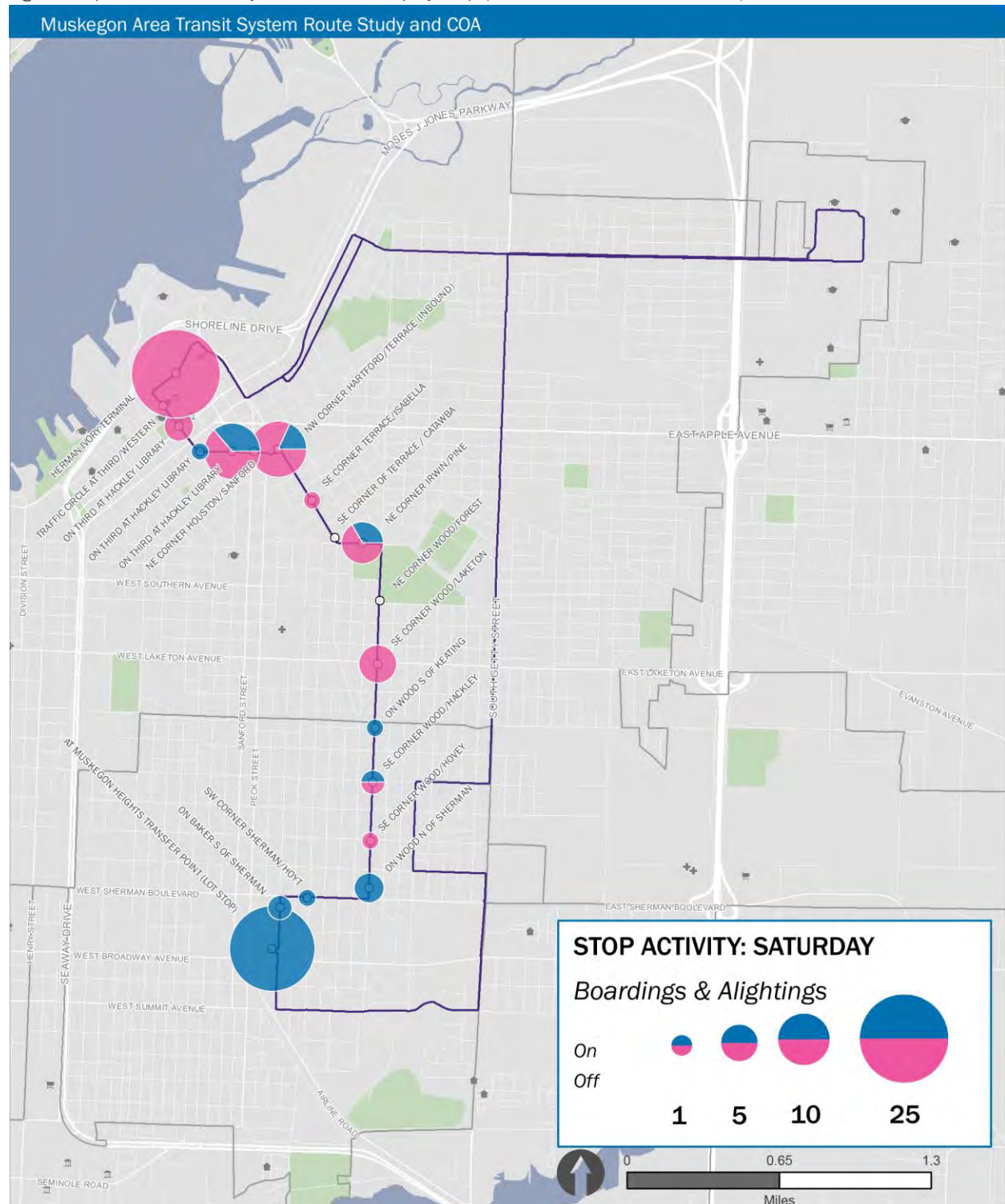




Figure 46 | Route 30 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

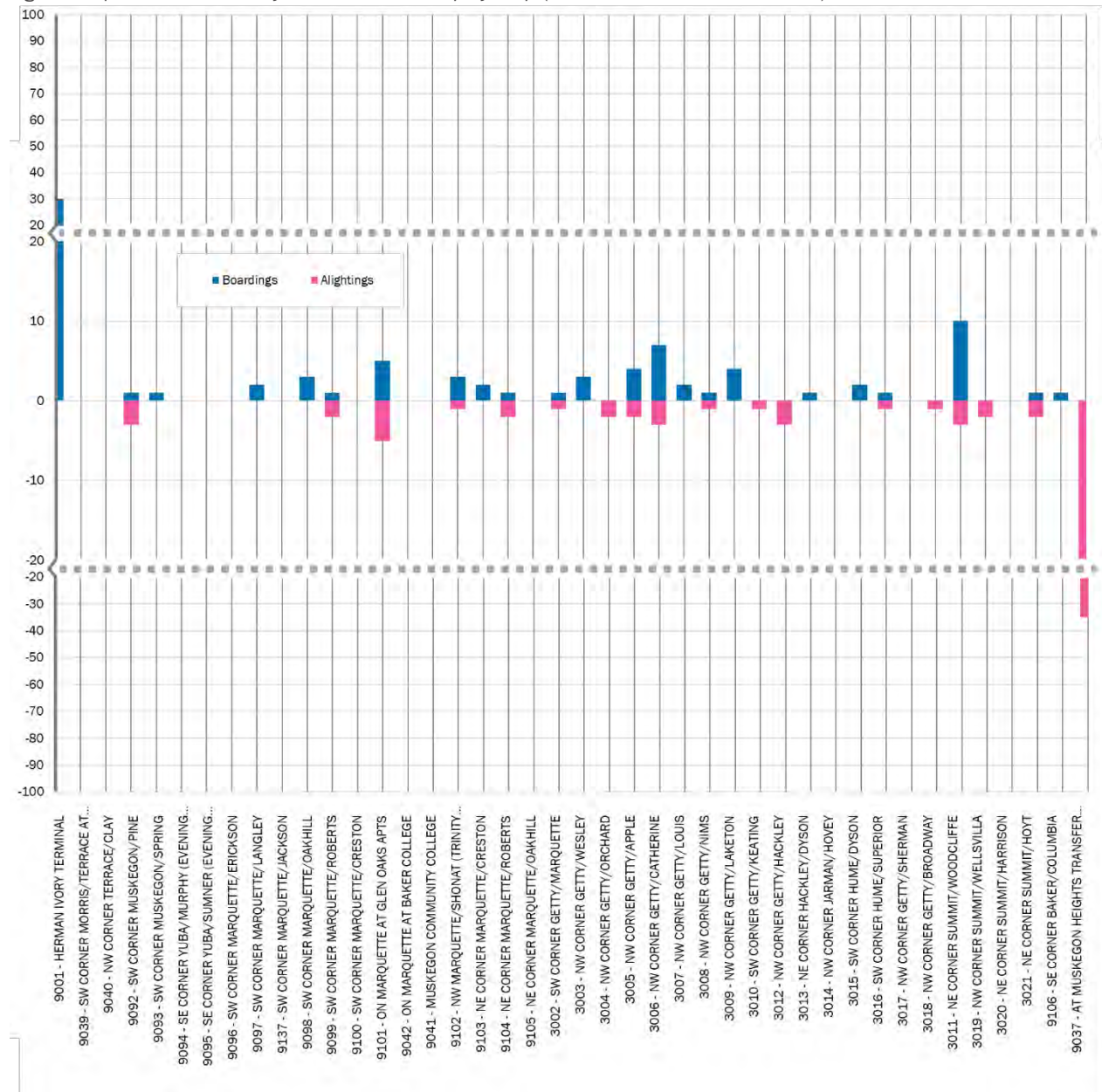
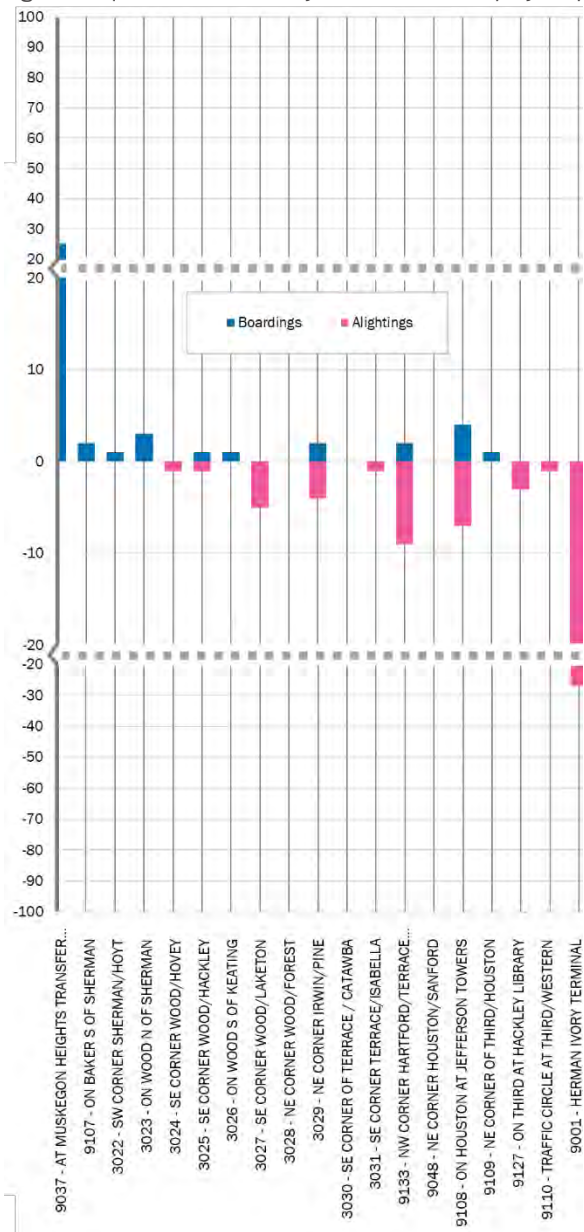


Figure 47 | Route 30 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



## Weekday Ridership by Trip

Figure 48 | Route 30 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

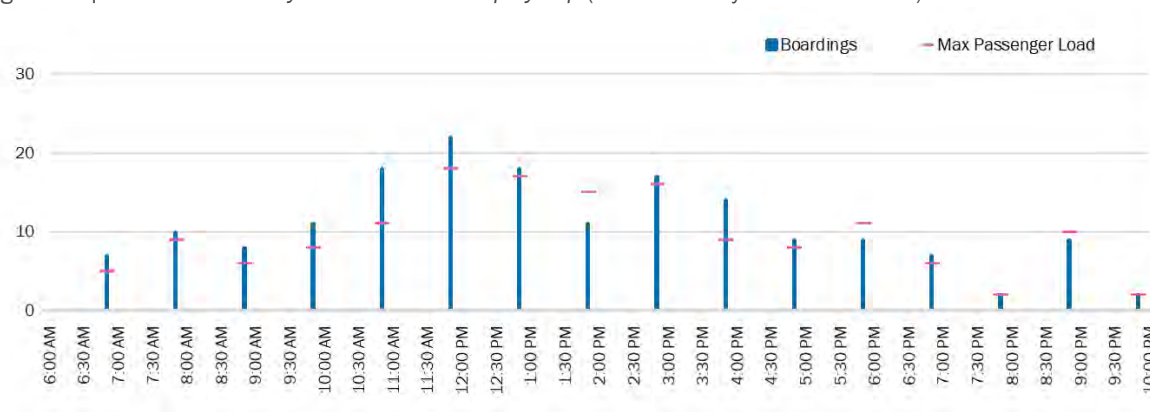
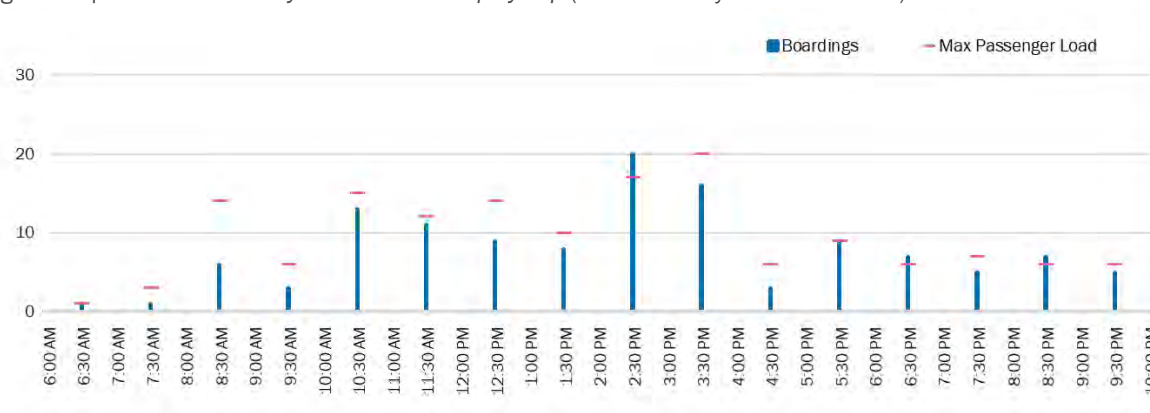


Figure 49 | Route 30 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Below-average operating cost per passenger.
- Above-average productivity (passengers per revenue hour and passengers per trip).
- Strong anchors (Baker College, Hackley Public Library, and Muskegon Community College).

### Weaknesses

- Hybrid alignment forces out-of-direction travel for most riders.
- One-way service design and inconsistent inbound and outbound alignments.
- Infrequent service (hourly).
- A high rate of early departures (according to data sampled).
- No full-service grocery stores along the route.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 30 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Split Route 30 into at least two routes*

Route 30 serves at least two different and distinct markets: downtown/MCC via Marquette Avenue, and downtown/Muskegon Heights via Getty Street and Wood Street (the Getty and Wood corridors could be considered to be distinct markets as well). Combining service to these markets forces out-of-direct travel for nearly all riders utilizing the route and limits the appeal of the service for prospective riders. For example, while Route 30 provides very direct service from the Herman Ivory Terminal to MCC, a return trip from MCC to downtown would require a significant deviation to Muskegon Heights or the utilization of another route – both of which complicate the trip. To simplify service, the north-south and east-west service segments of Route 30 should be separated into different services.

### *Incorporate the east-west segment of Route 30 into a restructured Route 25*

A restructured Route 25 could focus on linking downtown Muskegon to MCC and the Orchard View Adult Education facility. From the Herman Ivory Terminal, the route could follow the outbound alignment of Route 25 to Getty Street and then take Getty Street north to Marquette Avenue; follow the Route 30 alignment to MCC, continue along the Route 20 alignment to Apple Avenue; and finally follow the current Route 25 alignment to Orchard View Adult Education. Buses would follow a similar alignment in the return direction.

### *Review schedule to improve on-time performance*

Based on timepoint observations in May 2019, Route 30 buses depart from timepoints earlier than scheduled 30% of the time. Early departures are often more disruptive to passengers than late arrivals, because if a bus leaves a stop before a passenger arrives, that passenger may face a wait-time of more than one hour for the next scheduled bus. To address this situation, schedules should be recalibrated based on field testing and observations.

### *Connect neighborhoods along the Wood and Getty corridors to grocery stores*

The current Route 30 serves a number of residential neighborhoods in both Muskegon and Muskegon Heights but provides no access to full-service grocery stores. To reach a major grocery store by transit, residents of neighborhoods along the Wood and Getty corridors must transfer from Route 30 to some other route. Transfers make transit trips longer and less convenient, especially for passengers carrying grocery bags and/or traveling with small children. To make service more convenient and appealing to area residents, the Wood and Getty branches of Route 30 could be separated from one another and extended to major grocery stores. For example, the Wood branch could be extended to Meijer on Henry Street via the Muskegon Heights Terminal, while the Getty branch could be extended to Walmart on Sherman Boulevard via the Mercy Health Mercy Campus. Separating these branches could also allow both to operate bi-directionally along their respective corridors.

## Route 35

### Service Description

Route 35 (**Figure 50** and **Figure 51**) provides weekday service between Herman Ivory Terminal and destinations along Lincoln Street, McCracken Street, W. Sherman Street, Barclay Street, W. Laketon Avenue, and others. The route operates primarily as a one-way loop with different alignments for inbound and outbound trips. Route 35 provides hourly service frequency as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 6:50 am to 4:50 pm.

Inbound service departs the corner of Parsons and Edgewater every hour, from 7:06 am to 5:06 pm.

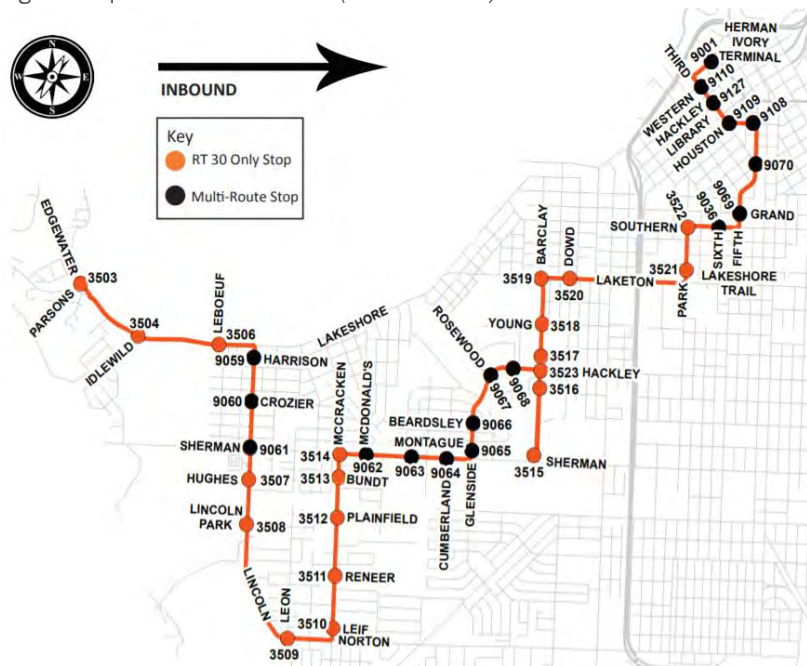
Major destinations served by Route 35 include Barclay Village, Bio-Blood, Every Woman's Place, Muskegon Rescue Mission and Muskegon High School. Passengers may transfer from Route 35 to other routes at Herman Ivory Terminal (Routes 10, 15, 20, 25, 30, 40/45, 55, 115), as well as along Barclay Street (Route 10).

Figure 50 | A. Route 35 Outbound (Source: MATS)





Figure 51 | B. Route 35 Inbound (Source: MATS)



### Operating Characteristics

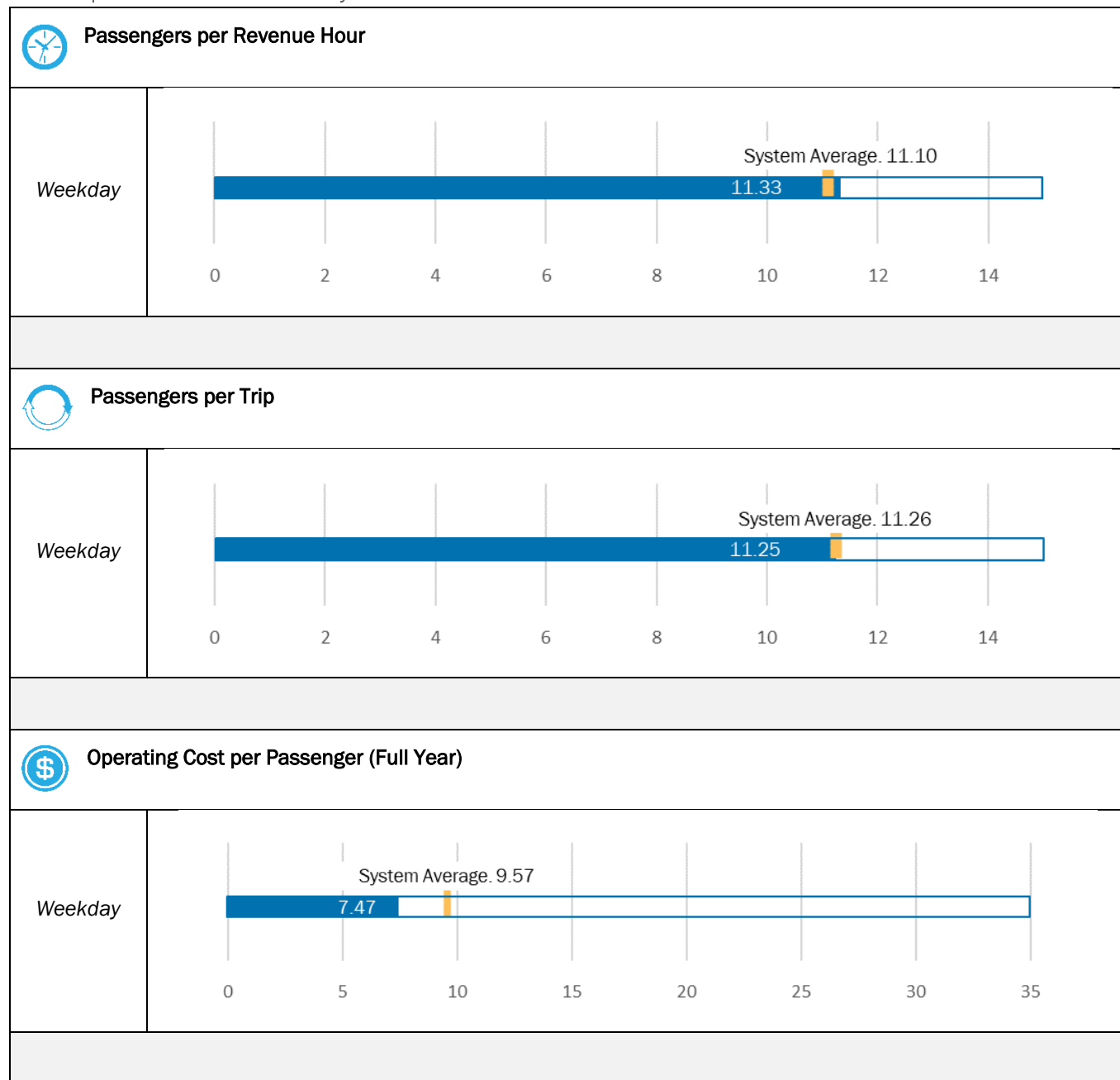
Table 16 | Route 35 Operating Characteristics

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Origin and Destination  | Herman Ivory Terminal<br>Corner of Parsons and Edgewater                                                                  |
| Route Connections       | Herman Ivory Terminal (Routes 10, 15, 20, 25, 30, 40/45, 55, 115)<br>and along Barclay Street (Route 10)                  |
| Key Points of Interest  | Barclay Village, Bio-Blood, Every Woman's Place, Lakeside<br>Businesses, Muskegon Rescue Mission and Muskegon High School |
| <b>Weekday</b>          |                                                                                                                           |
| Annual Operating Costs  | \$234,653.33                                                                                                              |
| Annual Ridership        | 31,429                                                                                                                    |
| Average Daily Ridership | 124                                                                                                                       |
| Span                    | 6:50 am to 5:40 pm                                                                                                        |
| Frequency               | 60 minutes                                                                                                                |

## Service Analysis

### Service Efficiency and Productivity

Table 17 | Route 35 Service Productivity Metrics



Weekday On-Time Performance

Table 18 | Route 35 Weekday On-Time Performance Analysis (From Ridecheck Data)











Figure 54 | Route 35 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

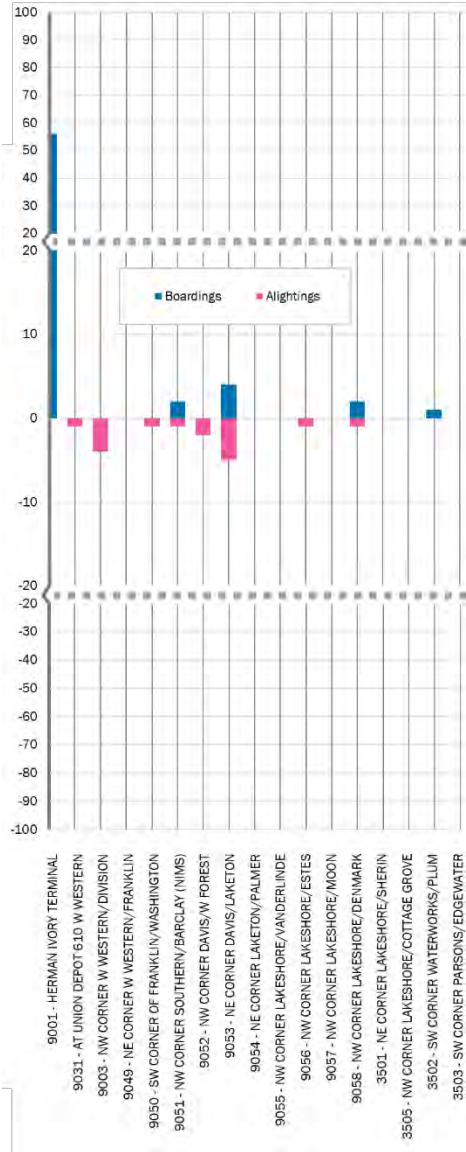
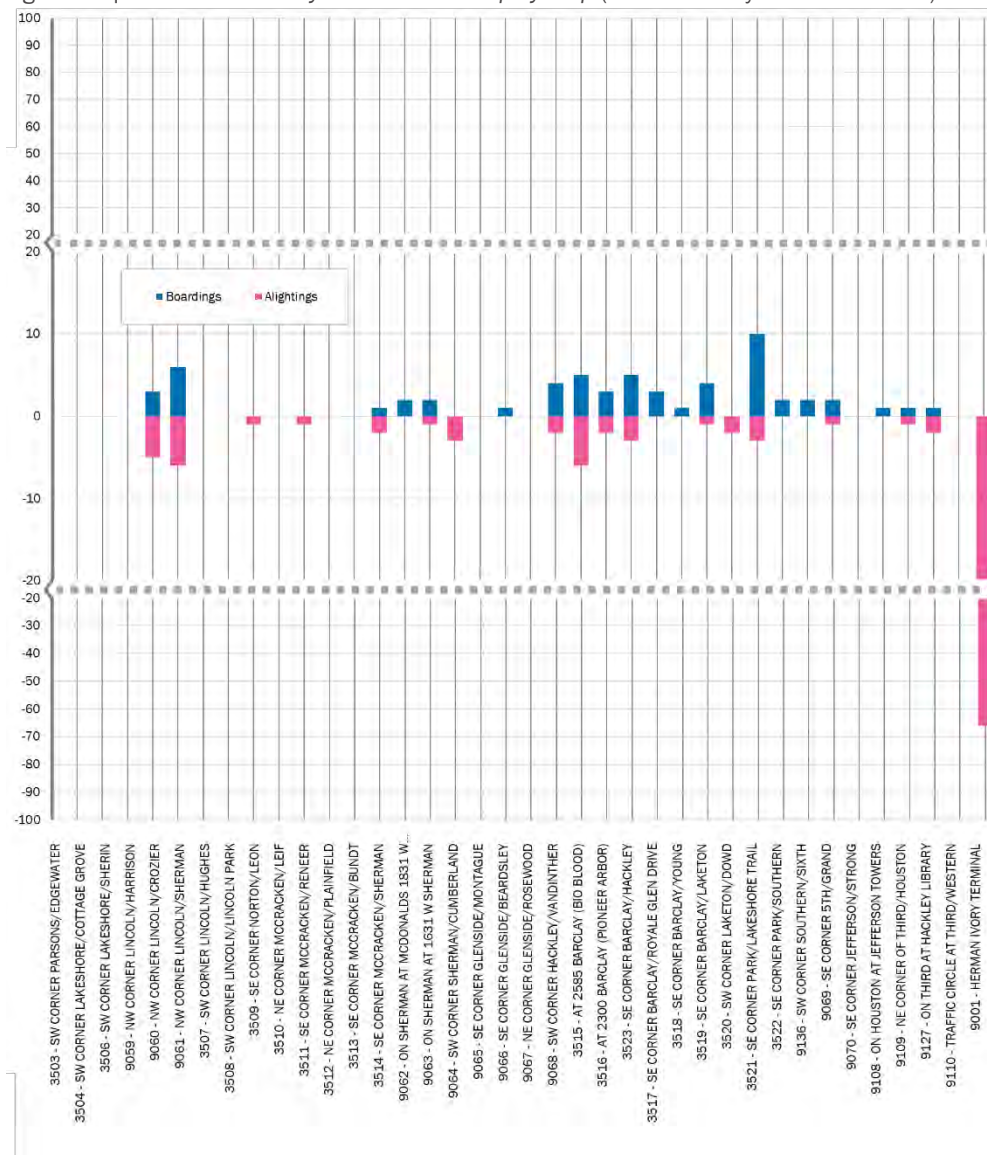


Figure 55 | Route 35 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



### Weekday Ridership by Trip

Figure 56 | Route 35 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

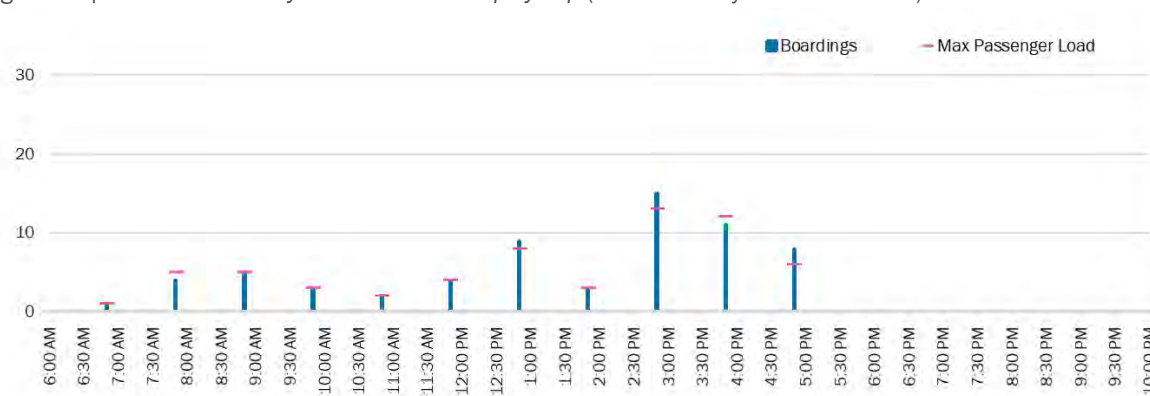
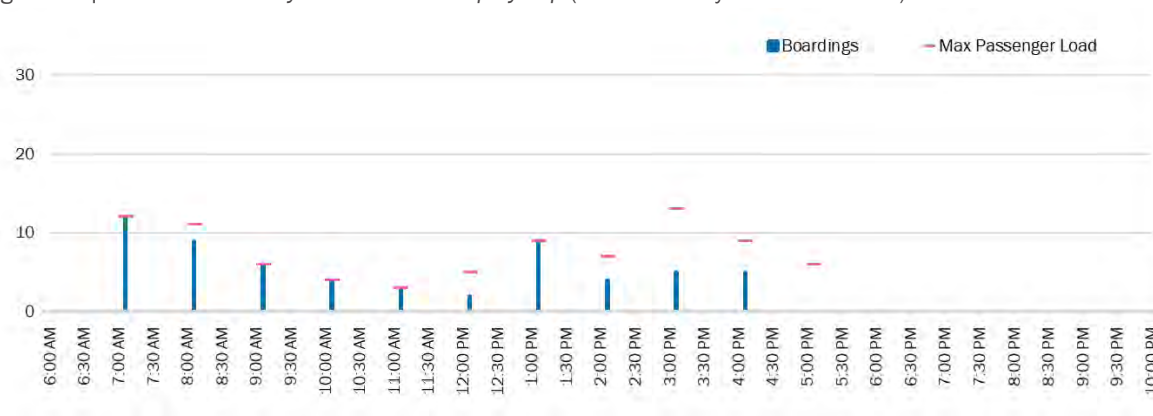


Figure 57 | Route 35 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Only route serving far west Muskegon.
- Serves large concentration of high-density housing near Hackley and Barclay Street.
- Below-average operating cost per passenger.
- Above-average productivity (passengers per revenue hour and passengers per trip).

### Weaknesses

- Very circuitous alignment, forcing out-of-direction travel for most passengers.
- Inconsistent inbound and outbound alignment.
- Infrequent service (hourly)
- No service on Saturdays or after 6:00 pm on weekdays (although major portions of the route are covered by Route 60 at these times).
- No full-service grocery stores along the route.
- Few major trip generators.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 35 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Restructure route to serve segments with high ridership potential only*

Route 35 covers a very large service area and does so by operating primarily as a one-way loop with outbound buses following a different alignment than inbound buses. However, the result of this service design is that nearly all riders are forced to travel a significant distance out-of-direction on either their outbound or return trip. For example, a rider traveling from Herman Ivory Terminal to Bio-Blood Components at Sherman and Barclay Street would first have to travel as far west as Lakeshore Drive and Waterworks Road before returning east and south to the plasma center. To simplify the route and attract more choice riders, Route 35 can be restructured and combined with segments of Route 10 to focus service on areas with high ridership potential, such as the many apartment complexes near Hackley Avenue and Barclay Street. Rather than serving these areas in one direction only, the route can be extended south to link these communities with high population density to areas with high concentrations of service and retail such as Meijer and Walmart near Norton Avenue. Providing bi-directional service between these key trip generators would substantially increase ridership on the route.

### *Replace part of Route 35 with microtransit service*

If the highest-ridership segments of Route 35 are included in a restructured bi-directional route, the remainder of the route, which covers a large service area, could potentially be served by a microtransit service designed to shuttle area residents from their homes to key retail centers and other destinations along Henry Street. The density, land-use, and built-environment of many of the neighborhoods served by Route 35 make microtransit a more promising service model than traditional fixed-route service, except in areas with large retail centers and large apartment complexes.

### *Operate Route 10 or 35 on Saturdays and later on weekdays*

Routes 10 and 35 currently operates on weekdays only, with no service after 6:00 pm. Portions of the route are picked up by Route 60 during these periods, but with a more circuitous alignment overall. Transit riders (like all people) tend to be creatures of habit, and when service in a corridor is provided by different routes during different periods, ridership generally suffers. The modifications proposed above would strengthen Route 10 or 35 and could justify later weekday and Saturday service, with the aim of establishing more consistency across service periods.

### *Consider periods of higher frequency on Route 10 or 35*

The alignment modifications proposed to Route 10 or 35, would make it a stronger route overall. Operating the route with 30-minute frequency, at least during peak periods, could help generate more ridership on the route by attracting new riders and allowing current passengers to take more trips over the course of the service day.

## Route 40 & 45

### Service Description

Routes 40 and 45 are complementary routes operating along the same alignment (**Figure 58**). Both routes operate hourly weekday service between Herman Ivory Terminal and Muskegon Heights Transfer Point. The two routes' schedules are off-set by 30 minutes, resulting in 30-minute service frequency along their shared alignment. The two routes consist of bi-directional service (off-set by one block) in the Sanford/Peak corridor, and two one-way loops on either end of the corridor. Outbound buses operate along Sanford Street while inbound buses use Peak Street as follows:

#### ■ Weekdays

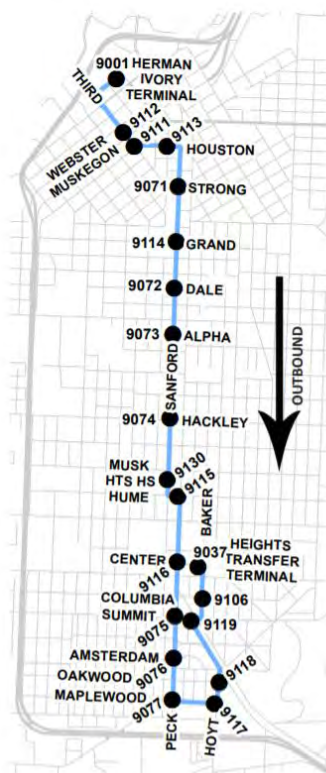
Outbound service departs from Herman Ivory Terminal every thirty minutes, from 6:50 am to 5:50 pm.

The last trip of the day terminates mid-route at the Hume and Peck stop.

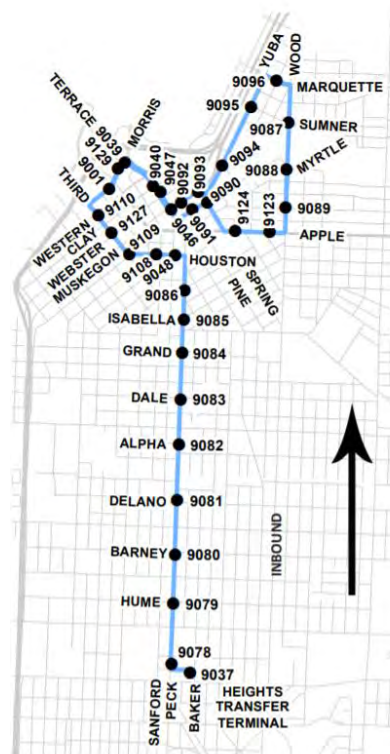
Inbound service departs Muskegon Heights Transfer Point every 30 minutes, from 6:43 am to 5:13 pm.

Major destinations served by the route include Muskegon Heights Transfer Terminal, Muskegon DHS, Muskegon Heights Public School Academy, Muskegon High School, Mercy Health Hackley Campus, Jefferson Towers Apartments, Hackley Public Library, Bayview Tower, and HealthWest. Passengers may transfer from Route 40/45 to other routes at Herman Ivory Terminal (Routes 10, 15, 20, 25, 30, 35, 55, 115), and Muskegon Heights Transfer Terminal (15, 30, 55, 50).

Figure 58 | A. Route 40 & 45 ( Outbound (Source: MATS)



B. Route 40 & 45 Inbound (Source: MATS)





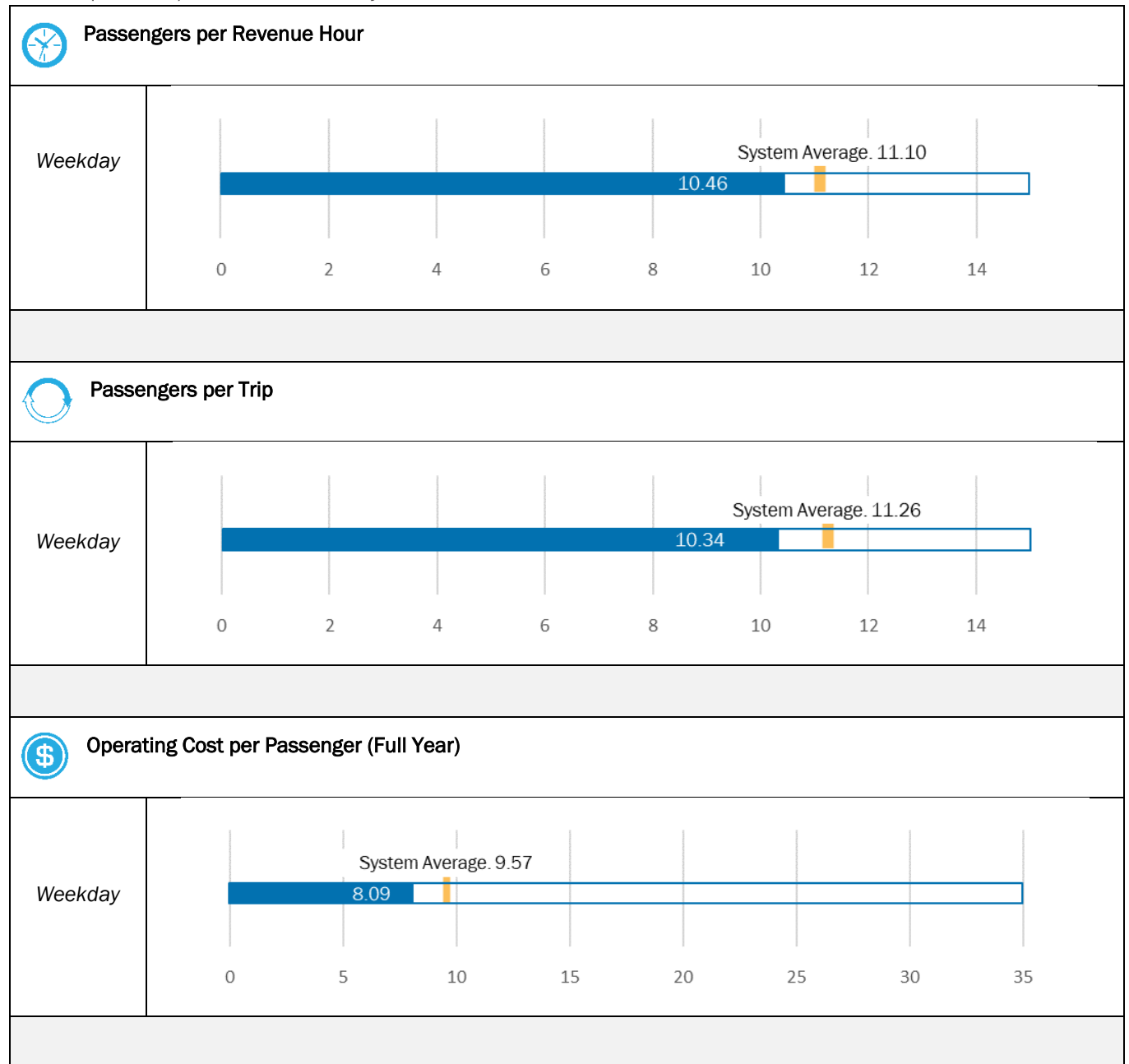
*Operating Characteristics**Table 19 | Route 40/45 Operating Characteristics*

|                            |                                                                                                                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Origin and Destination     | Herman Ivory Terminal<br>Muskegon Heights Transfer Point                                                                                                                                                                        |
| Route Connections          | Herman Ivory Terminal (Routes 10,15, 20 ,25,30,35, 55,115)<br>Muskegon Heights Transfer Point (15,30,55,50)                                                                                                                     |
| Key Points of Interest     | Muskegon Heights Transfer Terminal, Muskegon DHS, Muskegon Heights Public School Academy, Muskegon High School, Mercy Health Hackley Campus, Jefferson Towers Apartments, Hackley Public Library, Bayview Tower, and HealthWest |
| <b>Route 40/45 Weekday</b> |                                                                                                                                                                                                                                 |
| Annual Operating Costs     | \$463,720                                                                                                                                                                                                                       |
| Annual Ridership           | 57,334                                                                                                                                                                                                                          |
| Average Daily Ridership    | 226                                                                                                                                                                                                                             |
| Span                       | 6:43 am to 6:02 pm                                                                                                                                                                                                              |
| Frequency                  | 30 minutes                                                                                                                                                                                                                      |

## Service Analysis

### Service Efficiency and Productivity

Table 20 | Route 40/45 Service Productivity Metrics



Weekday On-Time Performance

Table 21 | Route 40/45 Weekday On-Time Performance Analysis (From Ridecheck Data)



## Weekday Ridership by Stop

Figure 59 | Route 40/45 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

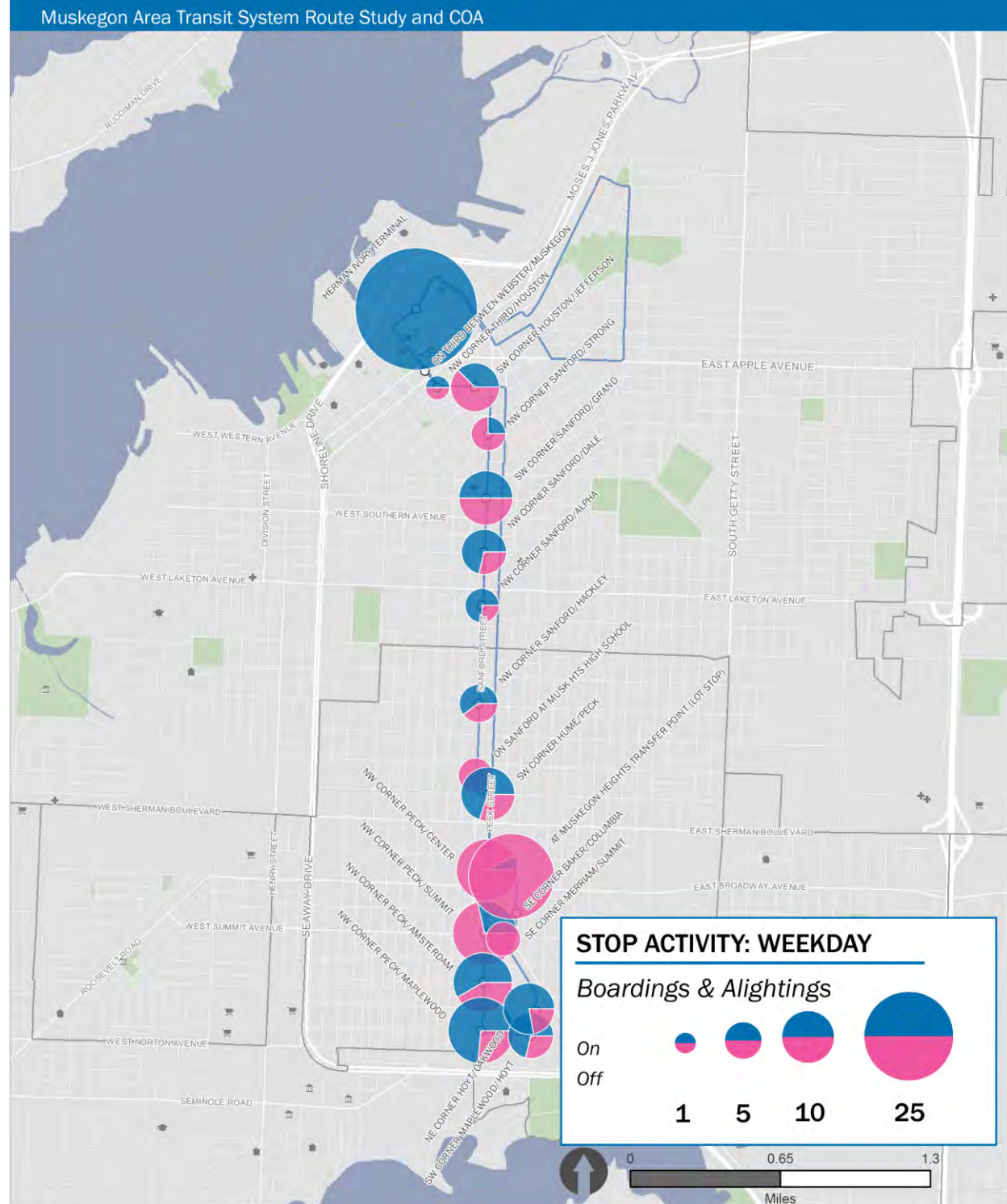


Figure 60 | Route 40/45 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

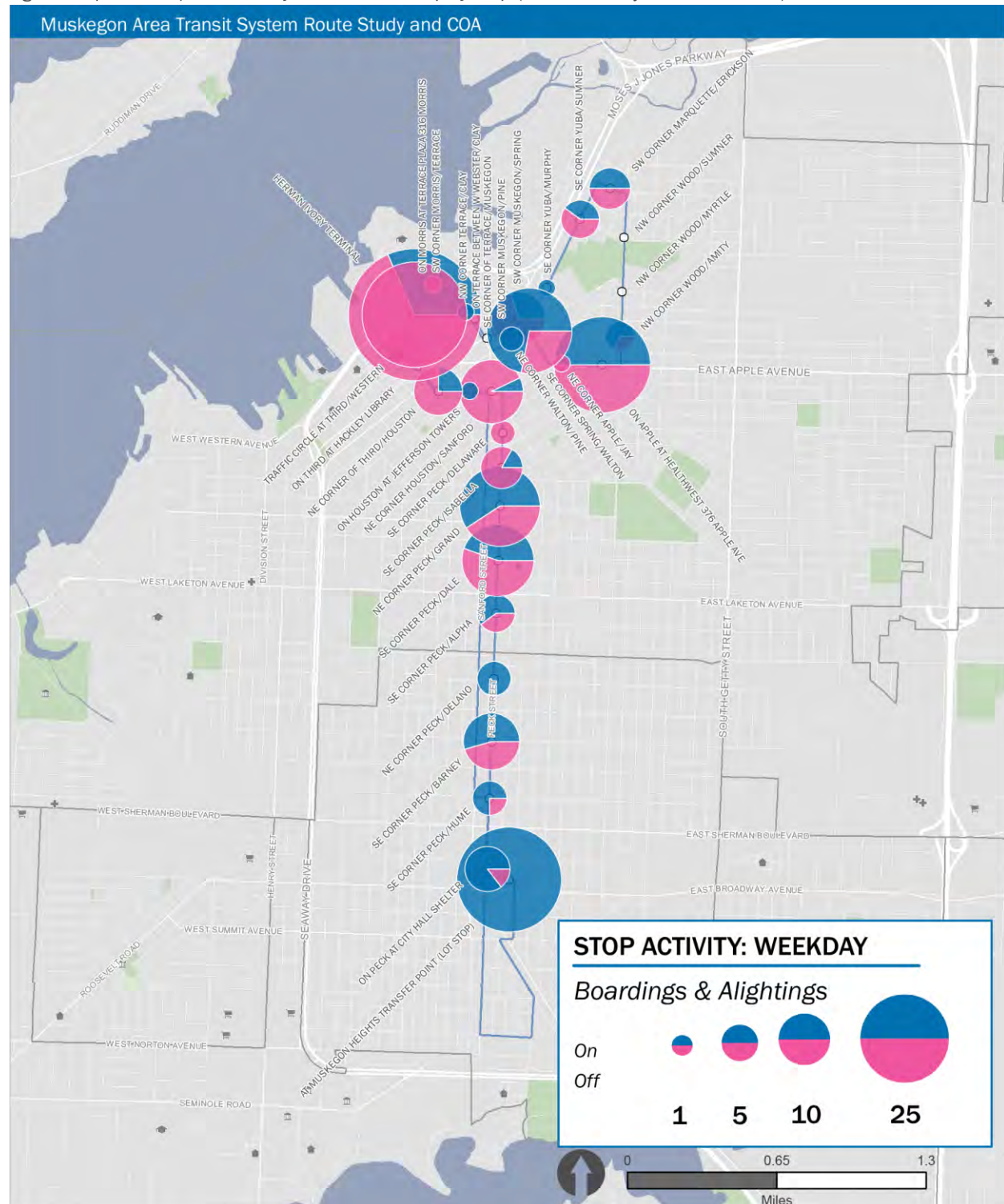




Figure 61 | Route 40/45 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

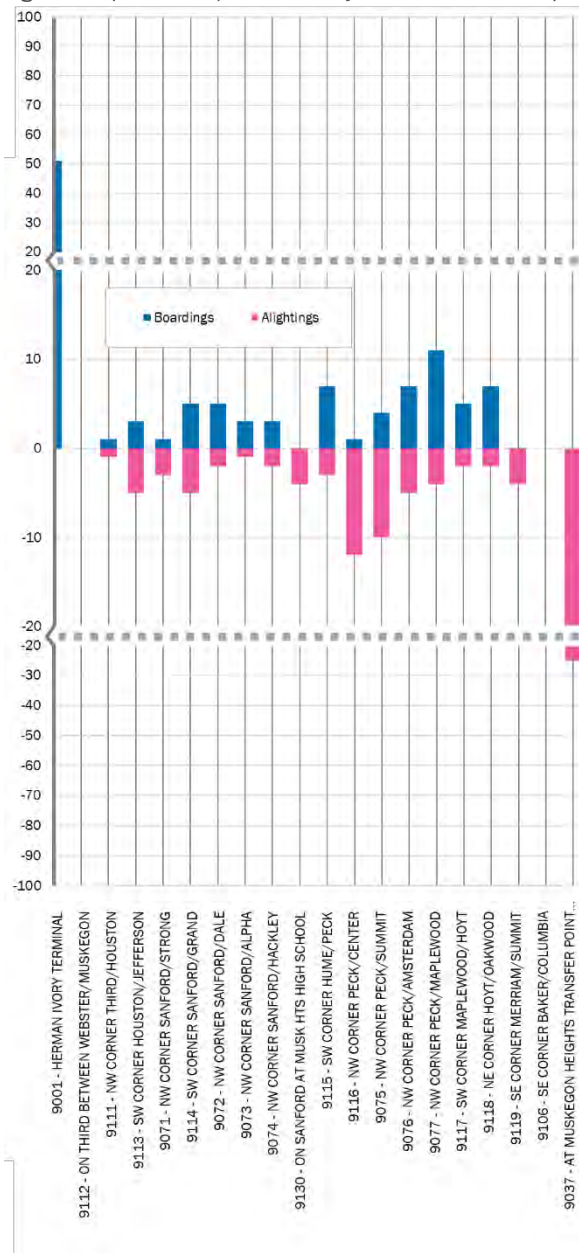
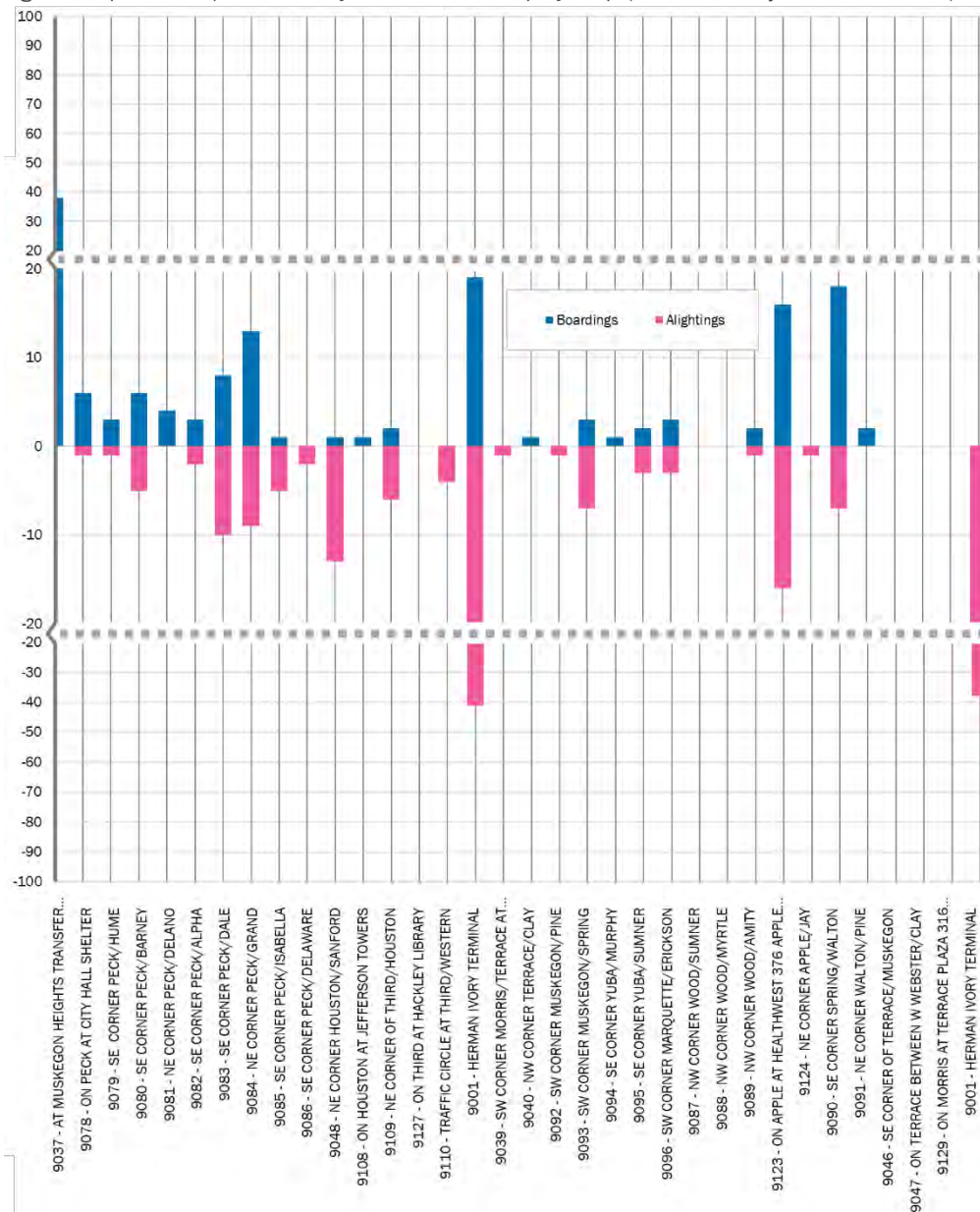


Figure 62 | Route 40/45 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



### Weekday Ridership by Trip

Figure 63 | Route 40/45 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

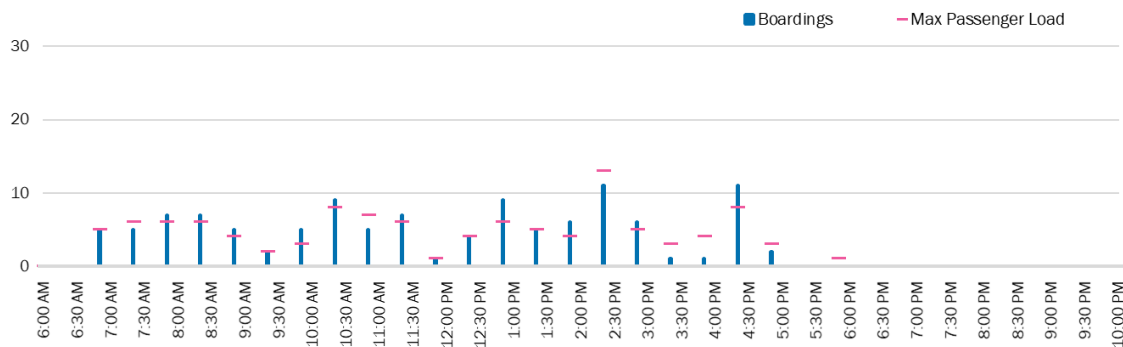
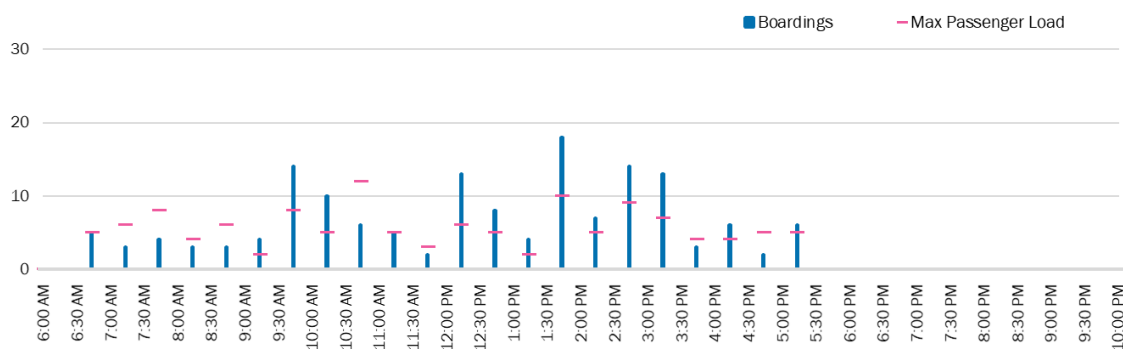


Figure 64 | Route 40/45 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Fairly direct and streamlined alignment in Peck/Sanford corridor.
- Off-set schedules result in relatively high-frequency service (30 minutes) with consistent clockface frequency.
- Fast and frequent service to key destinations (Muskegon Heights Transfer Terminal, Muskegon DHS, Muskegon Heights Public School Academy, Muskegon High School, Mercy Health Hackley Campus, Jefferson Towers Apartments, Hackley Public Library, Bayview Tower, and HealthWest).
- Below-average cost per passenger trip.

### Weaknesses

- No strong anchor on the southern end of the route.
- Confusing service design with trips alternating between two different route numbers.
- Declining ridership potential as Mercy Health Hackley Campus downsizes.
- Relatively poor on-time performance caused by both early departures and late arrivals.
- No service on Saturdays or after 6:00 pm on weekdays. Although, the residential area at the south end of the route receives evening and Saturday service via Route 50.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 40 & 45 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Shift all service to Peck Street or Sanford Street*

The City of Muskegon is currently in the process of converting both Peck Street and Sanford Street from a one-way street pair to two two-way streets. When this process is complete, MATS should shift Route 40/45 service to either Sanford or Peck Street. This will help simplify service by allowing MATS to place bus stops on both sides of the same street, rather than a block or more apart. When opposite bus stops are within sight of one another, riders can quickly identify where they can catch the bus for their return trip.

### *Operate Routes 40 and 45 under a single route number*

Routes 40 and 45 operate along identical alignments and differ only by departure times. Operating this service under separate route numbers creates unnecessary complexity to an otherwise simple route. Instead, the route should be presented as a single route with higher service frequency when justified.

### *Extend route to Lakes Mall and other destinations along Harvey Street corridor*

Route 40/45 lacks a strong anchor on its southern end and faces the prospect of declining ridership from the Mercy Health Hackley Campus. Both of these issues could be addressed by extending the route further south to serve the Lakes Mall, Mercy Health Lakes Village, and other destinations along the Harvey Street corridor. This extension would also allow for a one-seat ride between the Herman Ivory Terminal and major regional retail destinations such as Lakes Mall, Target, and Meijer. This approach would make the service more attractive to prospective riders who may be hesitant to make a transfer as part of their trip.

## Route 50

### Service Description

Route 50 (**Figure 65**) provides weekday and Saturday service linking the Muskegon Heights Transfer Point to destinations along the Harvey Street and Grand Haven Road corridors, including Target, Meijer, Lakes Mall, Mercy Health Lakes Village, Veterans Affairs Clinic, Muskegon DHS and Muskegon County Airport. The route operates primarily as a one-way loop, with outbound service along Harvey Street and inbound service along Grand Haven Road. On weekday evenings and Saturdays, outbound trips extend past the Muskegon Heights Transfer Point to serve segments of Peck Street, Maplewood Avenue, Hoyt Street, and Merriam Street that are served by Route 40/45 on weekdays until 6:00 pm. Route 50 provides hourly service frequency as follows:

#### Weekdays

Outbound service departs from Muskegon Heights Transfer Point every hour, from 6:37 am to 9:37 pm.

Inbound service departs Mercy Health Lakes Village every hour, from 7:00 am to 10:00 pm.

#### Saturdays

Outbound service departs from Muskegon Heights Transfer Point every hour, from 9:37 am to 4:37 pm.

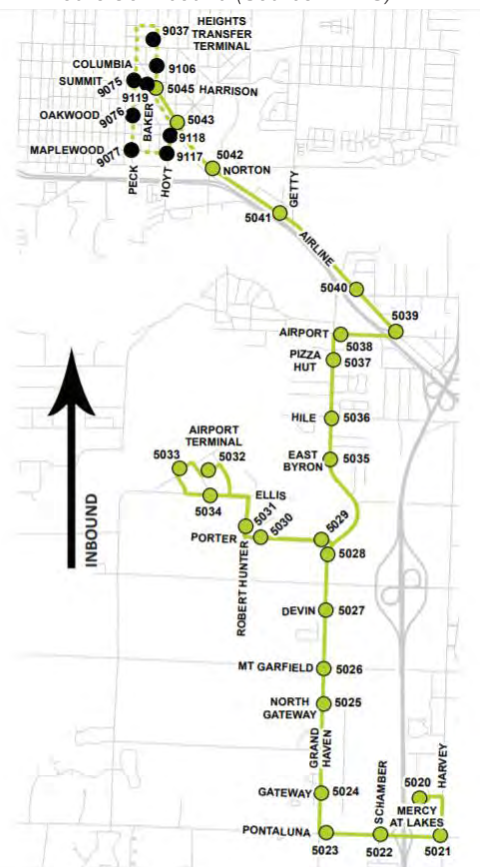
Inbound service departs Mercy Health Lakes Village every hour, from 10:00 am to 5:00 pm.

Passengers may transfer from Route 50 to other routes at Muskegon Heights Transfer Point (15, 30, 40/45, 55).

Figure 65 | A. Route 50 Outbound (Source: MATS)



B. Route 50 Inbound (Source: MATS)





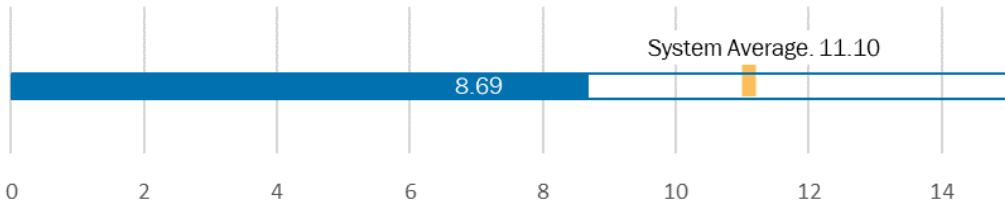
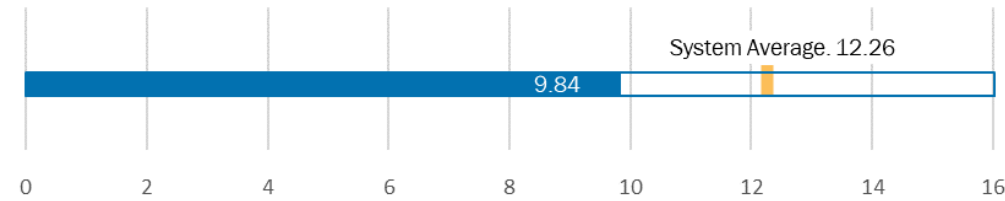
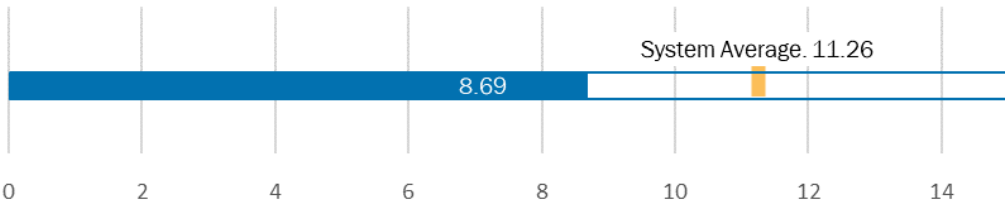
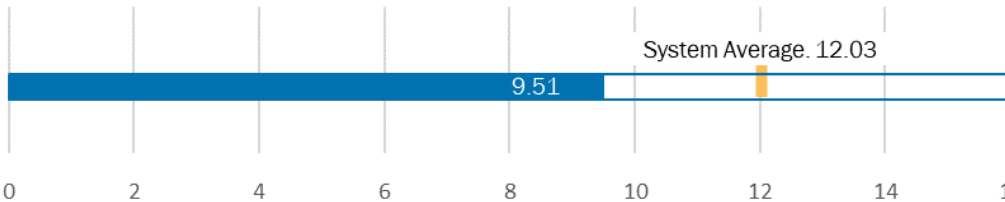
*Operating Characteristics**Table 22 | Route 50 Operating Characteristics*

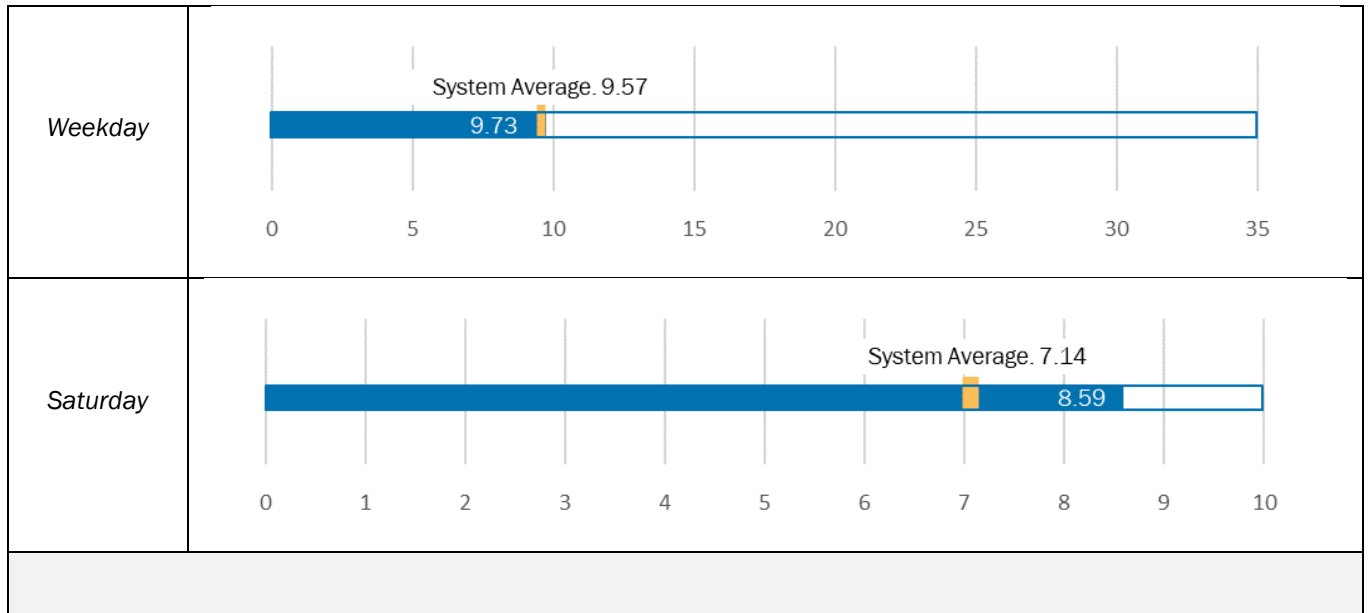
|                         |                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------|
| Origin and Destination  | Muskegon Heights Transfer Point<br>Mercy Health Lakes Village                                                       |
| Route Connections       | Muskegon Heights Transfer Point (15,30, 40/45,55)                                                                   |
| Key Points of Interest  | Target, Meijer, Lakes Mall, Mercy Health Lakes Village, Veteran's Clinic, Muskegon DHS, and Muskegon County Airport |
| <b>Weekday</b>          |                                                                                                                     |
| Annual Operating Costs  | \$343,814                                                                                                           |
| Annual Ridership        | 35,319                                                                                                              |
| Average Daily Ridership | 139                                                                                                                 |
| Span                    | 6:37 am to 10:36 pm                                                                                                 |
| Frequency               | 60 minutes                                                                                                          |
| <b>Saturday</b>         |                                                                                                                     |
| Annual Operating Costs  | \$34,005                                                                                                            |
| Annual Ridership        | 3,957                                                                                                               |
| Average Daily Ridership | 76                                                                                                                  |
| Span                    | 9:37 am to 5:21 pm                                                                                                  |
| Frequency               | 60 minutes                                                                                                          |

## Service Analysis

### Service Efficiency and Productivity

Table 23 | Route 50 Service Productivity Metrics

|  <b>Passengers per Revenue Hour</b>                |                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Weekday                                                                                                                             |  <p>System Average: 11.10</p> <p>8.69</p>   |
| Saturday                                                                                                                            |  <p>System Average: 12.26</p> <p>9.84</p>   |
|  <b>Passengers per Trip</b>                      |                                                                                                                               |
| Weekday                                                                                                                             |  <p>System Average: 11.26</p> <p>8.69</p> |
| Saturday                                                                                                                            |  <p>System Average: 12.03</p> <p>9.51</p> |
|  <b>Operating Cost per Passenger (Full Year)</b> |                                                                                                                               |



### Weekday On-Time Performance

Table 24 | Route 50 Weekday On-Time Performance Analysis (From Ridecheck Data)

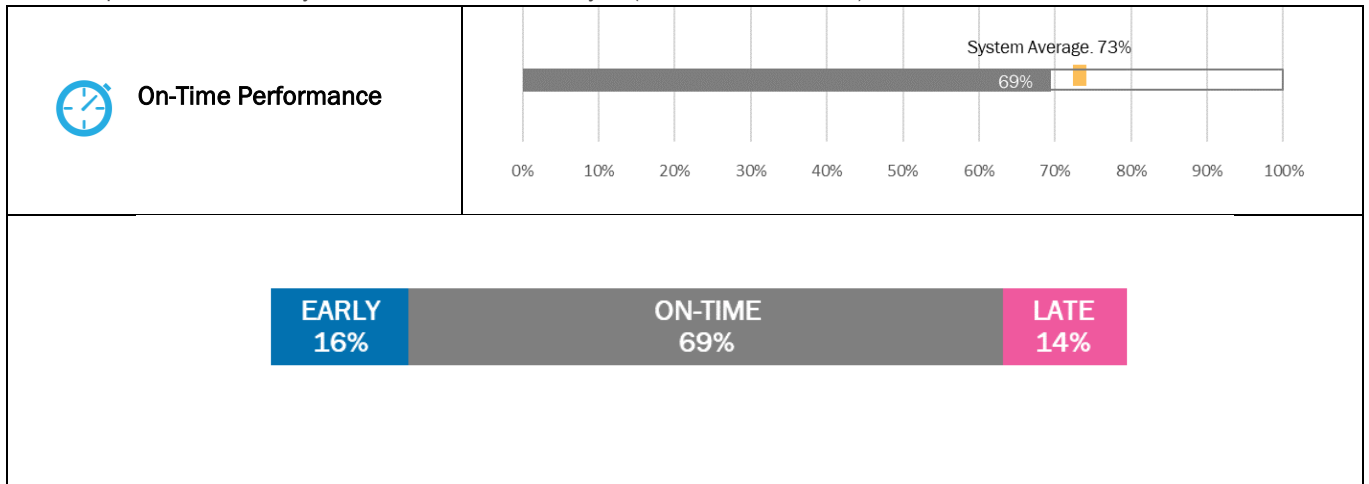








Figure 68 | Route 50 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

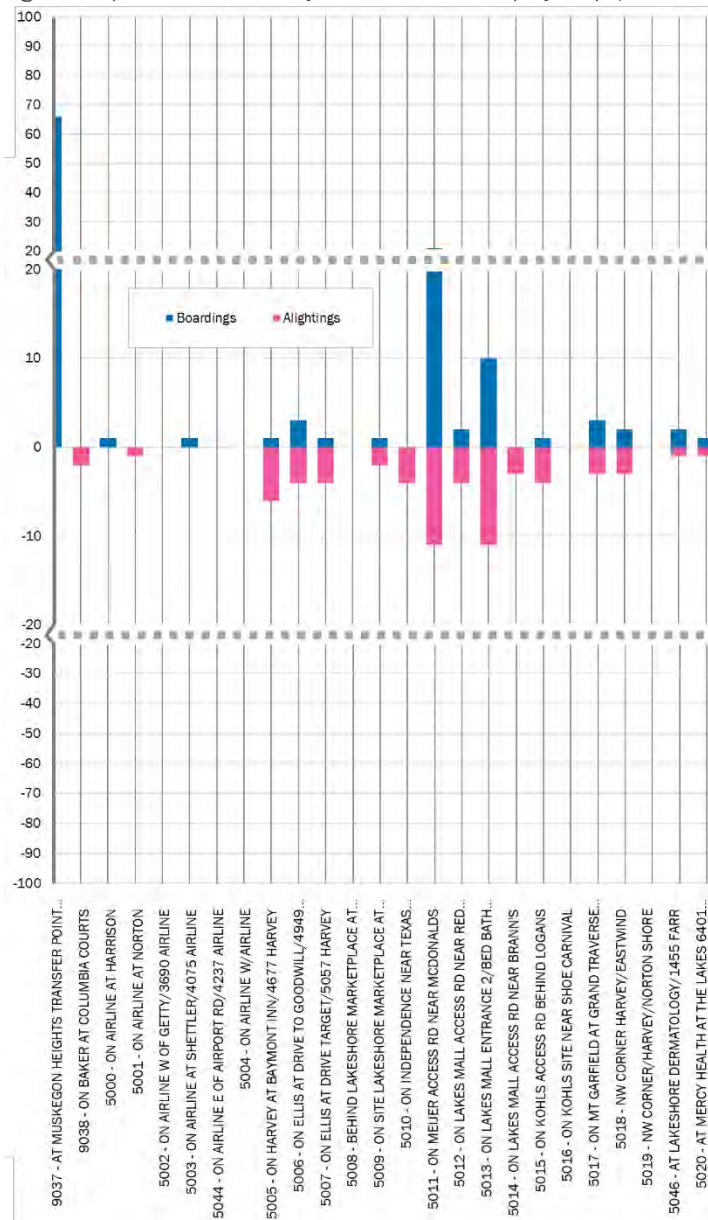
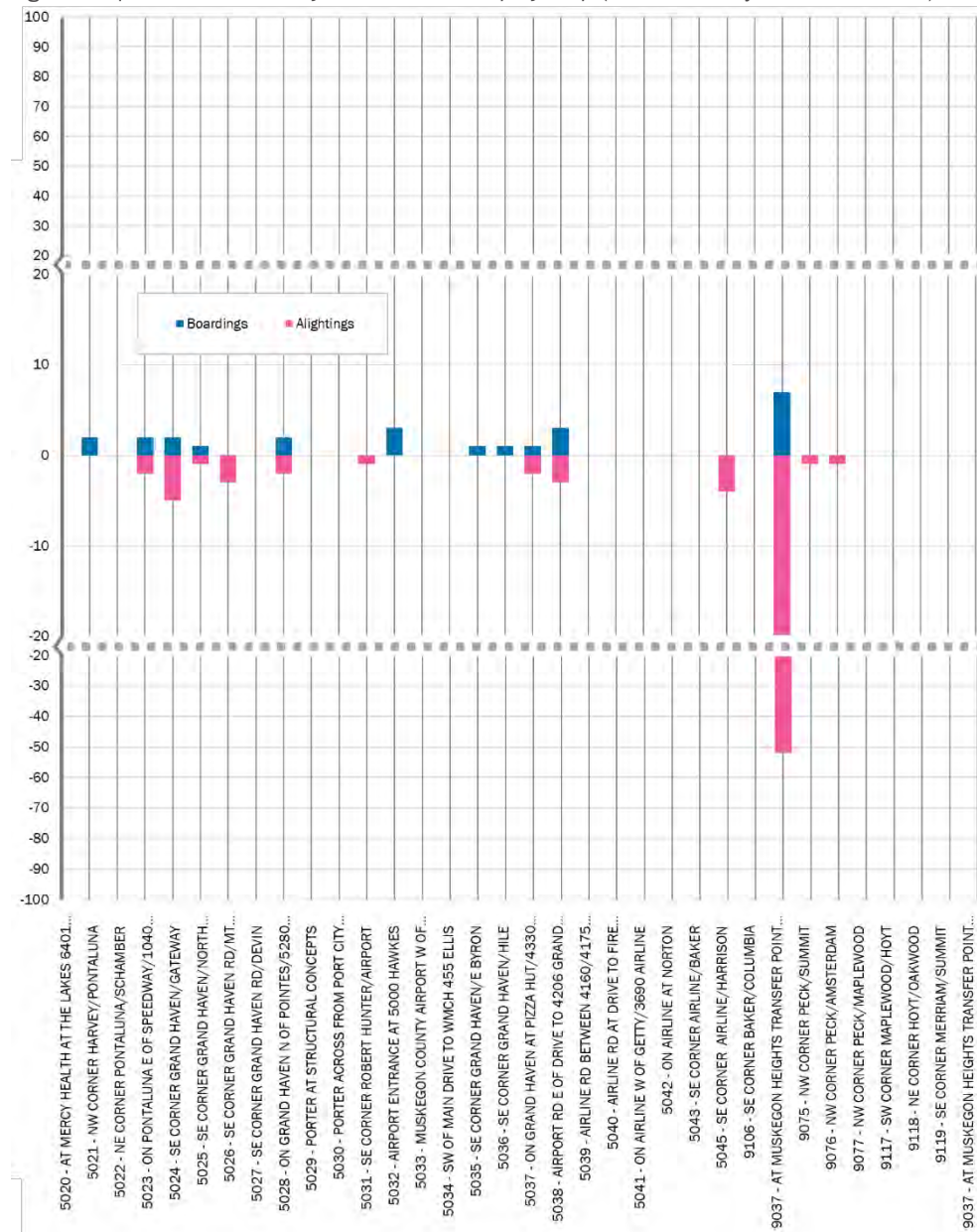


Figure 69 | Route 50 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



## Saturday Ridership by Stop

Figure 70 | Route 50 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

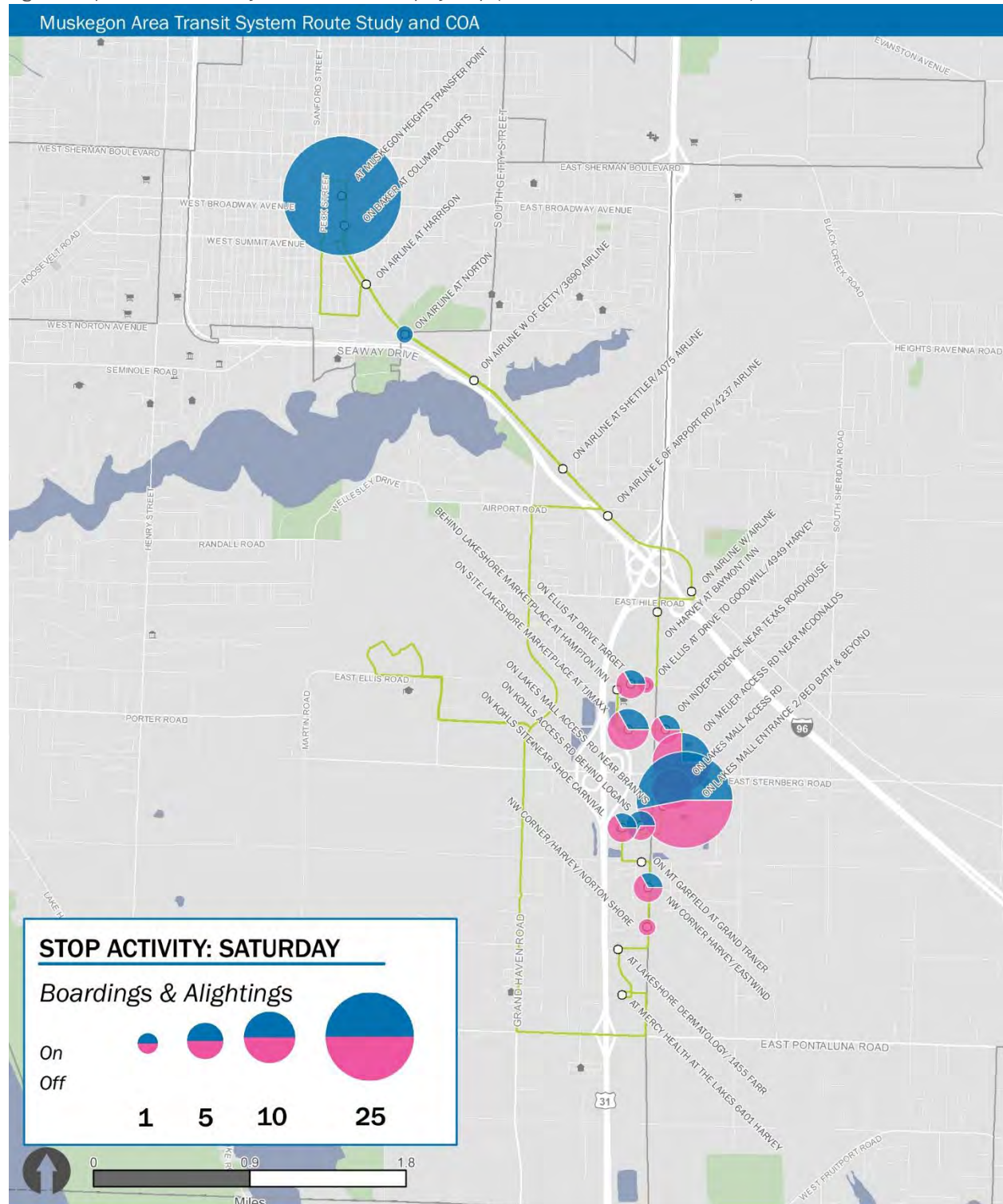






Figure 72 | Route 50 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

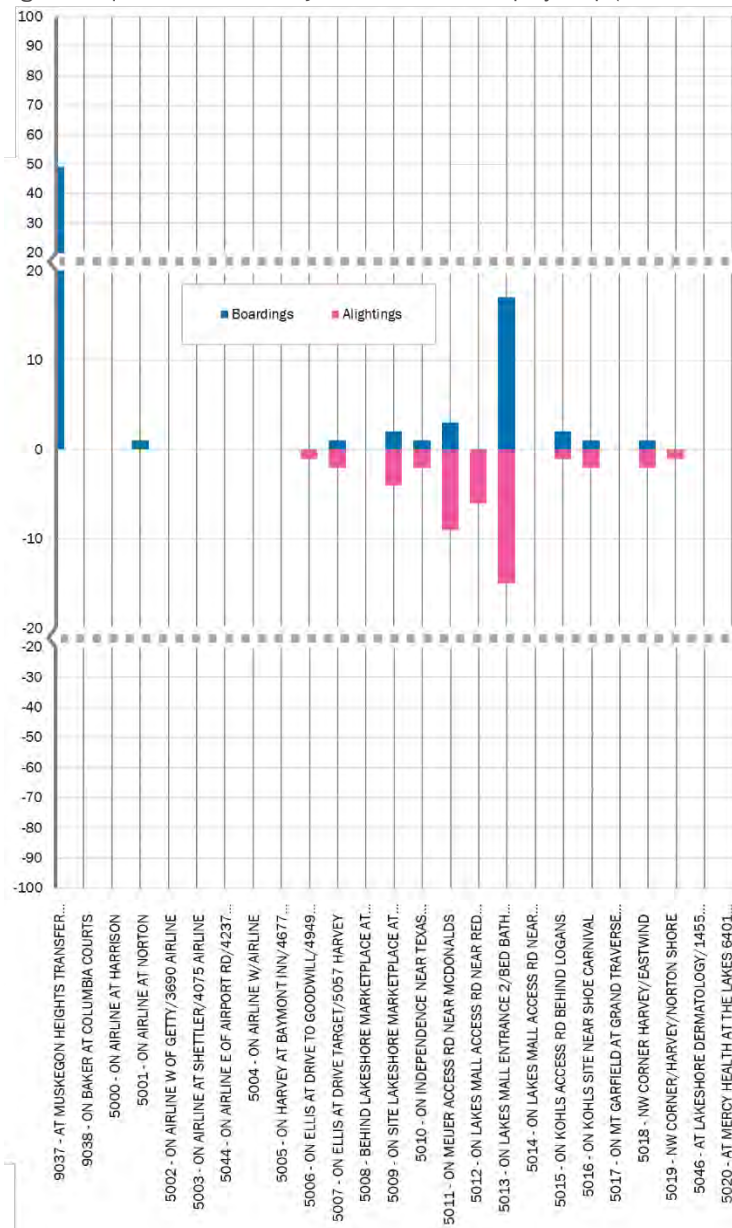
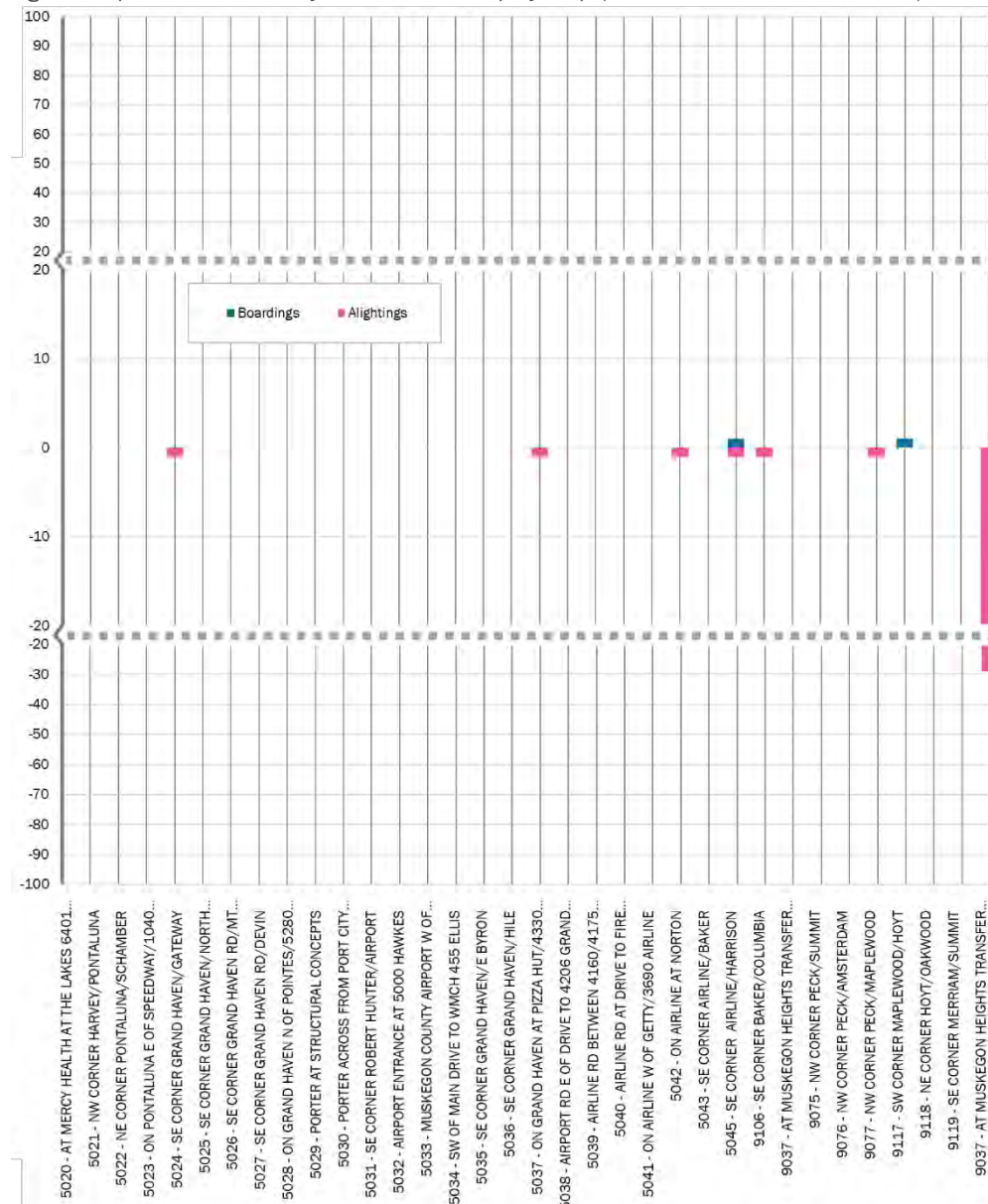




Figure 73 | Route 50 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



## Weekday Ridership by Trip

Figure 74 | Route 50 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

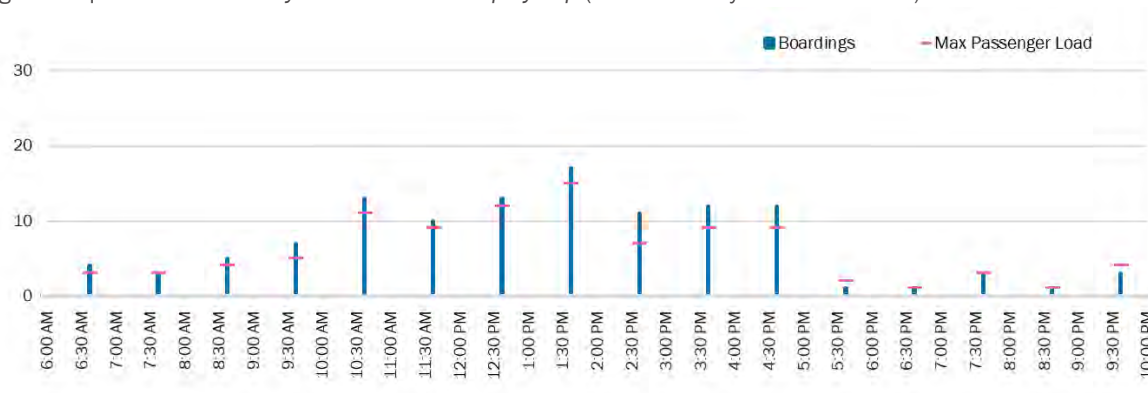
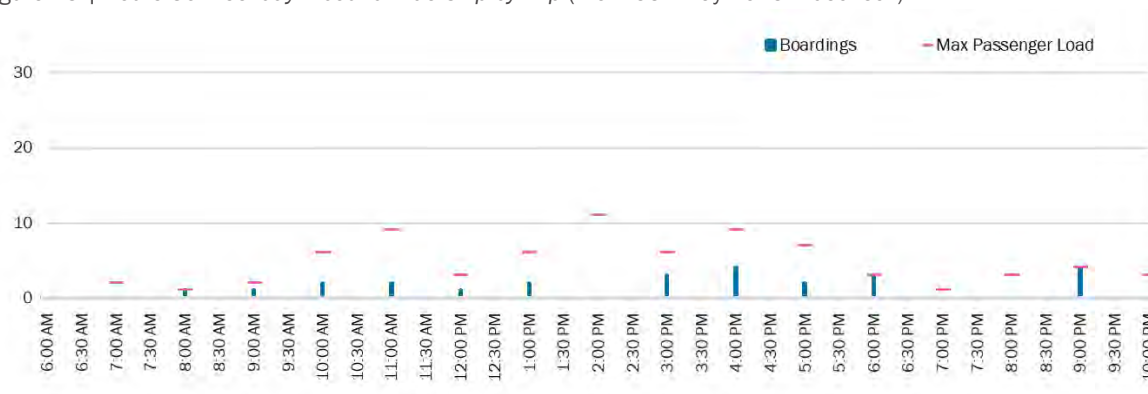


Figure 75 | Route 50 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Provides access to key regional destinations including Target, Lakes Mall, and Mercy Health Lakes Village.
- Strong ridership along Harvey Avenue.
- Provides evening and Saturday service.
- Below-average operating cost per passenger.

### Weaknesses

- One-way service design forces out-of-direction travel for many riders.
- No direct access to Herman Ivory Terminal; requires some riders to make multiple transfers to access.
- Service to the airport makes the route more circuitous but generates very little ridership.
- Below-average productivity (passengers per revenue hour and passengers per trip).
- Relatively poor on-time performance caused by both early departures and late arrivals.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 50 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Extend route to Herman Ivory Terminal*

Route 50 serves key regional destinations including Lakes Mall and the only Target in the Muskegon area. These destinations likely draw passengers from throughout the MATS service area, but Route 50 is the only MATS route that does not serve the Herman Ivory Terminal. Thus, some passengers traveling to the mall must make multiple transfers in order to reach their final destination. For example, someone living in the Apple Avenue corridor would need to take Route 20 or 25 to the Herman Ivory Terminal, transfer to Route 15 or 40, and then transfer again to Route 50 at the Muskegon Heights Transfer Point. This process can be time-consuming and burdensome, especially if a passenger is carrying shopping bags. Extending Route 50 to the Herman Ivory terminal would put all riders within a single transfer of the key points of interest along Harvey Street.

### *Restructure route to provide more bi-directional service*

Although Route 50 serves both the Harvey Street and Grand Haven Road, ridership is heavily concentrated along Harvey Street. This is not unexpected given the number of retail and medical destinations along Harvey Street. However, Grand Haven Road includes a number of large apartment complexes that have strong potential for generating transit ridership, especially to the destinations along Harvey Road but are not currently doing so due to the one-way service design of Route 50. A passenger traveling from Grand Haven Road to Harvey Road would need to travel to the Muskegon Heights Transfer Point before returning south to Harvey Road. Similarly, passengers traveling from Harvey Road to Muskegon Heights must currently travel out-of-direction to Grand Haven Road and even Muskegon County Airport before reaching the transfer point. To simplify the route and reduce out-of-direction travel, Route 50 could be restructured to terminate at Grand Haven Road and N. Gateway Boulevard. Buses could then turn around using Norton Center Drive and return to Muskegon Heights via Harvey Road. This approach would allow for more direct bi-directional service along both the Grand Haven and Harvey Road corridors. Service to the airport would be eliminated, but this represents a very small number of riders.

### *Replace part of Route 50 with microtransit service*

If Route 50 is simplified and the highest-ridership segments of Route 50 are included in a restructured bi-directional route, the remainder of the route, including the airport area, could potentially be served by a microtransit service. Such a service could be used to increase service coverage in the area, including greater coverage in Norton Shores.

## Route 55

### Service Description

Route 55 (**Figure 76** and **Figure 77**) provides weekday and Saturday service linking the Herman Ivory Terminal with a number of key corridors and destinations including industrial parks along the Port City Boulevard corridor, retail destinations along Sherman Boulevard, and the Mercy Health Mercy Campus. The route operates primarily as a one-way loop, with outbound service along Wood Street and Broadway Avenue; and inbound service along Laketon Avenue. The route serves as the quickest and most direct link to connect transferring passengers from Herman Ivory Terminal to Route 50 in Muskegon Heights. On-request service is also available on Route 55 to Norton Shores Estates, a mobile home park located off the route. Route 55 provides hourly service frequency as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 7:20 am to 10:20 pm. The first trip of the day departs from Muskegon Heights Transfer Point at 6:34 am.

Inbound service departs Sam's Club every hour, from 6:49 am to 9:49 pm.

#### ■ Saturdays

Outbound service departs from Herman Ivory Terminal every hour, from 10:20 am to 5:20 pm. The first trip of the day departs from Muskegon Heights Transfer Point at 9:34 am. The last trip of the day terminates on Baker Street south of Sherman.

Inbound service departs Sam's Club every hour, from 9:49 am to 4:49 pm.

Major destinations served by the route include Muskegon DHS, Mercy Health Mercy Campus, Walmart, Mercy Health Hackley Campus, Muskegon High School, and Hackley Public Library. Passengers may transfer from Route 55 to other routes at Herman Ivory Terminal (Routes 10, 15, 20, 25, 30, 35, 40/45, 50, 115), Muskegon Heights Transfer Point (15, 30, 40/45, 50) and along Laketon Avenue (Route 25).

Figure 76 | A. Route 55 Outbound (Source: MATS)

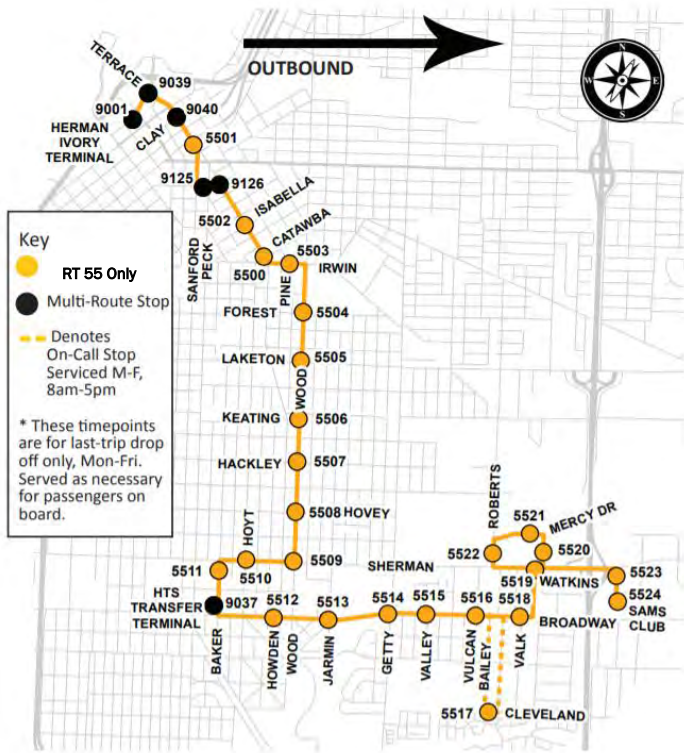


Figure 77 | B. Route 55 Inbound (Source: MATS)





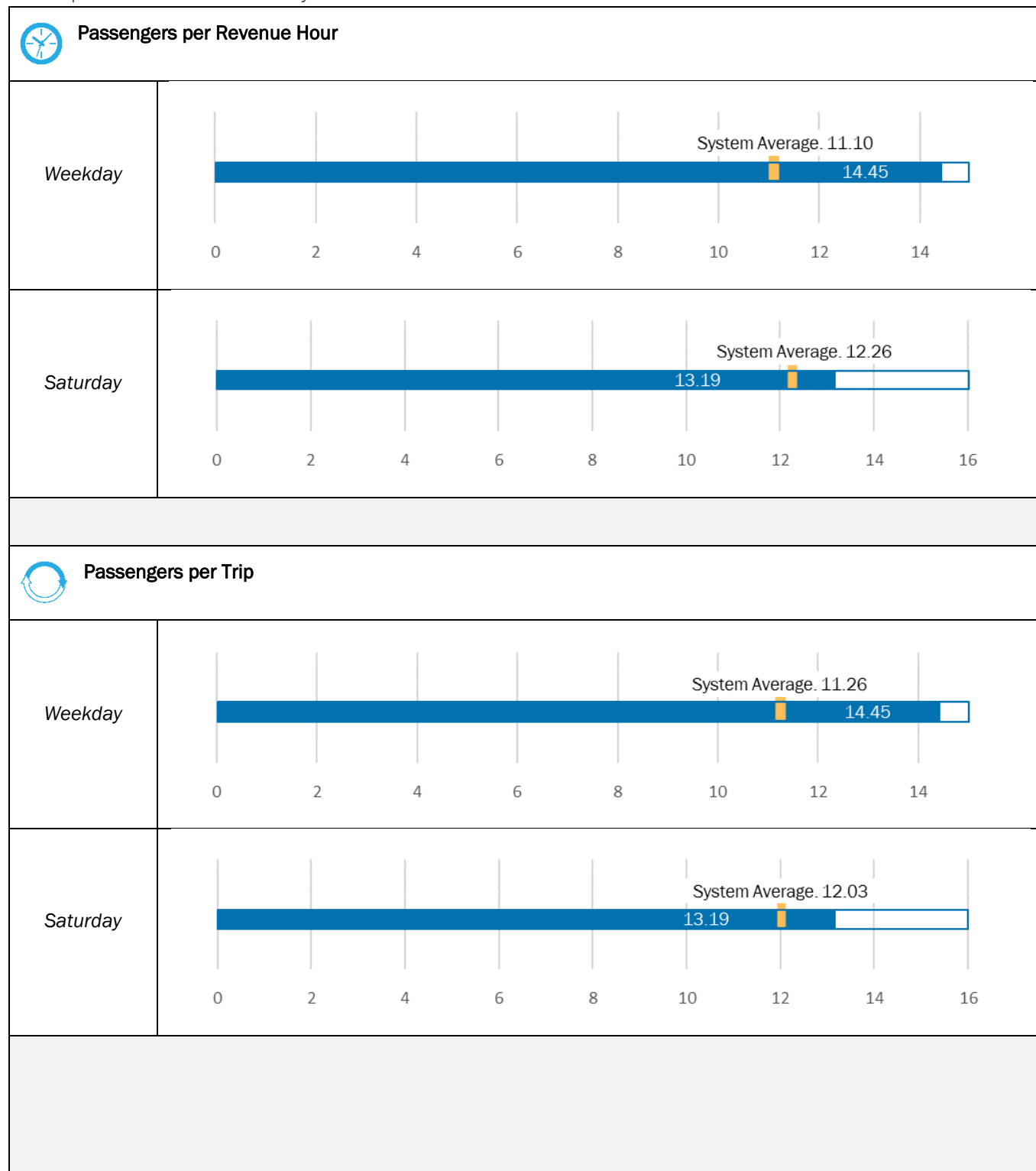
*Operating Characteristics**Table 25 | Route 55 Operating Characteristics*

|                         |                                                                                                                                                                |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Origin and Destination  | Herman Ivory Terminal<br>Sam's Club                                                                                                                            |
| Route Connections       | Herman Ivory Terminal (Routes 10,15, 20, 25, 30, 35, 40/45, 60, 115)<br>Muskegon Heights Transfer Point (Routes 15, 30, 40/45, 50)<br>Along Laketon (Route 25) |
| Key Points of Interest  | Muskegon DHS, Mercy Health Mercy Campus, Walmart, Mercy Health Hackley Campus, Muskegon High School, and Hackley Public Library                                |
| <b>Weekday</b>          |                                                                                                                                                                |
| Annual Operating Costs  | \$343,814                                                                                                                                                      |
| Annual Ridership        | 58,721                                                                                                                                                         |
| Average Daily Ridership | 231                                                                                                                                                            |
| Span                    | 6:34 am to 10:34 pm                                                                                                                                            |
| Frequency               | 60 minutes                                                                                                                                                     |
| <b>Saturday</b>         |                                                                                                                                                                |
| Annual Operating Costs  | \$35,193                                                                                                                                                       |
| Annual Ridership        | 5,488                                                                                                                                                          |
| Average Daily Ridership | 106                                                                                                                                                            |
| Span                    | 9:34 am to 5:34 pm                                                                                                                                             |
| Frequency               | 60 minutes                                                                                                                                                     |

## Service Analysis

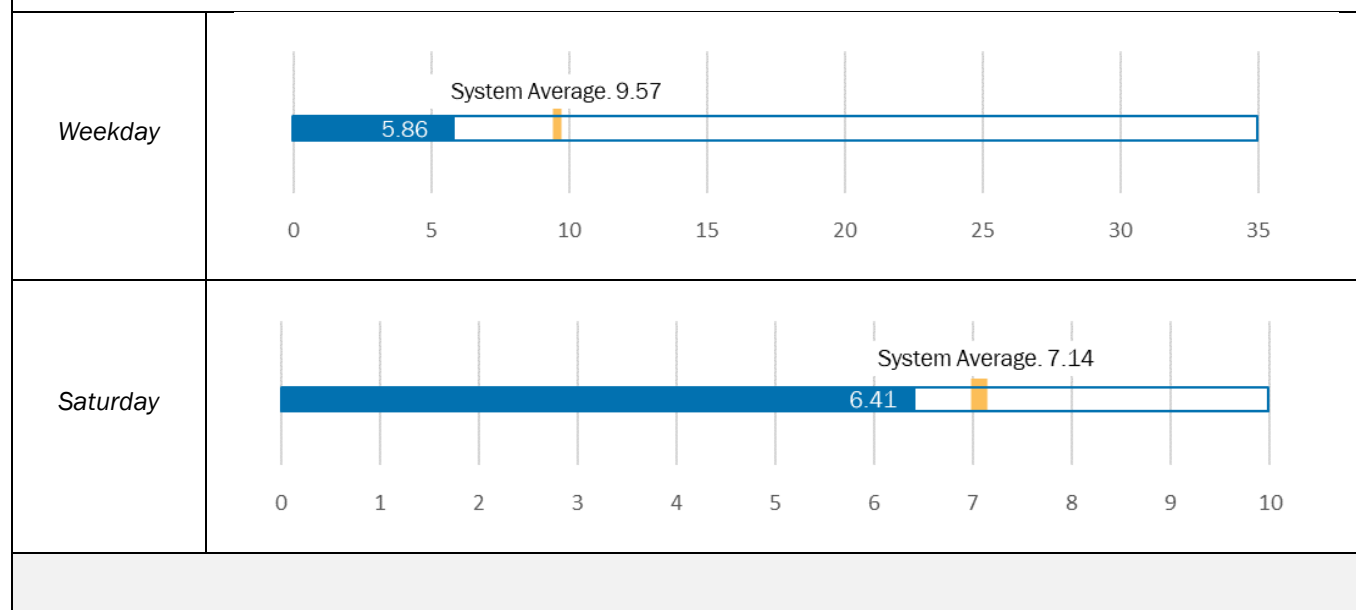
### Service Efficiency and Productivity

Table s | Route 55 Service Productivity Metrics



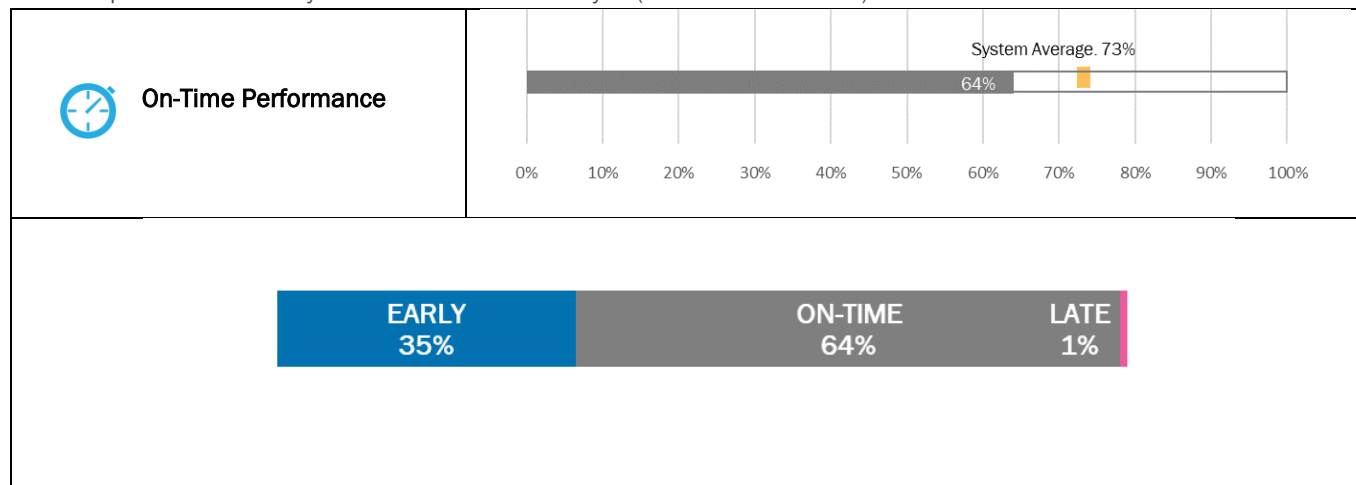


### Operating Cost per Passenger (Full Year)



### Weekday On-Time Performance

Table 26 | Route 55 Weekday On-Time Performance Analysis (From Ridecheck Data)



## Weekday Ridership by Stop

Figure 78 | Route 55 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

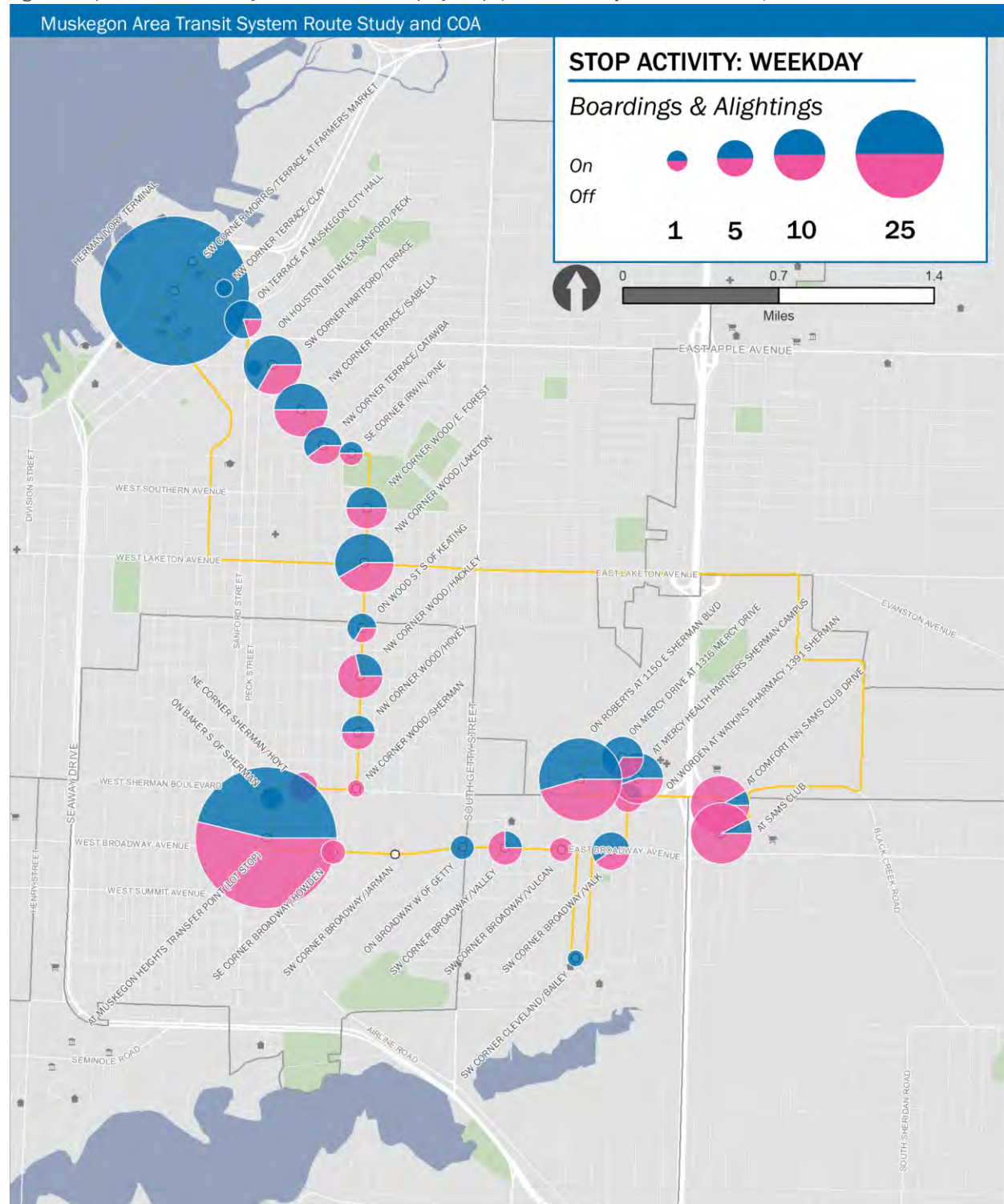


Figure 79 | Route 55 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

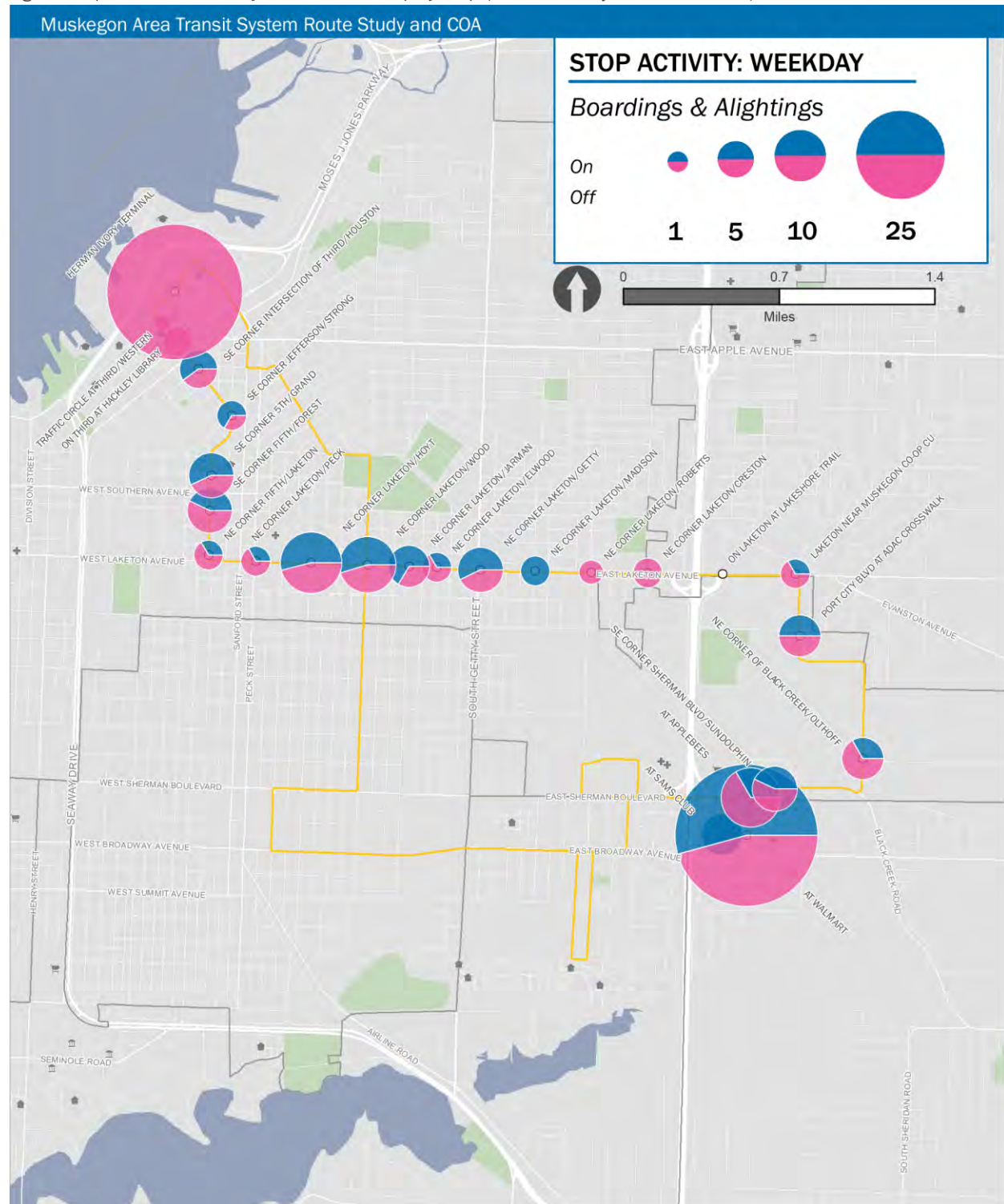




Figure 80 | Route 55 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

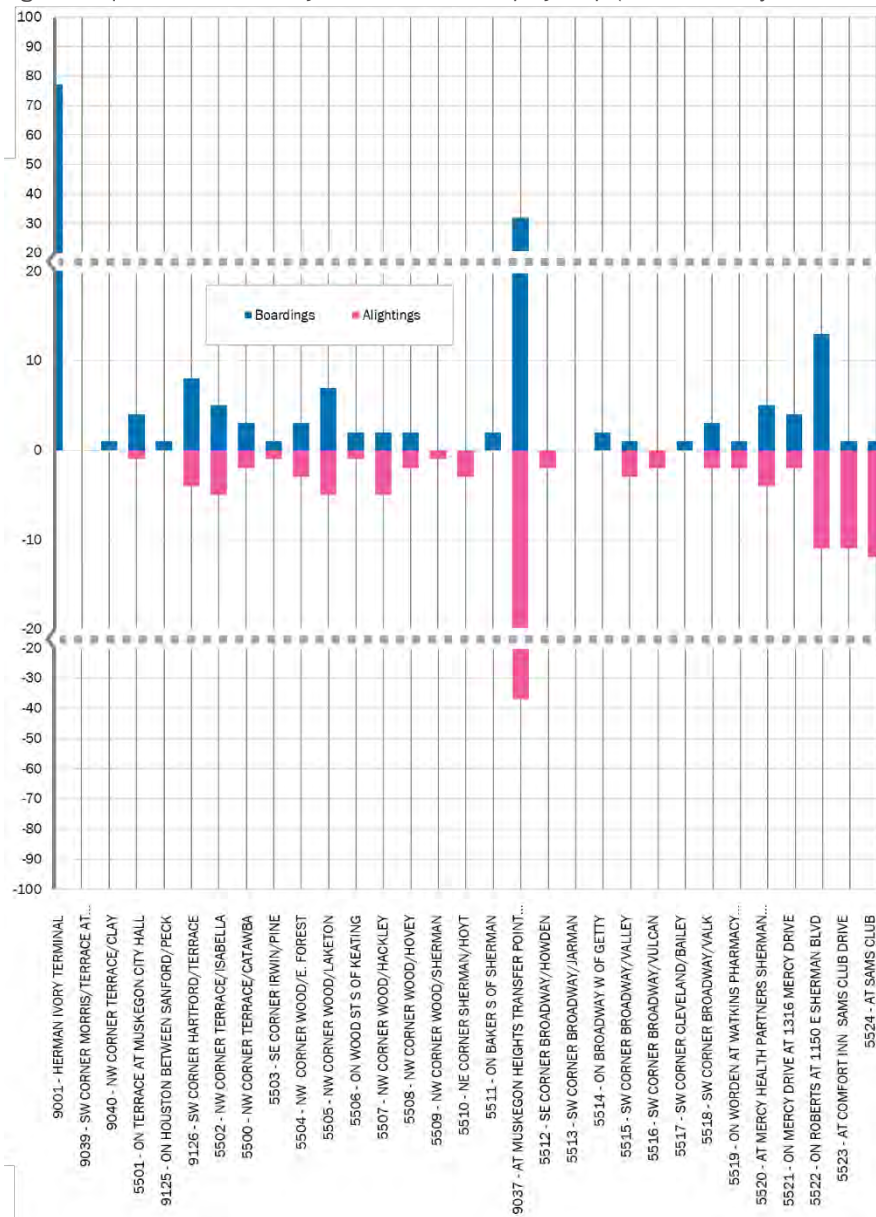
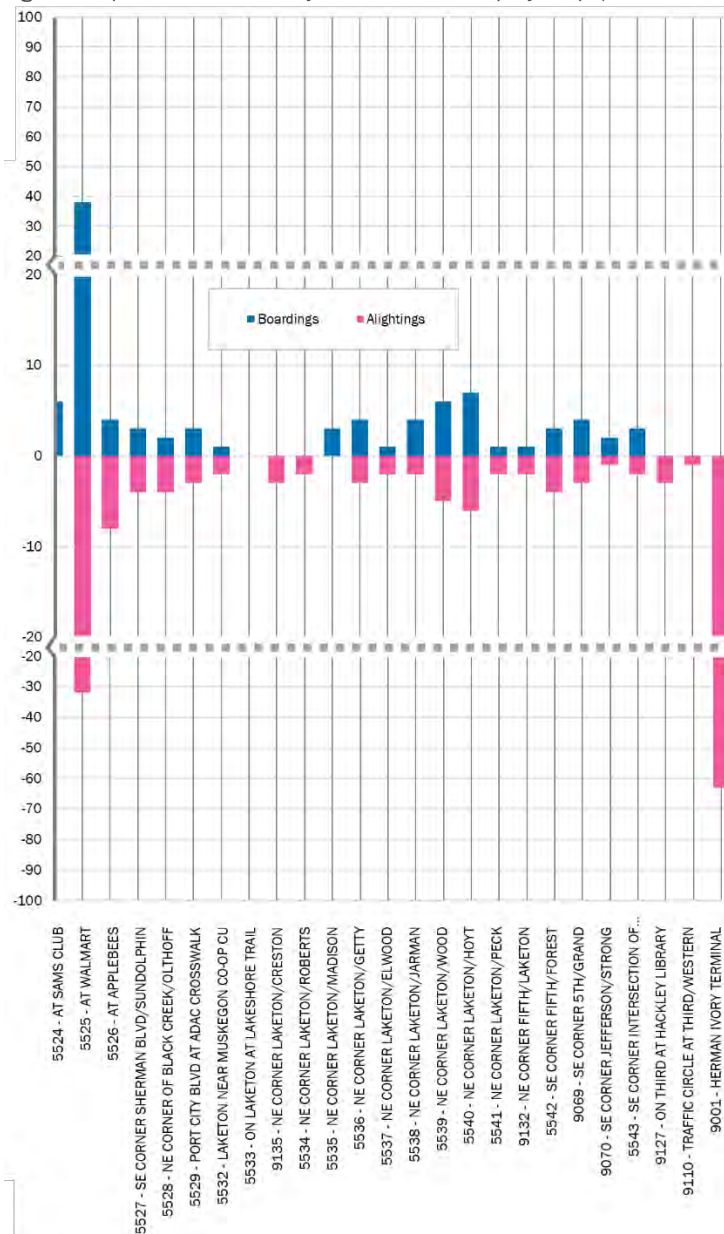


Figure 81 | Route 55 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)



## Saturday Ridership by Stop

Figure 82 | Route 55 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

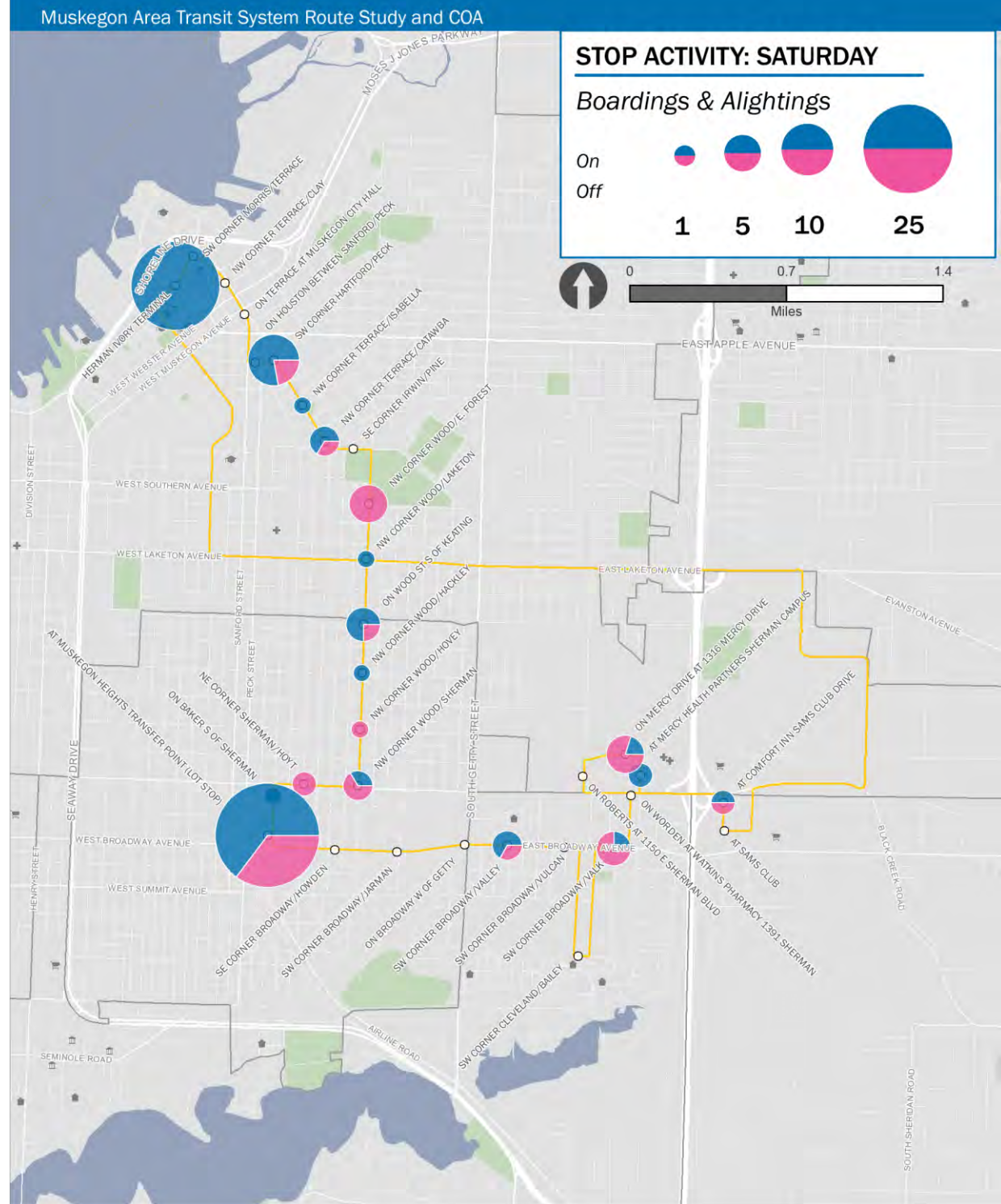




Figure 83 | Route 55 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)

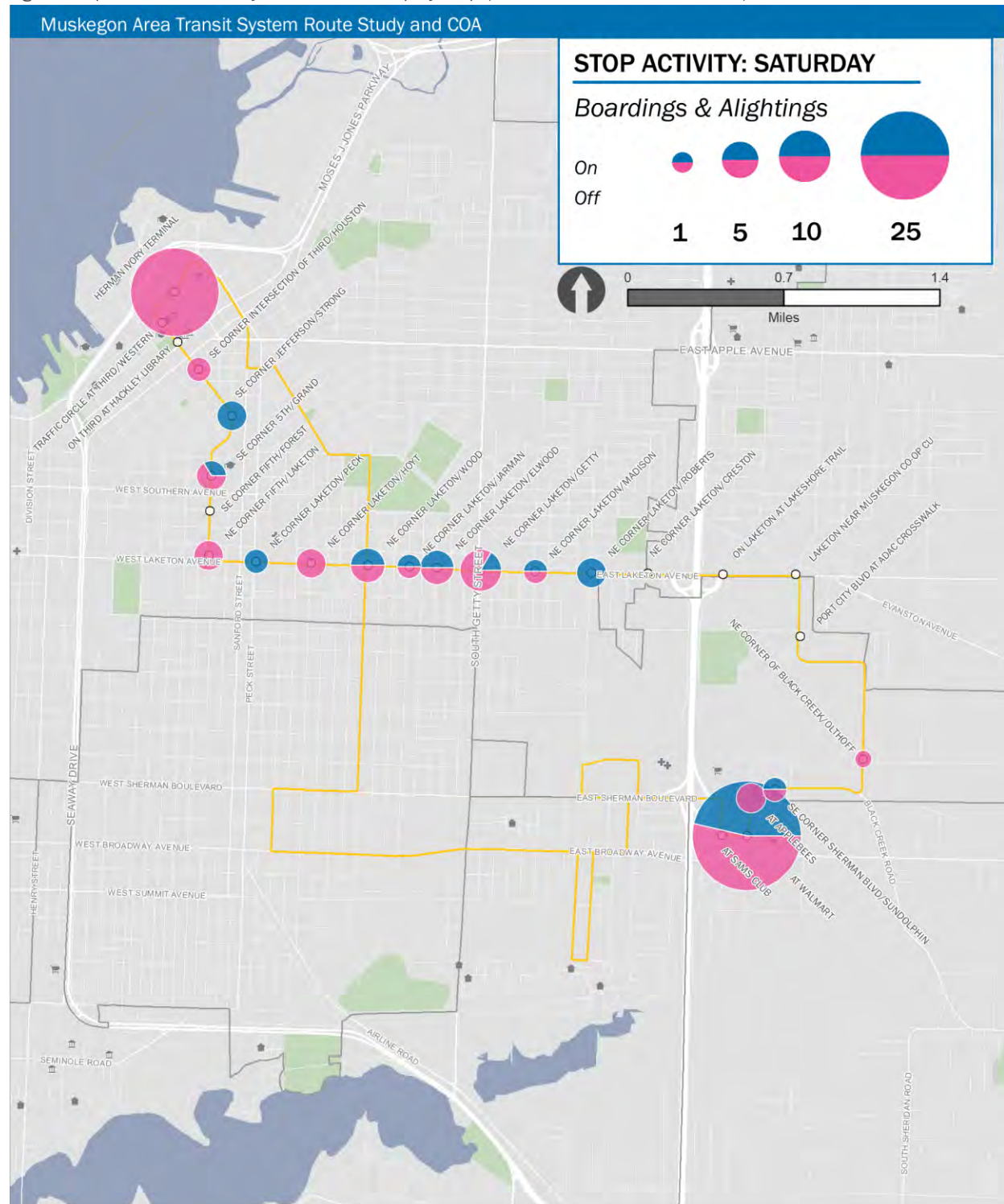


Figure 84 | Route 55 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

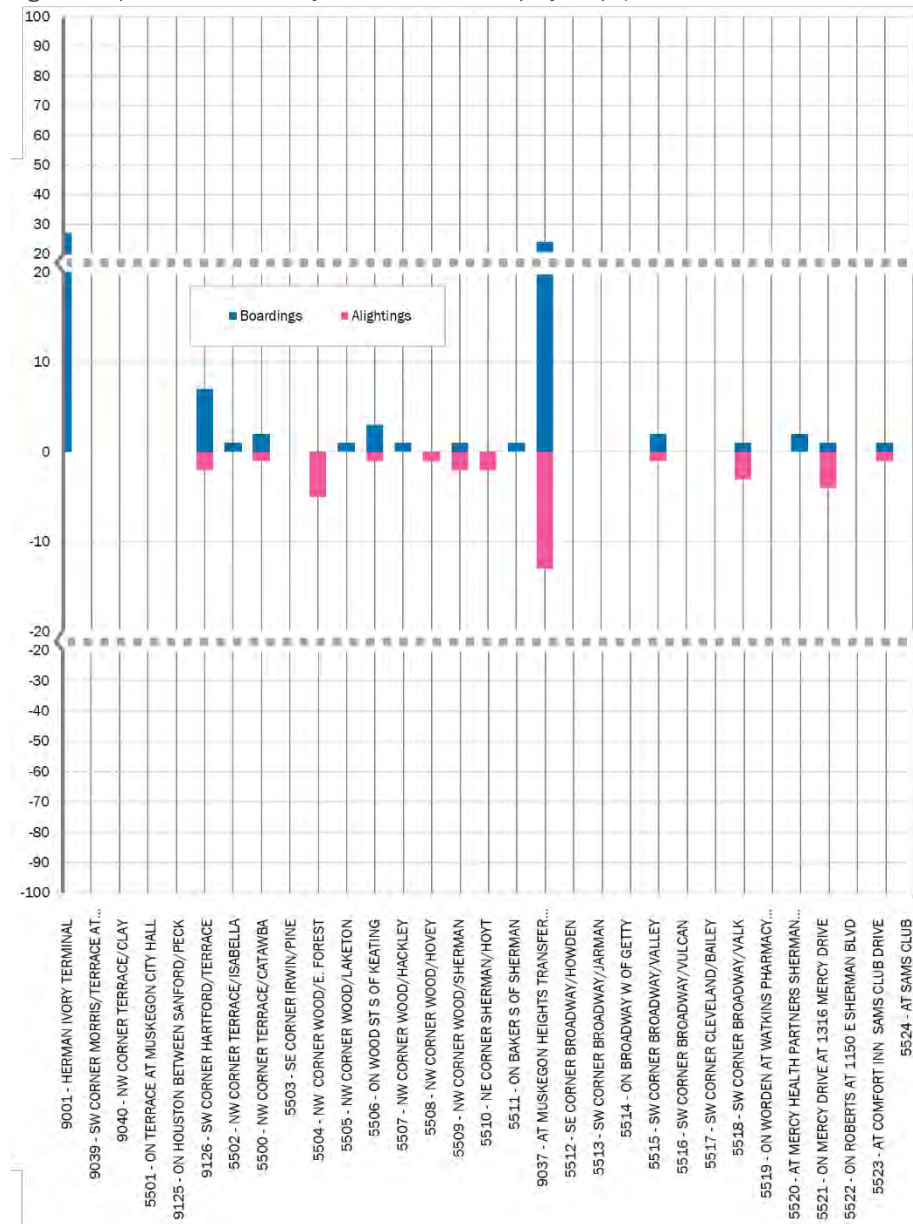
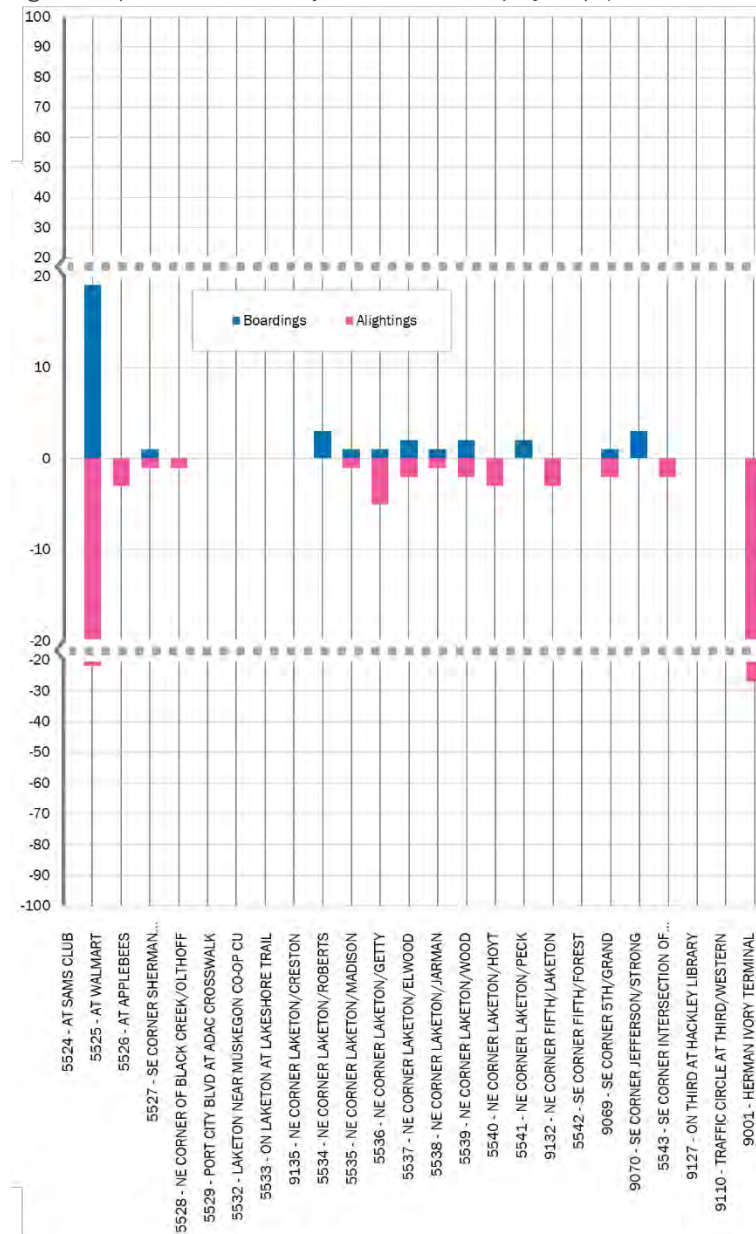




Figure 85 | Route 55 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



## Weekday Ridership by Trip

Figure 86 | Route 55 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

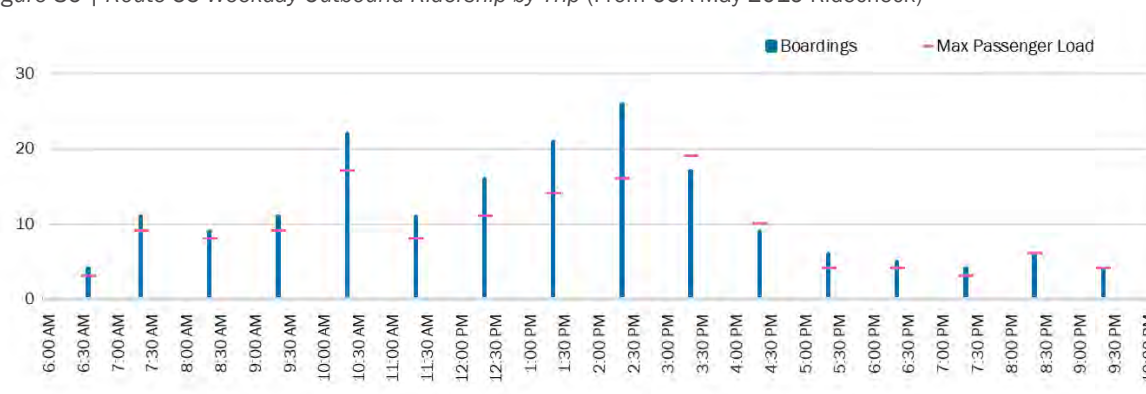
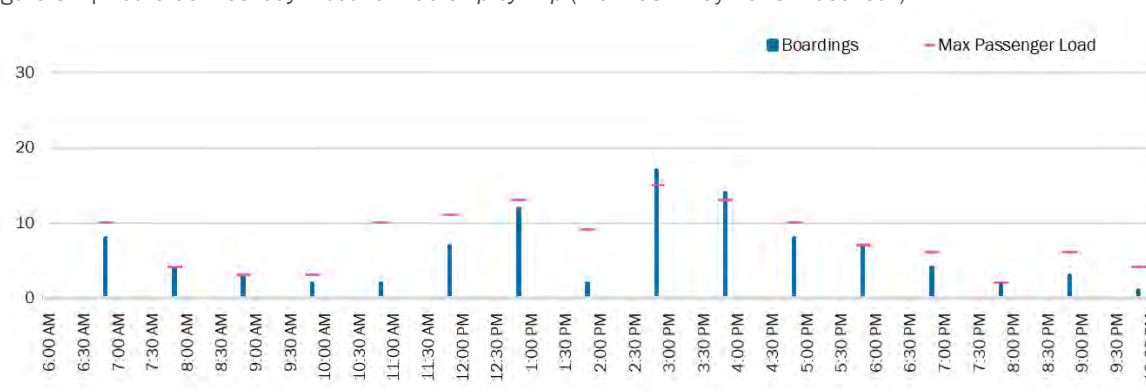


Figure 87 | Route 55 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Provides access to key regional destinations including Walmart and Mercy Health Mercy Campus.
- Above-average productivity (passengers per revenue hour and passengers per trip) on weekdays and Saturdays.
- Below-average operating cost per passenger on weekdays and Saturdays.
- Provides evening and Saturday service.

### Weaknesses

- One-way service design forces out-of-direction travel for many riders.
- Poor on-time performance, due primarily to a high rate of early departures.

## Service Improvement Opportunities

Potential opportunities to strengthen Route 55 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Restructure route to provide bi-directional service*

While Route 55 serves a number of key regional destinations, its one-way service design limits the route's appeal for prospective riders. For example, passengers traveling from the Herman Ivory Terminal to work destinations in the industrial parks along Park City Boulevard must first travel through the Muskegon Heights Transfer Point, the Mercy Health Mercy Campus, and Sam's Club/Walmart before reaching their intended destination. To streamline and simplify the route, Route 55 could be split into at least two routes, with each operating bi-directionally. One route could focus primarily on the Laketon Avenue corridor, ending at Walmart on Sherman Boulevard or at the Mercy Health Mercy Campus. Another route could serve the Wood Street corridor, possibly also ending at Mercy Health Mercy Campus, and Sam's Club/Walmart.

### *Review schedule to improve on-time performance*

Based on timepoint observations in May 2019, Route 55 buses depart from timepoints earlier than scheduled 35% of the time. Early departures are often more disruptive to passengers than late arrivals, because if a bus leaves a stop before a passenger arrives, that passenger may face a wait-time of more than one hour for the next scheduled bus. To address this situation, schedules should be recalibrated based on field testing and observations.

## Route 60

### Service Description

Route 60 (**Figure 88**) provides weekday evening and Saturday service between Herman Ivory Terminal and Meijer on Henry Street. The route provides service coverage to segments otherwise served by Routes 10 and 35 before 6:00 pm on weekdays. Inbound and outbound Route 60 buses take different routes. Outbound service operates along Lakeshore Drive, Sherman Boulevard, Glenside Boulevard, Hackley Avenue, and Henry Street. Inbound service operates along Henry and Division. Hourly service frequency is provided as follows:

#### ■ Weekdays

Outbound service departs from Herman Ivory Terminal every hour, from 5:50 pm am to 9:50 pm.

Inbound service departs Meijer every hour, from 6:18 pm to 10:18 pm.

#### ■ Saturdays

Outbound service departs from Herman Ivory Terminal every hour, from 9:50 am to 4:50 pm.

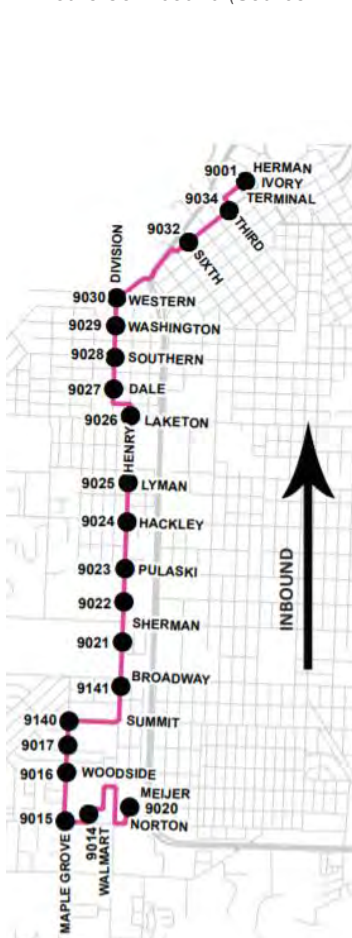
Inbound service departs Meijer every hour, from 10:18 am to 5:18 pm.

Major destinations served by the Route 60 include Save-A-Lot, Aldi, Walmart, Meijer, and a number of large apartment complexes along Hackley Avenue. Passengers may transfer from Route 60 to other routes at Herman Ivory Terminal (Routes 15, 25, 30, 55) and at Meijer (Routes 15).

Figure 88 | A. Route 60 Outbound (Source: MATS)



B. Route 60 Inbound (Source: MATS)



*Operating Characteristics**Table 27 | Route 60 Operating Characteristics*

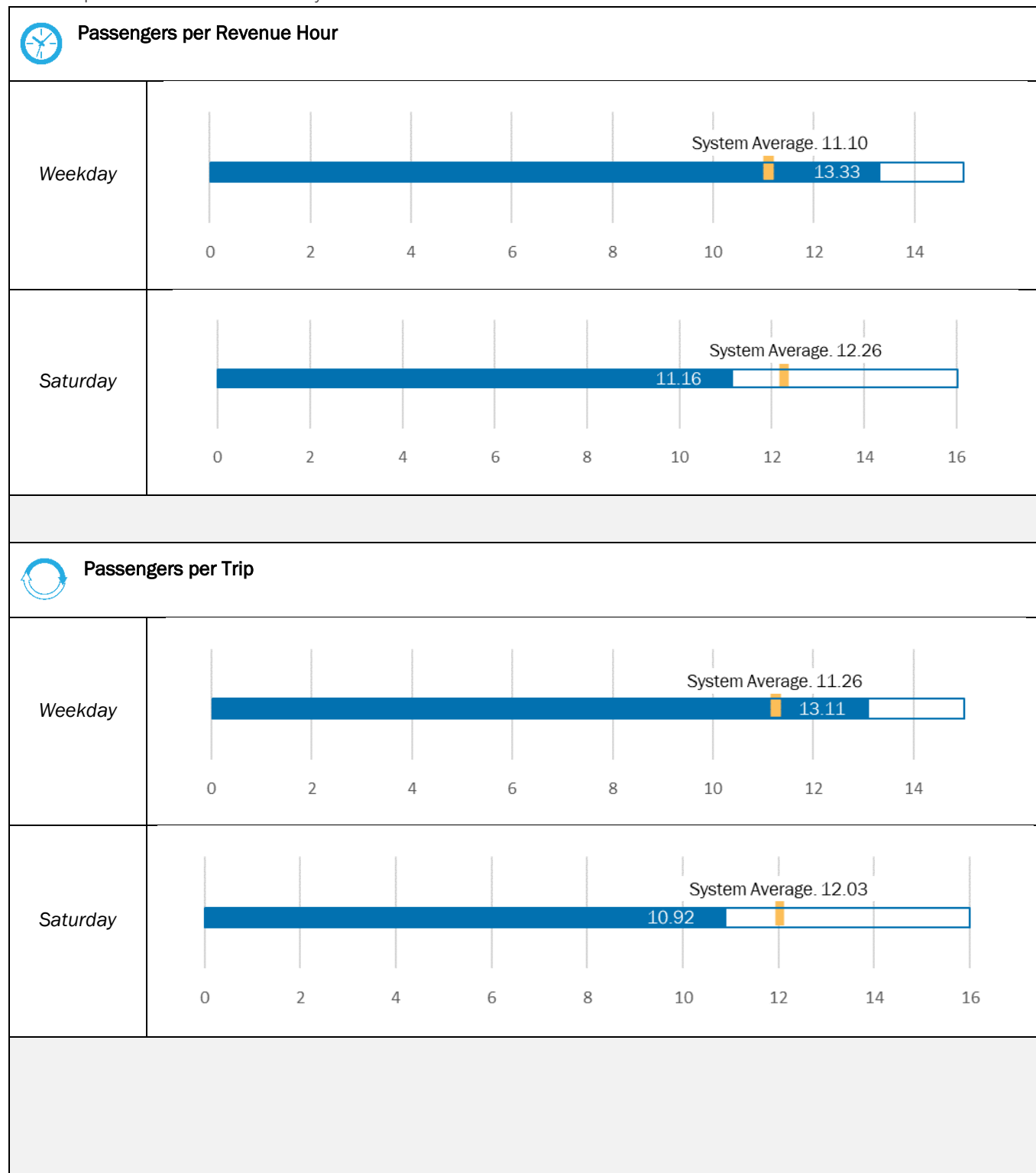
|                         |                                                                      |
|-------------------------|----------------------------------------------------------------------|
| Origin and Destination  | Herman Ivory Terminal<br>Meijer                                      |
| Route Connections       | Herman Ivory Terminal (Routes 15, 25, 30, 55)<br>Meijer (Routes 15)  |
| Key Points of Interest  | Save-A-Lot, Aldi, Walmart, Meijer, several large apartment complexes |
| <b>Weekday</b>          |                                                                      |
| Annual Operating Costs  | \$105,722                                                            |
| Annual Ridership        | 16,654                                                               |
| Average Daily Ridership | 66                                                                   |
| Span                    | 5:40 pm to 10:40 pm                                                  |
| Frequency               | 60 minutes                                                           |
| <b>Saturday</b>         |                                                                      |
| Annual Operating Costs  | \$34,445                                                             |
| Annual Ridership        | 4,542                                                                |
| Average Daily Ridership | 87                                                                   |
| Span                    | 9:50 am to 5:40 pm                                                   |
| Frequency               | 60 minutes                                                           |



## Service Analysis

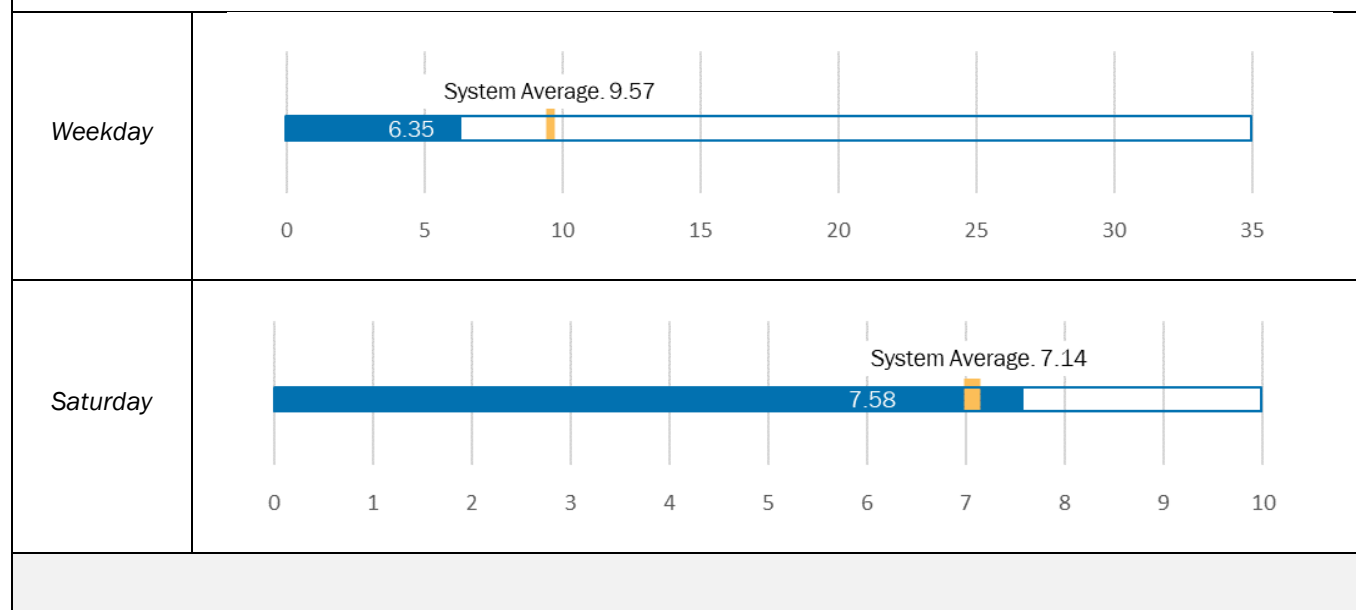
### Service Efficiency and Productivity

Table 28 | Route 60 Service Productivity Metrics





### Operating Cost per Passenger (Full Year)



### Weekday On-Time Performance

Table 29 | Route 60 Weekday On-Time Performance Analysis (From Ridecheck Data)









Figure 91 | Route 60 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

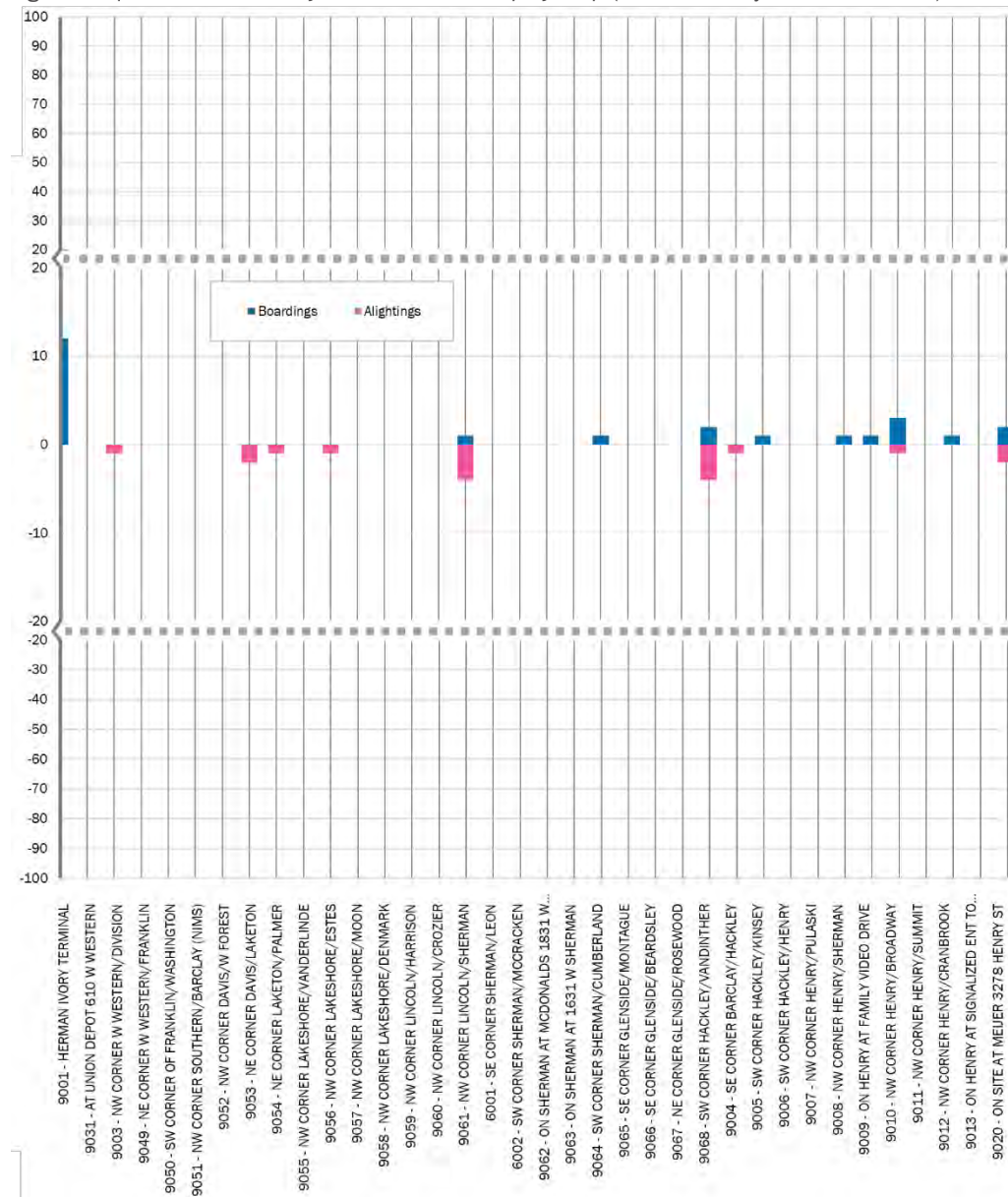




Figure 92 | Route 60 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

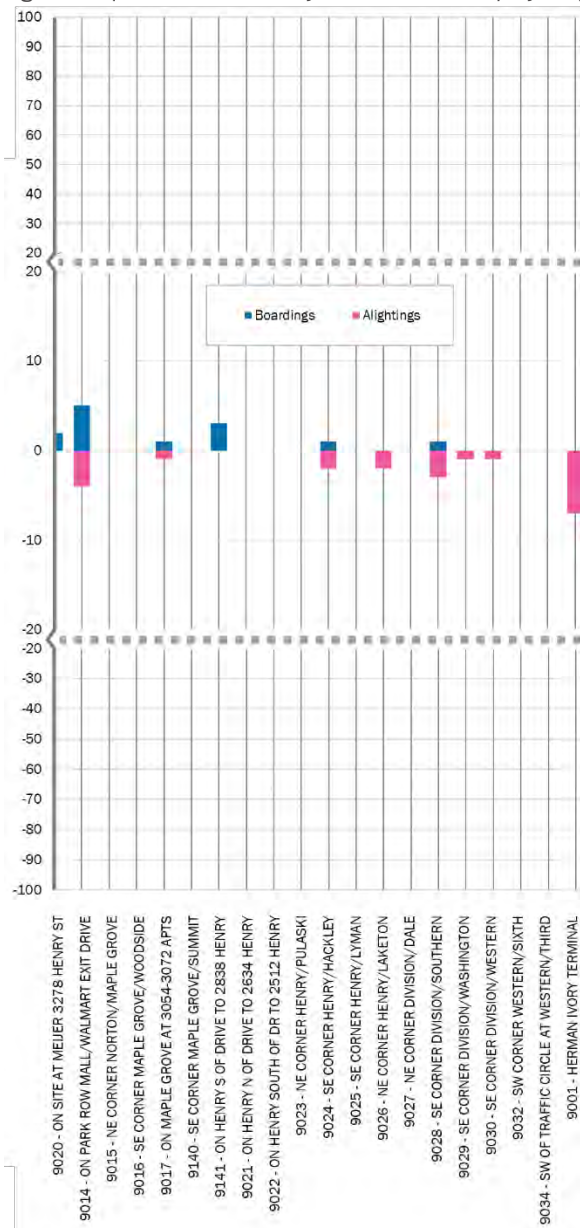








Figure 95 | Route 60 Saturday Outbound Ridership by Stop (From October 2018 Ridecheck)

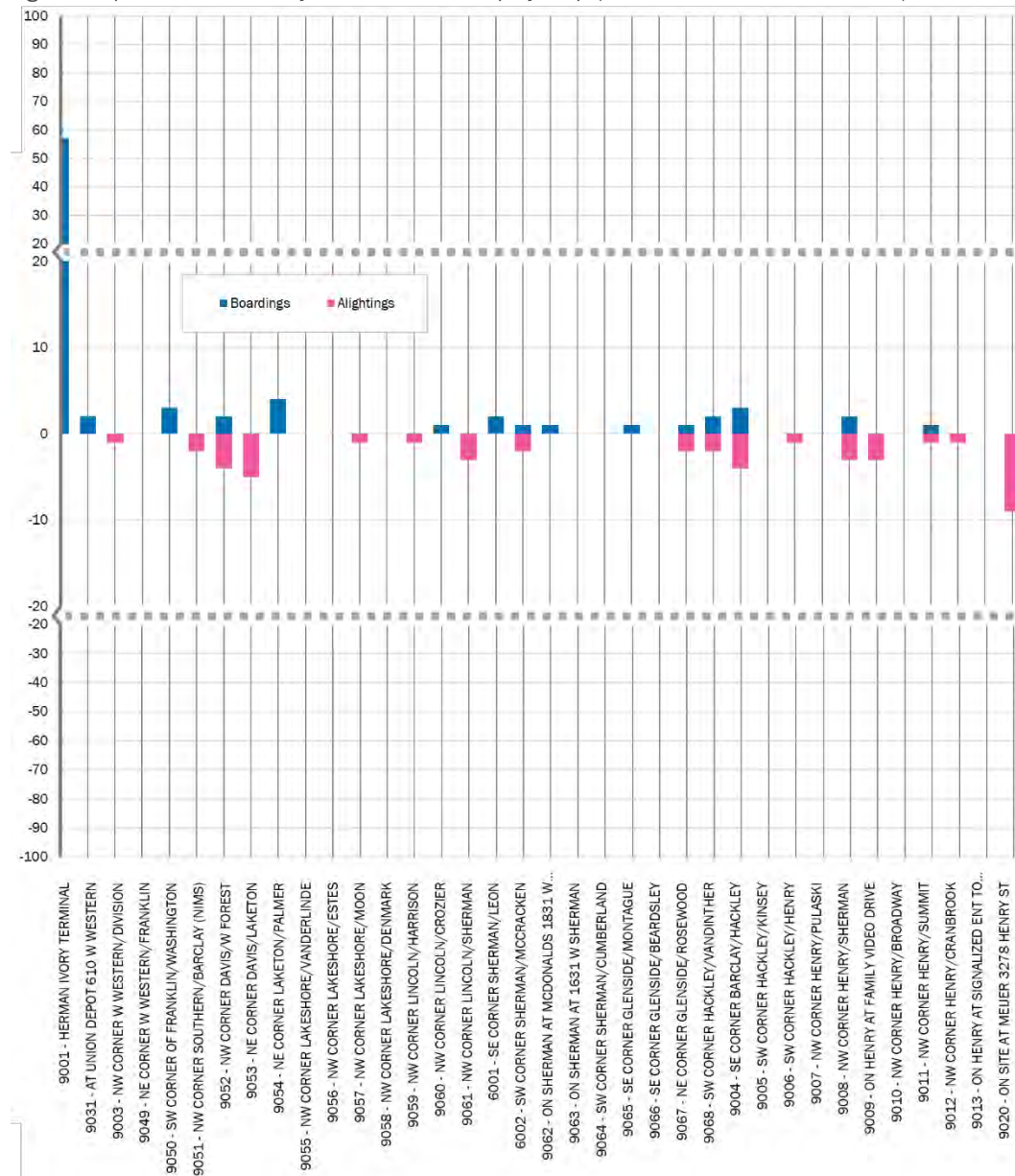
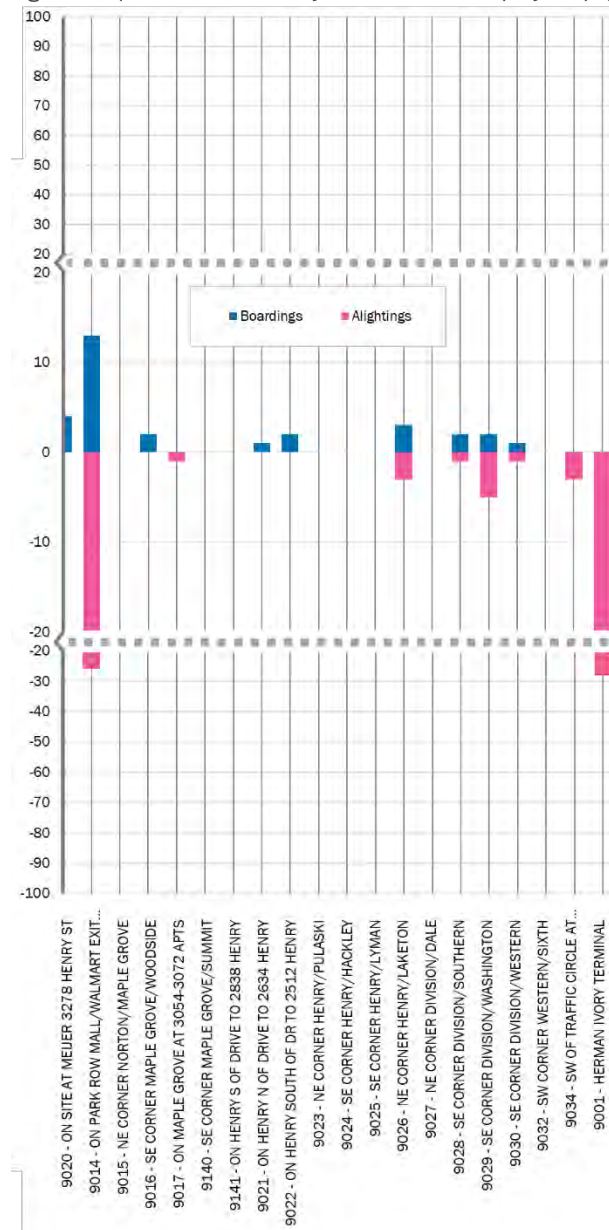


Figure 96 | Route 60 Saturday Inbound Ridership by Stop (From October 2018 Ridecheck)



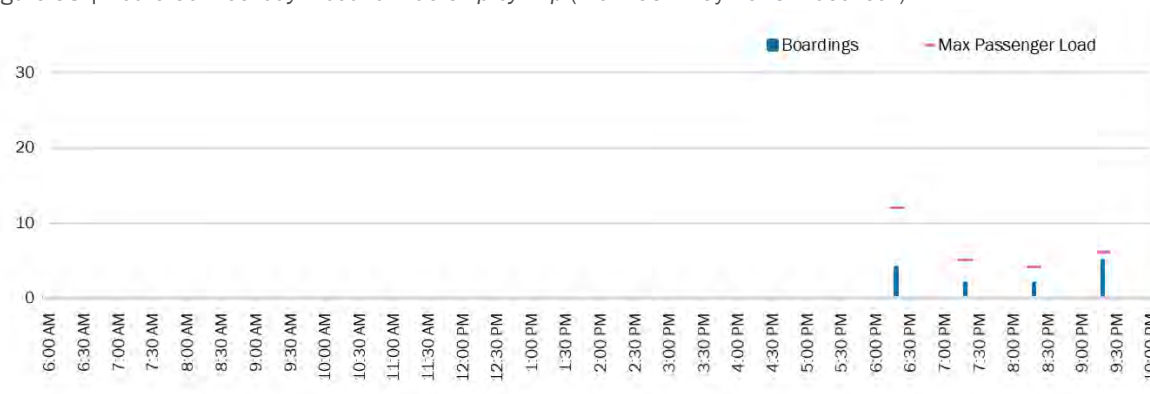


### Weekday Ridership by Trip

Figure 97 | Route 60 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)



Figure 98 | Route 60 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck)



## Service Assessment

### Strengths

- Consistent clockface frequency.
- Serves a number of strong anchors (Meijer, Walmart, Aldi).
- Below-average weekday operating cost per passenger.
- Above-average weekday productivity (passengers per revenue hour and passengers per trip).
- Provides weekday evening and Saturday service when other routes are not in service.

### Weaknesses

- Very circuitous alignment, forcing out-of-direction travel for most passengers.
- Inconsistent inbound and outbound alignments.
- Limited weekday schedule, forcing riders to refer to different route schedules depending on time of day.
- Below-average Saturday productivity (passengers per revenue hour and passengers per trip).

## Service Improvement Opportunities

Potential opportunities to strengthen Route 60 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Simplify route with a single consistent alignment*

Route 60 operates along two very different alignments in the outbound and inbound directions. This allows the route to cover a large service area but also forces nearly all passengers to ride a significant distance out-of-direction on either their outbound or return trip. For example, a passenger traveling to downtown Muskegon from the numerous apartments along Hackley Avenue would first have to travel as far south as Norton Avenue before finally reaching downtown Muskegon. Similarly, a passenger traveling from the Herman Ivory Terminal to Meijer on Henry Street would have to travel as far west as Lincoln Street before reaching their destination. To simplify the route, service should operate along a consistent alignment in both directions, as described previously for Route 10. A bi-directional alignment that would likely result in high ridership and strong productivity would link downtown Muskegon with the numerous apartment complexes along Hackley Avenue and the retail destinations along Henry Street, such as Aldi, Walmart, and Meijer.

### *Operate a consistent alignment regardless of time of day*

Route 60 service begins at 5:50 pm on weekdays, taking over service segments operated by Route 10 and Route 35 earlier in the day. Most transit users and commuters, in general, are creatures of habit and introducing a new route alignment or schedule for part of the service day can limit the ridership potential of a route compared to operating with a consistent alignment throughout the service day. Identifying the segments of Routes 10, 35, and 60 with the highest ridership and highest ridership potential can allow for the development of a strong consolidated route with a consistent alignment for all service periods.

### *Replace part of Route 60 with microtransit service*

If the highest-ridership segments of Route 60 are included in a restructured bi-directional route, the remainder of the route, which covers a large service area, could potentially be served by a microtransit service designed to shuttle area residents from their homes to key retail centers and other destinations along Henry Street. The density, land-use, and built-environment of many of the neighborhoods served by Route 60 make microtransit a more promising service model than traditional fixed-route service, except in areas with large retail centers and large apartment complexes.

## Route 115

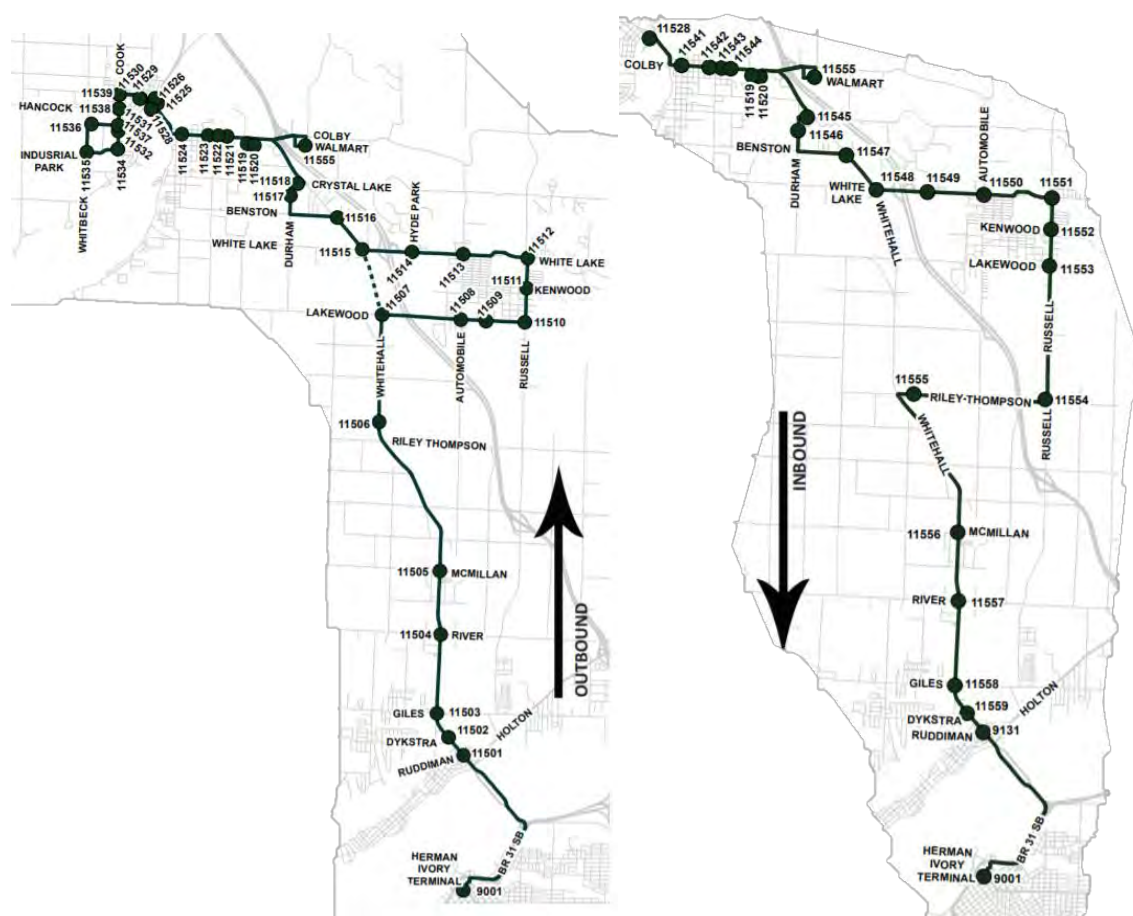
### Service Description

Route 115 (**Figure 99**) provides weekday service between Herman Ivory Terminal and the cities of Whitehall and Montague. Outbound and inbound trips use different routes north of Muskegon, but both provide coverage along Whitehall Road and serve the Village of Lakewood Club. Seven outbound and six inbound trips are scheduled Monday through Friday:

- Outbound service departs from Herman Ivory Terminal at 6:45, 8:15, 10:15, 12:15, 2:15, 4:15 and 5:15. The first and last trips of the day operate as express routes.
- Inbound service departs Montague at 7:15, 9:15, 11:15, 1:15, 3:15 and 5:15.

Route 115 outbound service travels along Whitehall Road to Lakewood Road and then turns east to serve Lakewood Club. From Lakewood Club, the service continues north to Whitehall and Montague. Inbound service travels southeast from Montague to Whitehall, and then on to Lakewood Club via Whitehall Road, White Lake Drive, and Russell Road. From Lakewood Club, the route continues along Riley Thompson Road and Whitehall Road to Muskegon. Major destinations served by the route include Walmart and Save A Lot in Whitehall. Passengers may transfer from Route 115 to other routes at Herman Ivory Terminal (Routes 10,15,20,25,30,35,40/45,55).

Figure 99 | A. Route 115 Outbound (Source: MATS)      B. Route 115 Inbound (Source: MATS)



*Operating Characteristics*

Table 30 | Route 1115 Operating Characteristics

|                                |         |                                                                  |
|--------------------------------|---------|------------------------------------------------------------------|
|                                |         |                                                                  |
| Route Connections              |         | Herman Ivory Terminal (Routes 10,15,20,25,30,35,40/45,55),       |
| Key Points of Interest         |         | Chassix, Save A Lot, Walmart, Michigan's Adventure               |
| Weekday                        |         |                                                                  |
| Annual Weekday Operating Costs |         | \$240,588.02                                                     |
| Annual Ridership               |         | 7338                                                             |
| Average Daily Ridership        | Weekday | 29                                                               |
| Span                           | Weekday | 6:15 am to 5:15 pm                                               |
| Frequency                      | Weekday | Typically every 2 hours, but varies depending on the time of day |

## Service Analysis

### Weekday Service Efficiency and Productivity

Table 31 | Route 115 Weekday Service Productivity Metrics





Weekday On-Time Performance

Table 32 | Route 115 Weekday On-Time Performance Analysis (From COA May 2019 Ridecheck)

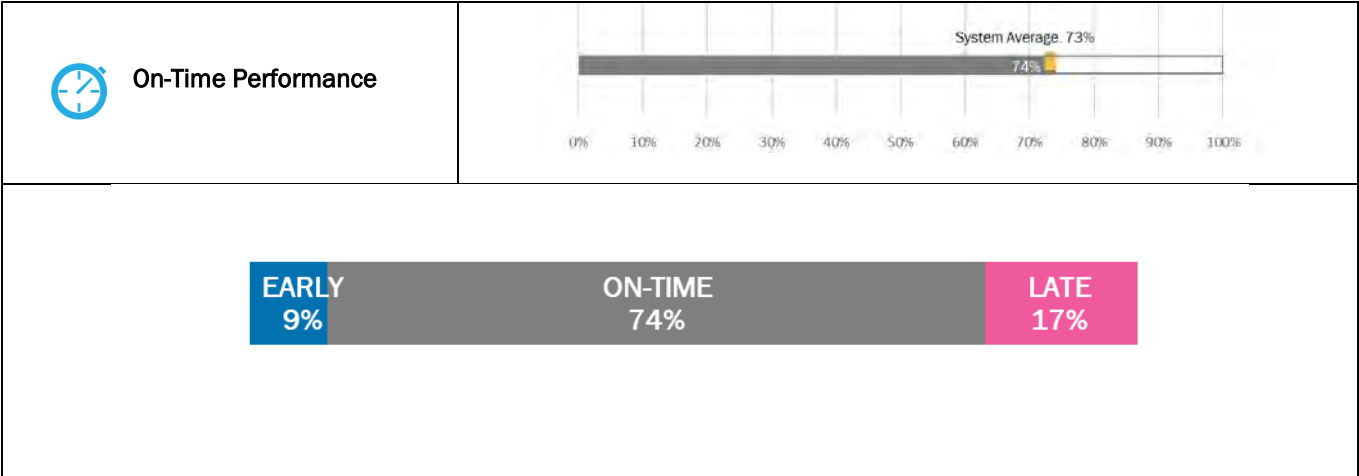




Figure 101 | Route 115 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)

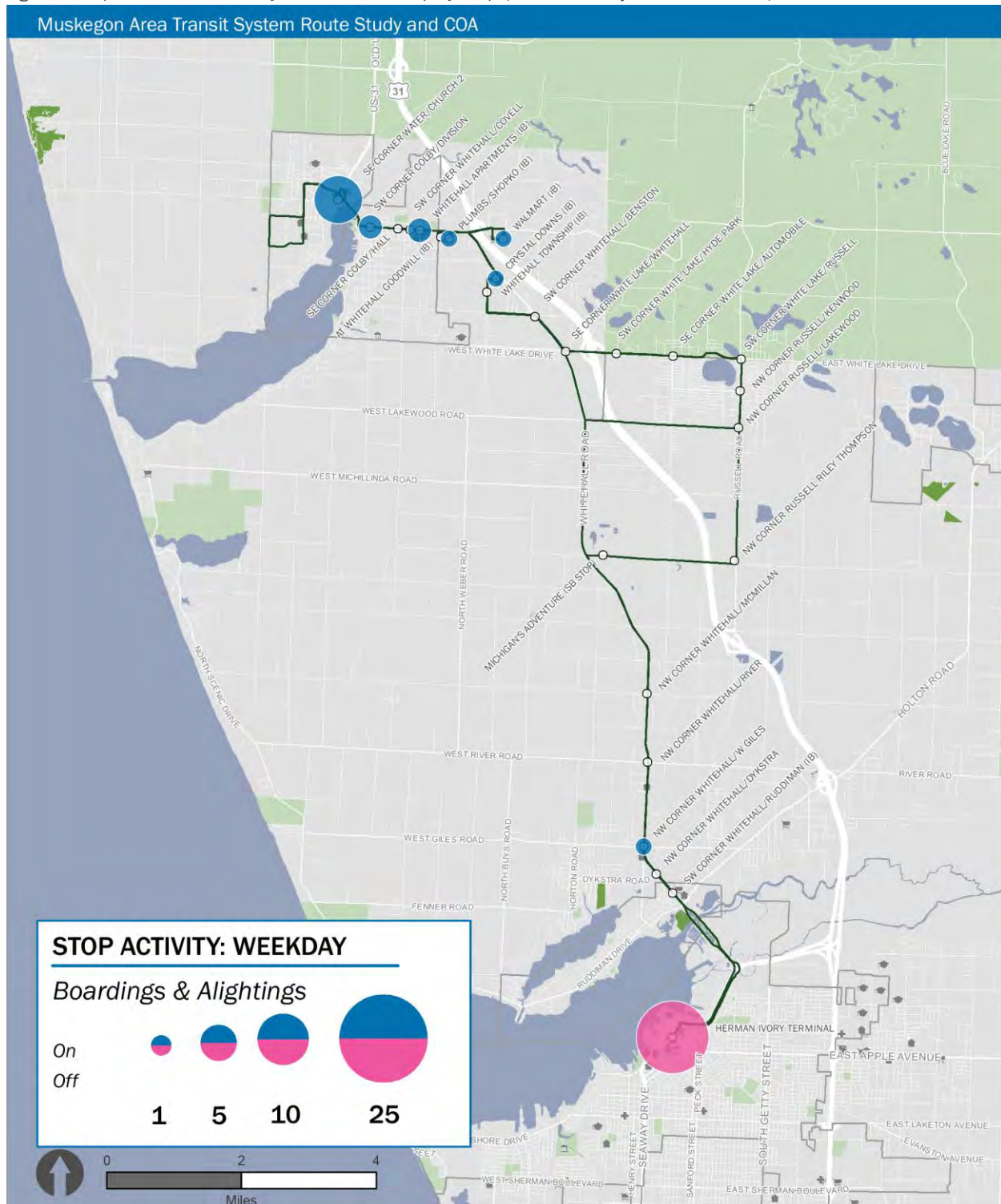




Figure 102 | Route 115 Weekday Outbound Ridership by Stop (From COA May 2019 Ridecheck)

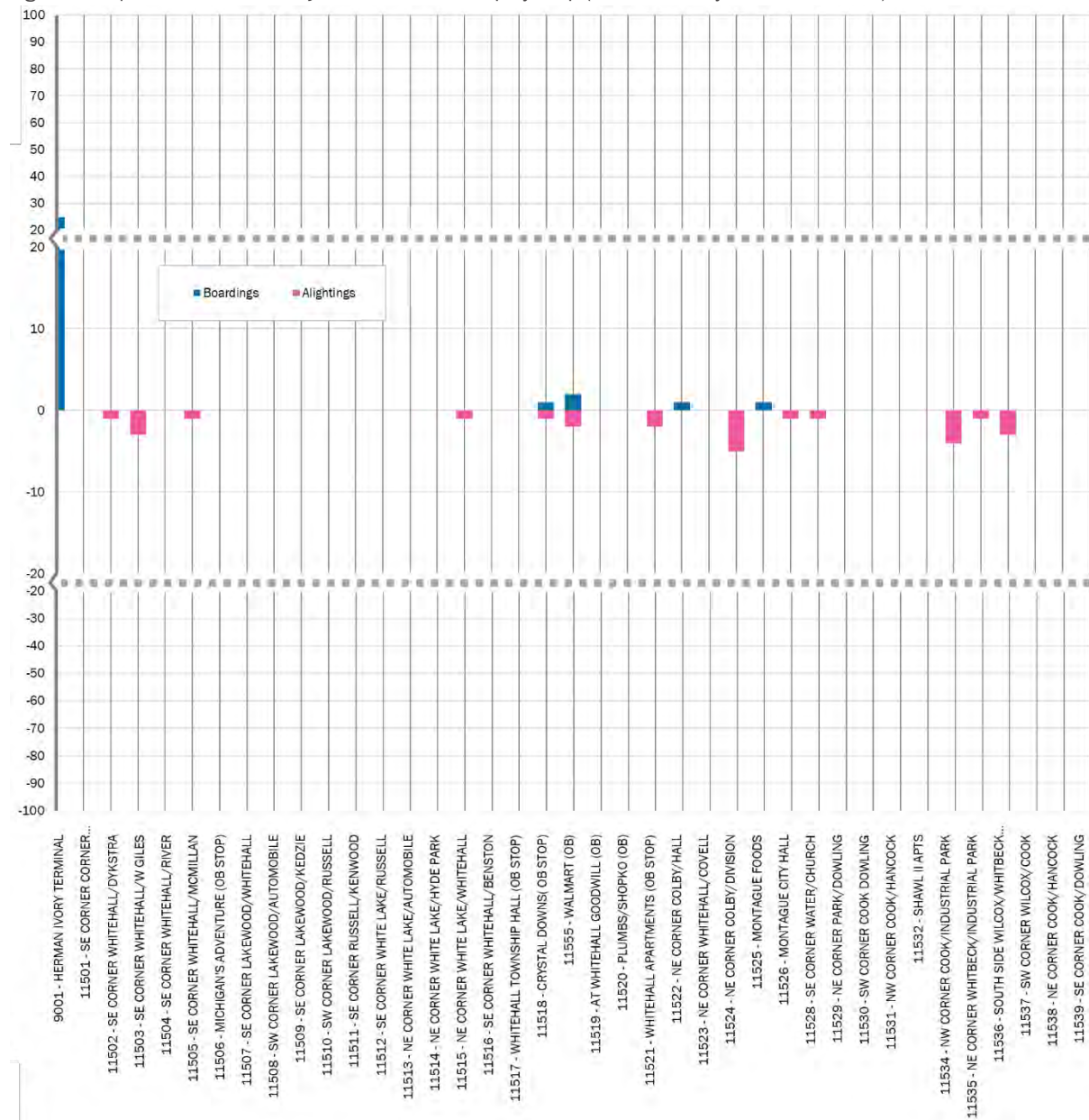
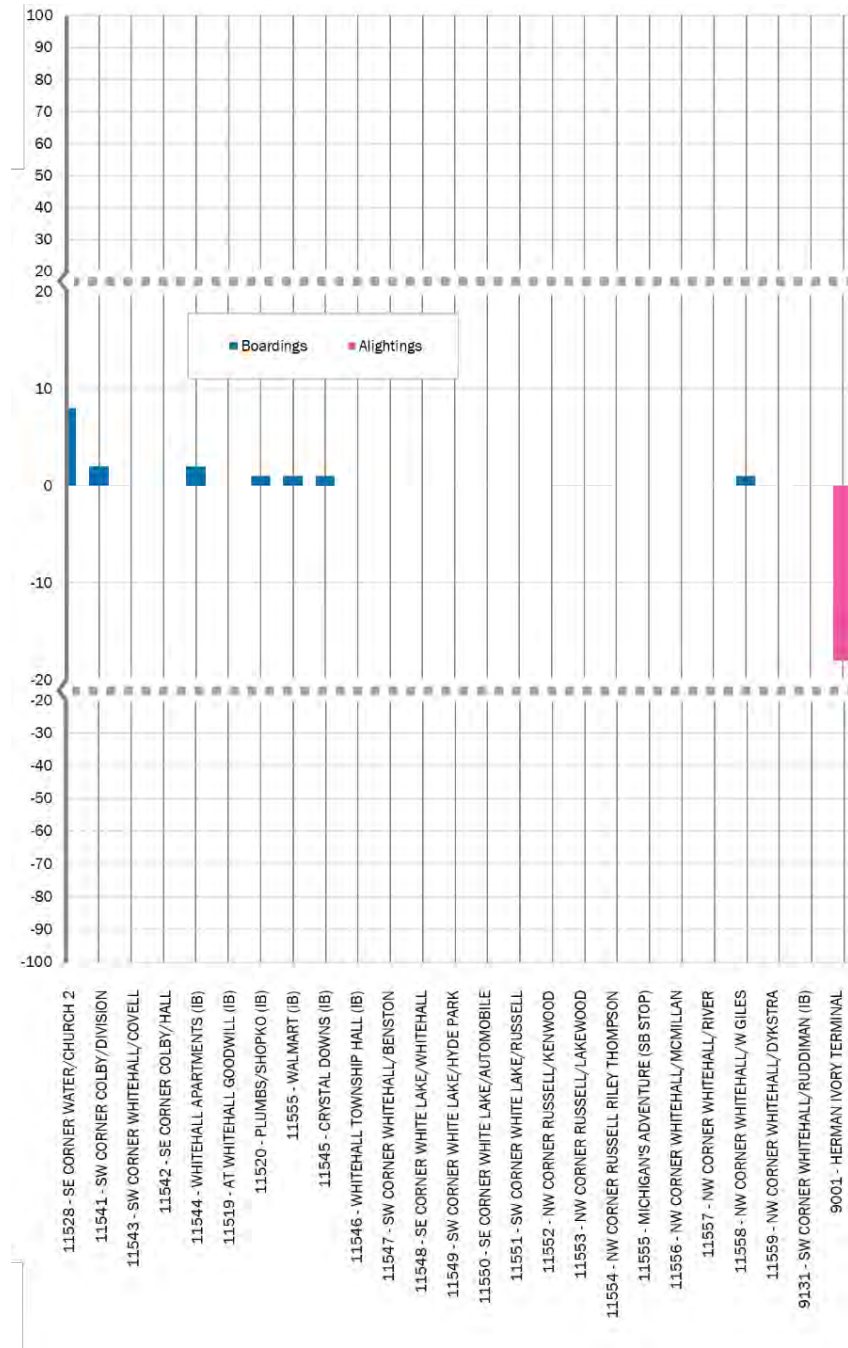


Figure 103 | Route 115 Weekday Inbound Ridership by Stop (From COA May 2019 Ridecheck)





### Weekday Ridership by Trip

Figure 104 | Route 115 Weekday Outbound Ridership by Trip (From COA May 2019 Ridecheck)

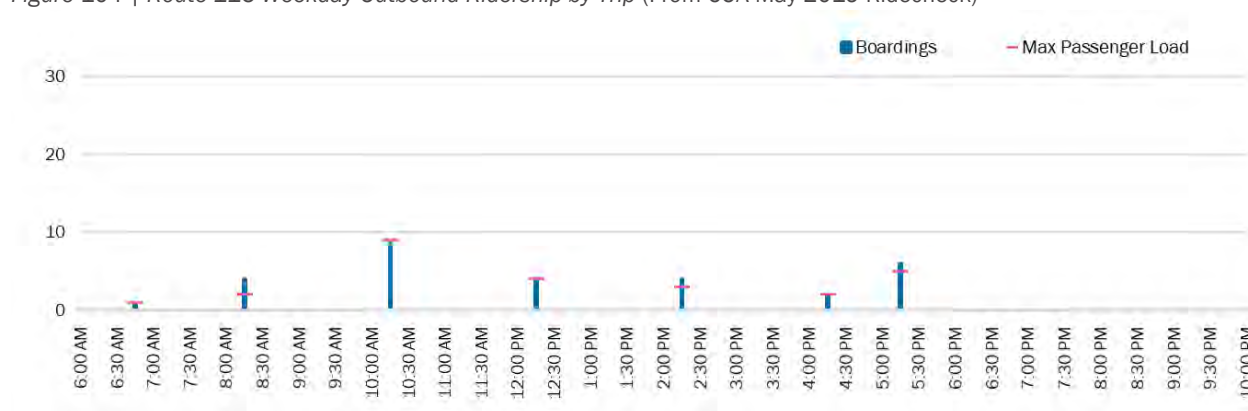
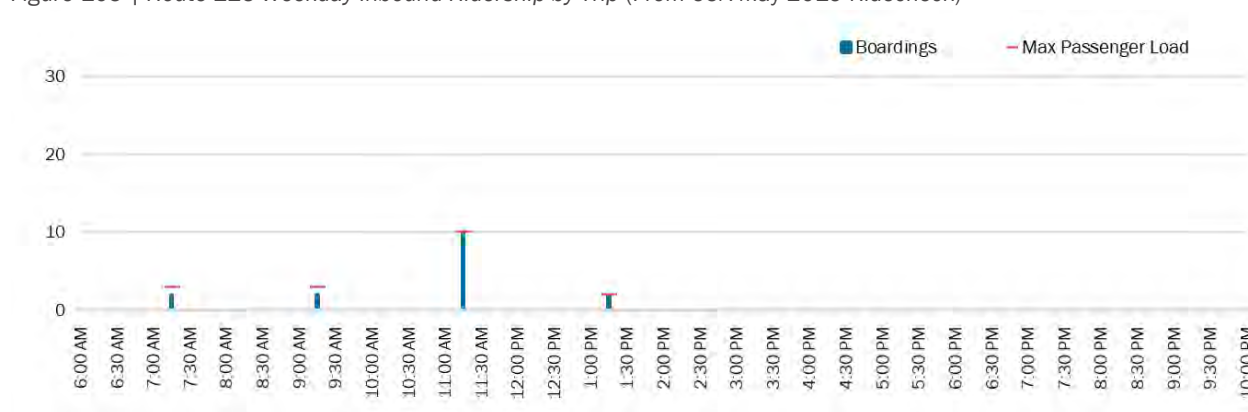


Figure 105 | Route 115 Weekday Inbound Ridership by Trip (From COA May 2019 Ridecheck) <sup>1</sup>



## Service Assessment

### Strengths

- Provides regional connectivity.

### Weaknesses

- Infrequent service (approximately once every two hours during weekdays).
- Above-average operating cost per passenger.
- Below-average productivity (passengers per revenue hour and passengers per trip).
- No service on Saturdays or after 6:00 pm on weekdays.
- One of the trip attractors on the route, Michigan Adventure is only open seasonally and the route does not run late enough to serve its employee needs.

<sup>1</sup> Please note, the 3:15 and 5:15 inbound trips had no ridership (according to data sampled).

## Service Improvement Opportunities

Potential opportunities to strengthen Route 115 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### *Consider replacing Route 115 with microtransit service*

Route 115 is a low-ridership route with no trips or stops (other than the Herman Ivory Terminal) generating more than 10 passengers per weekday. However, several potential ridership generators in the communities served by the route fall outside a reasonable walk distance from the route's alignment. These include several Arconic plants and high schools in Montague, Whitehall, and North Muskegon. An app-based microtransit service could provide broader coverage than the current Route 115, while also providing more customized and responsive service to the residents of North Muskegon, Dalton Township, Whitehall, and Montague.

### *Operate Route 115 service on select days only*

Current ridership levels on Route 115 do not appear to warrant daily service. In addition, ridership patterns showing very low peak-period ridership and higher mid-day ridership suggest that the route is likely not being used by daily commuters. Operating Route 115 two days a week instead of five would reduce the annual operating cost associated with the route, while still providing opportunities for area residents to travel between the communities served by the current route. If Route 115 service is reduced to two days per week, resources could be shifted toward providing services elsewhere. For instance, a new route serving the largest city in western Michigan (Grand Rapids) could be added. Operating express service from Muskegon to Grand Rapids would both afford Muskegon's transit-dependent population access to the resources of the larger city metropolitan area and potentially attract new MATS riders.

### *Focus resources on local service in Montague, Whitehall, and Lakewood Club*

Route 115 service operates with two-hour headways between most trips. This is a reasonable frequency for a regional service, but generally too infrequent to attract significant local ridership. As Route 115 has failed to generate significant ridership as a regional route, MATS could consider reinvesting its resources into providing more frequent local service in Montague, Whitehall, and Lakewood Club – three communities with the density and mix of trip generators to support more frequent service. The service could be structured as a fixed-route circulator or a zone-based microtransit service. To avoid isolating the communities of northern Muskegon County from Muskegon and surrounding communities, a more limited regional schedule could be provided (i.e. 3 round-trips per day). If operated daily, the cost of this scenario or of more robust local service and more limited regional service would likely be higher than the current service approach. In this case, additional funding would need to be identified (potentially through funding agreements with Montague, Whitehall, and Dalton Township).

## GoBus Profile

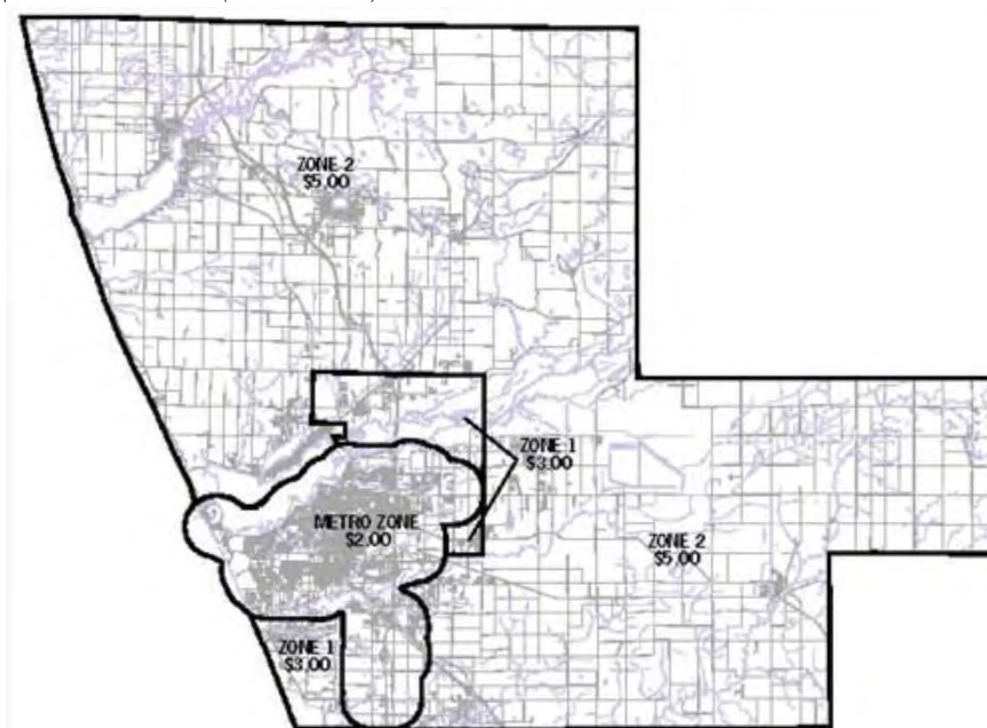
### Service Description

GoBus is a curb-to-curb, demand response (paratransit) transportation service that serves two purposes:

1. Complement MATS fixed-route service per the requirements of the Americans with Disabilities Act (ADA)
2. Meet the transportation needs of seniors (age 65 or over) and people with disabilities throughout Muskegon County.

The service provides coverage beyond all requirements under the ADA. Priority is given to ADA-eligible trip requests, which are guaranteed to be met within one hour of the requested trip time, as long as the request is made on the day prior to the trip or earlier (up to two weeks in advance). Non-ADA trips are provided based on availability on a first-come, first-served basis. As shown in **Figure 106**, the service area includes all of Muskegon County.

Figure 106 | GoBus Service Area (Source: MATS)



GoBus fares vary by zone, as shown in **Figure 106** and **Table 33**. Customers are not able to use monthly passes (that can be used for the fixed-route system) to pay for GoBus rides.

Table 33 | GoBus Fares

|          | Metro Zone | Zone 1  | Zone 2  |
|----------|------------|---------|---------|
| One-Way  | \$ 2.00    | \$3.00  | \$5.00  |
| Ten-Ride | \$20.00    | \$30.00 | \$50.00 |

## Operating Characteristics

Key operating characteristics of the GoBus service including the span of service are shown in *Table 34*.

Table 34 | GoBus Operating Characteristics

| Service Area                   | Muskegon County                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Span                           | <p>For ADA eligible riders, rides may be requested to be scheduled during the same hours as MATS fixed-route bus services: Monday-Friday 6:28 a.m. to 10:49 p.m. Saturday 9:30 a.m. to 5:40 p.m.</p> <p>For all other GoBus eligible riders, rides may be requested to be scheduled: Monday-Friday 7:00 a.m. to 10:30 p.m. and Saturday 9:30 a.m. to 5:30 p.m.</p> <p>No Sunday service is provided.</p> |
| Annual Operating Costs in 2018 | \$1,128,686                                                                                                                                                                                                                                                                                                                                                                                              |

## GoBus Scheduling and Dispatch

### Scheduling Process

MATS operates a single phone number for all interactions with customers, including scheduling GoBus trips (as well as fixed-route inquiries and other business). Calls are answered on a first-come, first-served basis. MATS customers can request GoBus trip requests as far as two weeks in advance; in fact, many customers begin calling MATS at 8:00 a.m. exactly two weeks in advance to make their requests to ensure their trips are not denied.

For GoBus trip requests, MATS' Customer Care Representatives (CCRs) use the Trapeze PASS computer-aided system for scheduling and dispatching GoBus vehicles. Trapeze PASS assists in finding a suitable transportation solution for the caller (who can typically be identified using caller ID or greeting) based on the requested date of travel. The CCR accesses the caller's profile in Trapeze and is able to identify whether the caller is ADA-certified.<sup>2</sup> After the CCR inputs the details of the trip (origin, destination, and requested time), Trapeze offers the most efficient solution and the CCR and caller negotiate a pick-up time that works for both MATS and the customer. Trips for ADA-certified clients are handled with priority status; the CCR ensures solutions are found in these cases. If a trip solution cannot be found in the system for an ADA-certified passenger, the CCR seeks authorization or assistance from the Paratransit Operations Manager to either rearrange pre-existing non-ADA trips or to open additional capacity to provide the ADA trip. If the ADA-certified caller's trip is not within the ADA-eligible boundary areas, or is a same-day request, then the person's trip may be subject to capacity constraints (consistent with ADA requirements) Likewise, non-ADA callers are scheduled based on capacity to provide the requested trip; in some cases, this results in a denial.

Trapeze PASS includes several parameters that assist in providing ADA-compliant transportation. The system will not automatically provide "solutions" to trip requests that do not meet pre-established measures. Among these is a 1-hour scheduling window when customers call to book, meaning that the system will look for a trip solution within the one-hour before or after the required search window. The system also employs a maximum

<sup>2</sup> There is a formal process through which individuals with a disability can apply to MATS to have their ADA-eligibility status assessed and certified; however, MATS does not undertake a formal process to verify the disability status of individuals who do not request ADA-eligibility status recognition or who are below age 65 and are located outside of the fixed-route service area.

on-board time of 1 hour and 15 minutes and a backtrack limitation that helps to reduce, but not eliminate, the backtracking of vehicles in the delivery of trips.

## Subscriptions

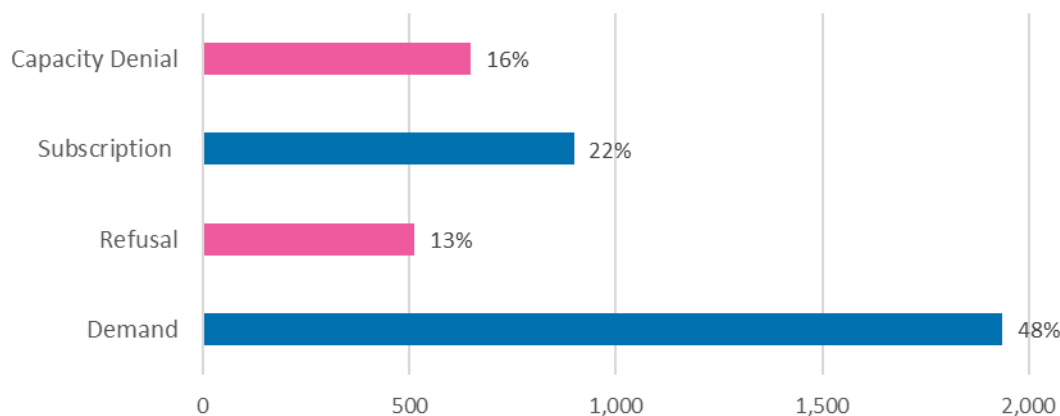
In October 2018, about one-third of GoBus trips (not including denials and refusals) were provided to individuals who are on subscription for recurring trips; that is, their rides are automatically programmed into the GoBus scheduling system without a requirement that the individual call in to request the trip. Subscriptions are granted, at the discretion of MATS' management, to individuals based on the level of need, regularity of the trips (for example, dialysis occurring on a regular schedule), and proven rider reliability (i.e., the rider does not have a history of being a no-show or canceling rides without advance notice). At the present (2019), due to the high demand for GoBus service relative to capacity, few new subscriptions are being assigned to customers. In recent months (summer 2019), subscriptions have made up a larger share of all rides provided by GoBus.

## Service Analysis

### Trip Scheduling and Completion

In October 2018, 296 individuals (identified based on unique client ID numbers) requested GoBus rides. Approximately 19 percent of GoBus trip requests were made by individuals using a wheelchair or a scooter. The GoBus dispatch center categorizes the trip request calls received by demand, refusal, subscription, and capacity denial. Capacity denials and refusals are responsible for the majority of unscheduled trips. As shown in **Figure 107**, during the month of October 2018, of the 4,000 recorded GoBus trip requests, 2,836, or approximately 70 percent, were scheduled, either via demand or subscription. Nearly 30 percent of trip requests were either denied or refused.

Figure 107 | GoBus Trip Scheduling Status (October 2018)



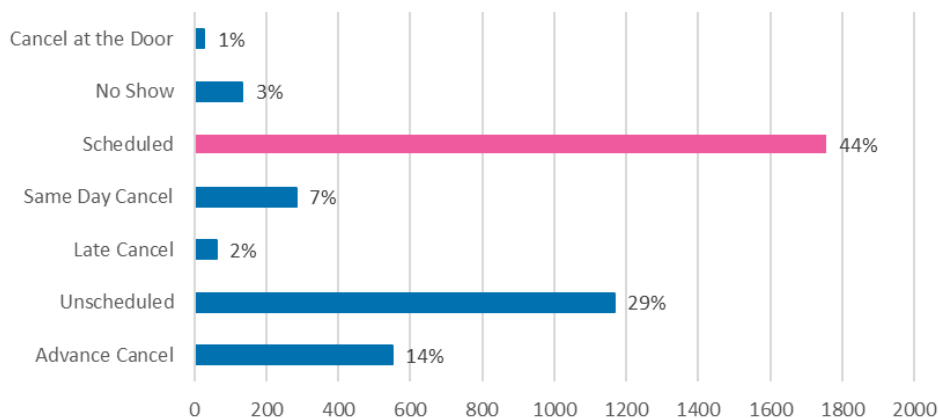
The breakdown of trips by status (i.e., whether the trip actually occurred or was canceled, etc.) for October 2018 is shown in **Figure 108**. Of all GoBus trip requests that were scheduled in that month (70 percent of all requests), only about 62 percent ended up as completed trips. Approximately 20 percent of *scheduled* trips were canceled in advance, about 10 percent were canceled on the same day, and about 8 percent of trips were classified as one of the following: late<sup>3</sup> or at-door cancellations, or no-shows. That means that between denials, refusals, cancellations, and no-shows, less than half of all trip requests are ultimately carried out. While MATS has little control over non-advance cancellation and no-shows, this indicates that there are likely

<sup>3</sup> A late cancel is defined as a cancel that happens within one hour of the scheduled pick-up time.



opportunities to make changes that allow MATS to provide additional trips within GoBus's current level of resources (in terms of service hours provided).

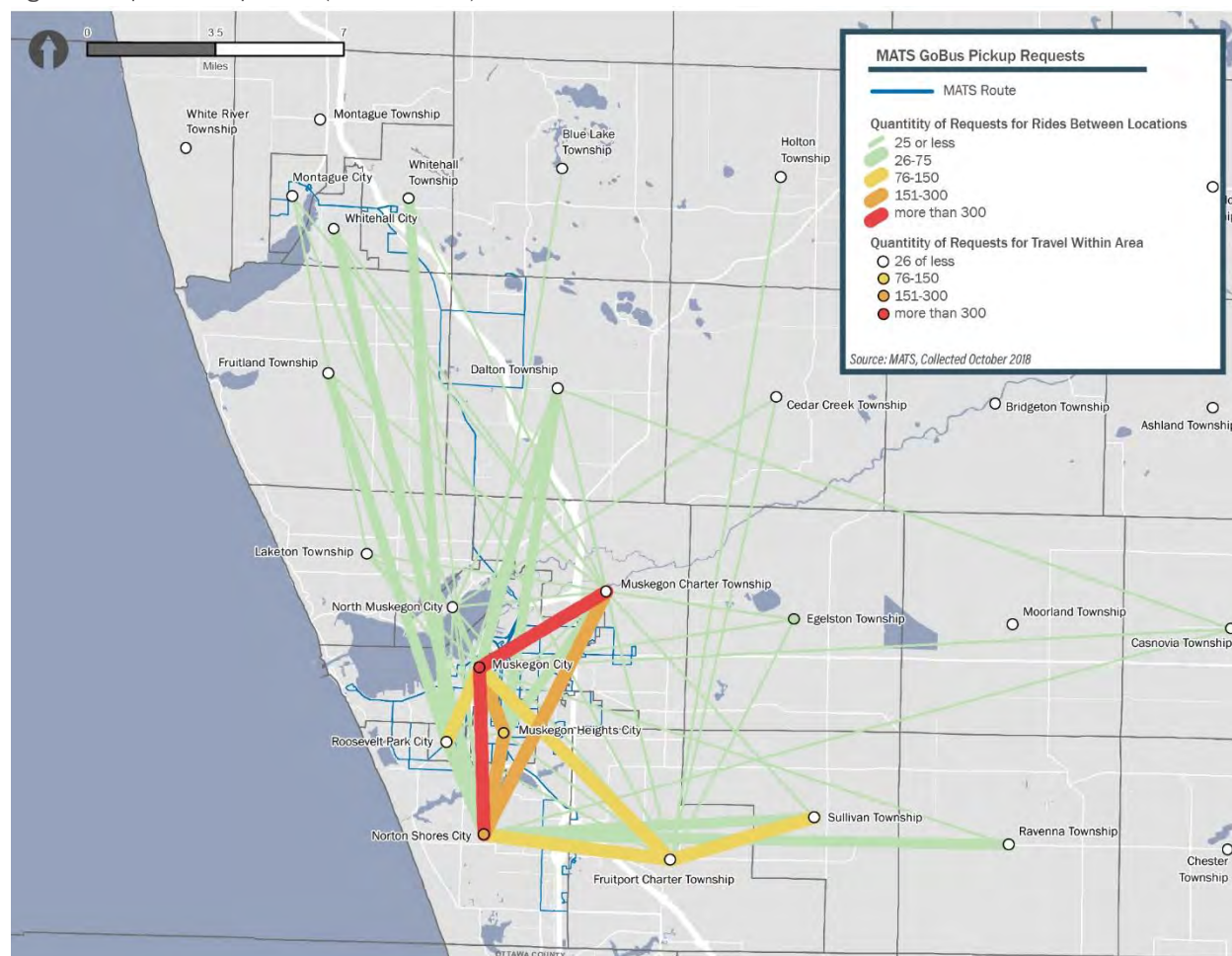
Figure 108 | GoBus Trip Results (October 2018)



Specifically, among trips scheduled by subscription, approximately seven percent of trips were classified as late cancel, no-show, or cancel at door; this number increases to 12 percent if including same-day cancellations.

The average trip time in October 2018 was 25 minutes, and the proportion of trips that both began and ended in locations within 3/4 and 1 mile of a fixed route were 81 and 84 percent, respectively. Approximately 40 percent of all GoBus trip requests in October 2018 were for trips within the City of Muskegon, between the Cities of Muskegon and Norton Shores, or within the City of Norton Shores. The City of Muskegon Heights and Muskegon Charter Township were the next most frequent locations where many trip requests began and/or ended. **Figure 109** shows the jurisdictions (cities and townships) within Muskegon County that have the highest volume of travel within and between each other. Trips within the City of Muskegon, between the City of Muskegon and the City of Norton Shores, and between the City of Muskegon and Muskegon Charter Township have the highest number of daily trips, at over 300 each. Trip volumes are also moderately high within the City of Norton Shores, between the City of Norton Shores and Muskegon Charter Township, the Cities of Muskegon and Muskegon Heights, and between the Cities of Muskegon Heights and Norton Shores.

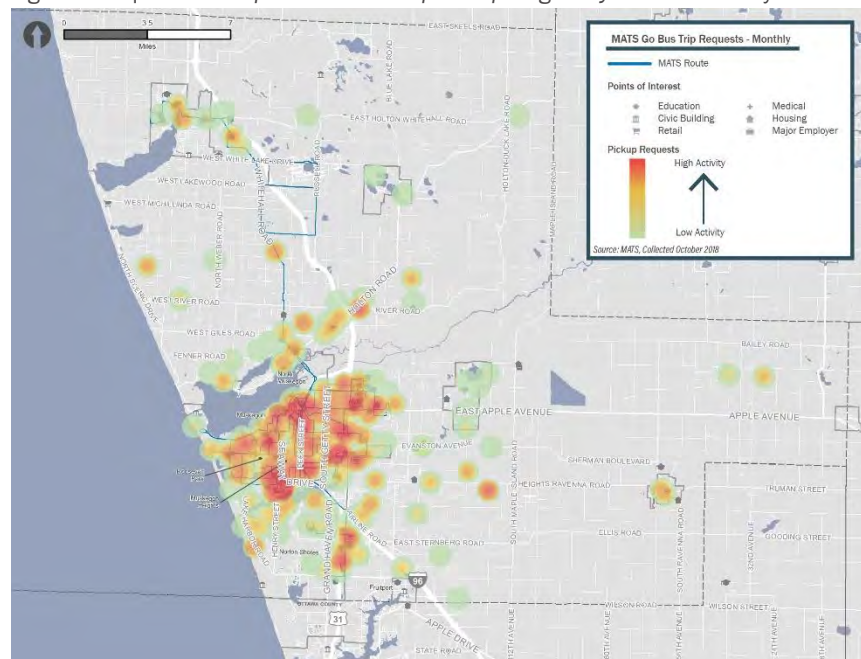
Figure 109 | GoBus Trip Flows (October 2018)



## Ridership Activity

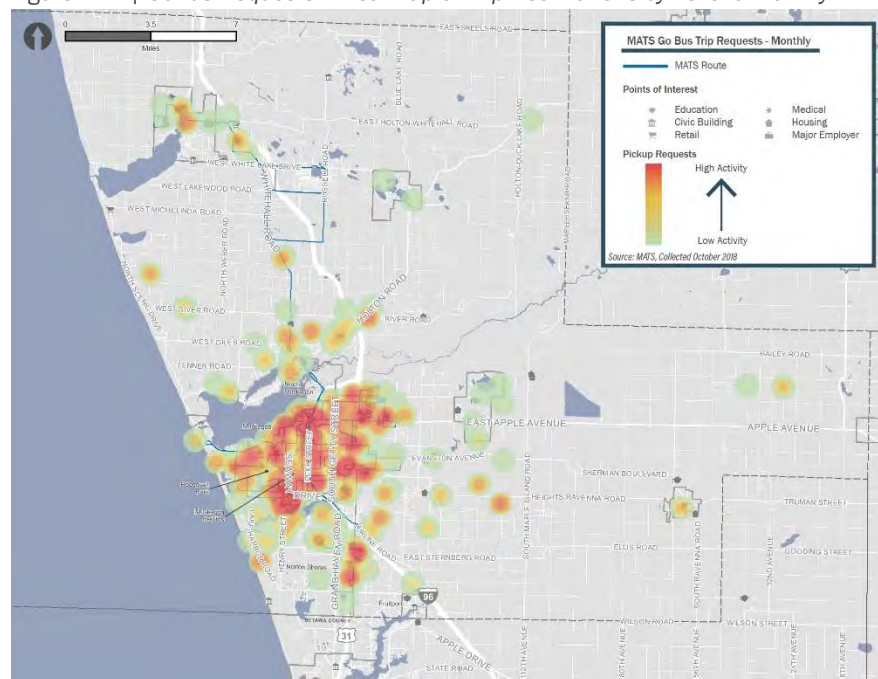
**Figure 110** shows a heatmap of GoBus trip requests. During October 2018, the origins for these trips were shown to be especially concentrated in Downtown Muskegon, off Seminole Road and Lakeshore Drive, Mercy Health campuses, Arbor Crossings Apartments, Park Terrace, retail on Henry Street, and retail along US 31. It is noteworthy that a few pockets of relatively high ridership exist in areas where fixed-route service is not currently provided, including near the intersection of East River and Holton Road and off Lake Harbor Road in Norton Shores. The concentration of trips as shown in **Figure 110** is affected by subscription clients, who generally make repeated trips to the same locations, such as dialysis centers and adult daycare centers, on a regular schedule.

Figure 110 | GoBus Requests – Heatmap of Trip Origins by Level of Activity



**Figure 111** below shows a similar heatmap for requested destinations of GoBus trips. While the heatmaps for origins and destinations (**Figure 110** and **Figure 111**) are very similar, there are a few additional locations in the outer areas of the county identified on the trip origins map, and a few locations in the central part of the county that are “redder” on the destinations’ maps compared to the origins map. This indicates the possibility that a small portion of riders are either only requesting, or only having scheduled, trips in one direction (generally from the outer parts of the county to the central part of the county).

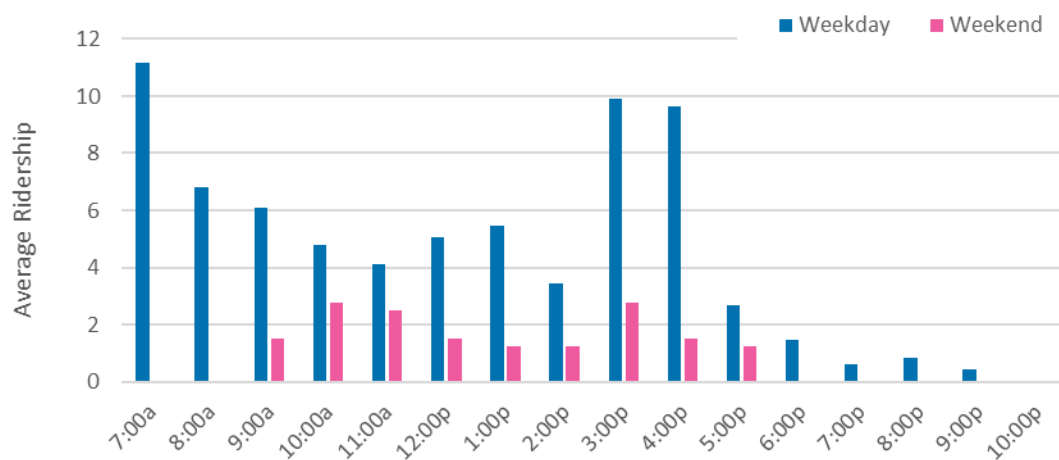
Figure 111 | GoBus Requests – Heatmap of Trip Destinations by Level of Activity



## Ridership by Time of Day

**Figure 112** shows average ridership per service hour (not vehicle hours), based on the actual pick-up times of scheduled trips on weekdays and Saturdays during October 2018. On weekdays, ridership peaks during the first hour of service and in mid-afternoon between 3:00 p.m. and 4:00 p.m. On Saturday, ridership – although significantly lower than on weekdays – peaks in mid-morning and mid-afternoon. (No service is offered on Saturdays before the 9:00 a.m. hour or after the 5:00 p.m. hour.) In general, MATS’ level of service (i.e., the number of vehicles in service at any given time) is increased during the times of day when there is known to be the highest amount of demand; however, the results in **Figure 112** reflect both the overall demand for rides as well as the times of day when the highest level of service is available.

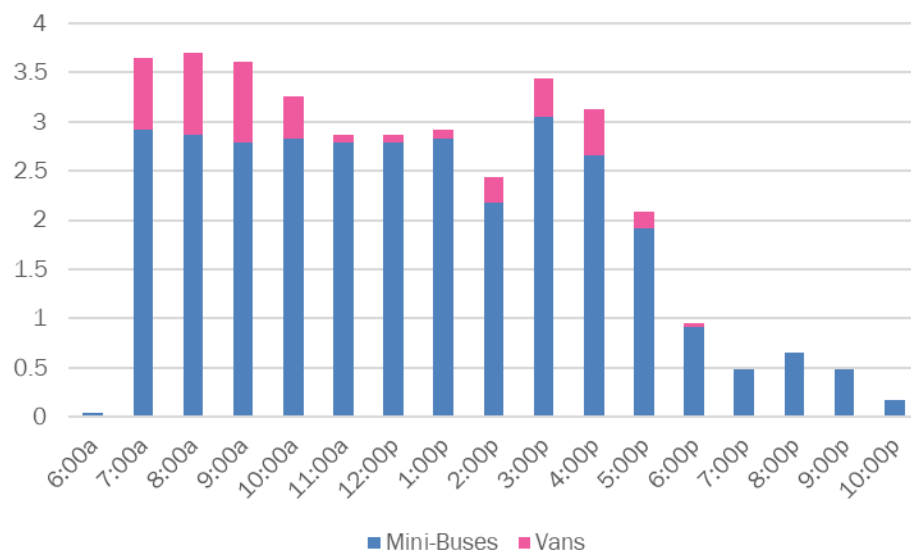
Figure 112 | Trip Boardings Per Service Hour (October 2018)



## Level of Service by Time of Day

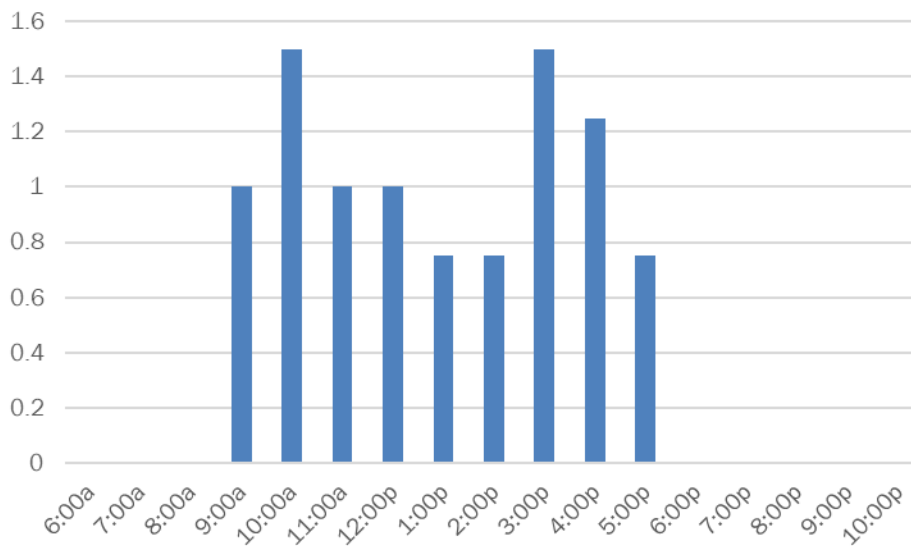
Assessing ridership per vehicle hour in comparison to ridership per service hour sheds light on the productivity of the service over the course of a day. Historically, MATS operated 2-3 GoBus vehicles at a time. From 2011 to 2018, MATS operated up to eight GoBus vehicles during maximum service (i.e., the busiest times); however, between the second half of 2018 and throughout 2019, to address budget shortfalls, MATS has operated fewer (generally no more than four or five) vehicles at any given time. **Figure 113** below shows the average number of vehicles in service, by hour of the day and vehicle type, in October 2018. In general, MATS had three to four vehicles operating between 7:00 a.m. and 5:00 p.m. on weekdays, and only one vehicle operating after 6:00 p.m. on weekdays.

Figure 113 | Average Number of Vehicles Making Scheduled Pick-ups on Weekdays, by Time of Day and Vehicle Type (October 2018)



**Figure 114** shows the average number of GoBus vehicles in service by hour of the day on weekends, which varies between one and two vehicles for most of the service span.

Figure 114 | Average Number of Vehicles Making Scheduled Pick-ups on Weekends, by Time of Day (October 2018)

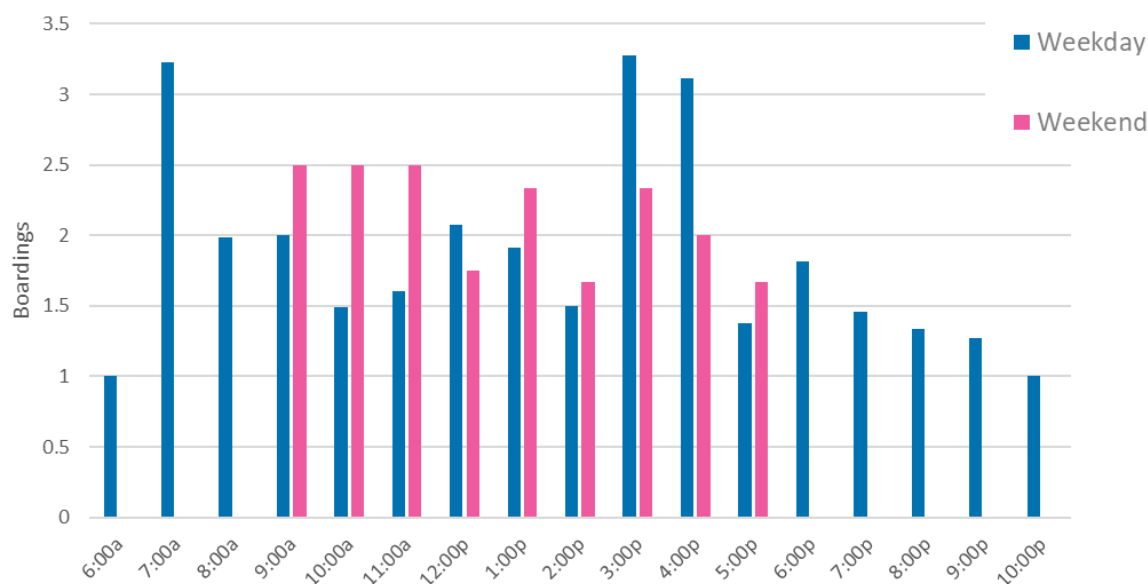


### Ridership per Vehicle Hour by Time of Day

**Figure 115** shows the number of boardings per vehicle hour by time of day for October 2018. Boardings per vehicle hour on weekdays exceeded three (a high level of productivity) in the 7:00 a.m., 3:00 p.m., and 4:00 p.m. hours. On weekends, boardings per vehicle hour are highest, at around 2.5, between the 9:00 a.m. and 11:00 a.m. hours and during the 1:00 p.m. and 3:00 p.m. hours. As demand is higher and more vehicles are operating at the same time, productivity typically increases, as there is more opportunity for grouping trips to achieve higher efficiency.



Figure 115 | Boardings per Vehicle Hour (October 2018)



## Service Efficiency and Productivity

Table 35 summarizes several key service productivity metrics for GoBus service for all of 2018.

Table 35 | Service and Service Productivity Metrics (Source: 2018 NTD submission)

|                                                                                                                        |                           |
|------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Ridership (Unlinked Trips)</b>                                                                                      | 23,199                    |
| <b>Vehicle Revenue Hours</b>                                                                                           | 10,888                    |
| <b>Vehicle Revenue Miles</b>                                                                                           | 150,722                   |
|  <b>Passengers per Revenue Hour</b> | 2.13                      |
|  <b>Passengers per Mile</b>         | 0.15                      |
|  <b>Operating Cost Metrics</b>      | \$48.65 per trip          |
|                                                                                                                        | \$7.49 per revenue mile   |
|                                                                                                                        | \$103.66 per revenue hour |

Low farebox recovery, coupled with a nearly 500-square mile service area, results in the service's relatively high cost and low productivity.

## Peer Agency Comparison

Table 36 shows the same service and productivity metrics for 2017 (the latest year for which data is available) for MATS and seven peer agencies; six are located in Michigan and one is in Wisconsin. While MATS did not have the highest operating expense per revenue hour among this peer group in 2017, some agencies were able to provide service at significantly lower costs per hour. Some differences in productivity are likely due to service area sizes, ability to achieve economies of scale, and the presence of labor-related requirements that are generally correlated with higher hourly operating costs.

Among agencies with similar size (or larger) service areas, such as Livingston Essential Transportation Service and City of Jackson Transportation Authority, MATS' passenger trips per revenue hour and per revenue mile are on the lower end; still, they are higher than those of the Bay Metropolitan Transit Authority.

Table 36 | 2017 Peer Service and Service Productivity Metrics (Source: NTD)

| Agency                                         | Metro Area (HQ City)        | Svc. Area (Sq. Miles) | Psg. Trips    | Vehicles Operated in Max. Svc. | Psg. Trips per Rev. Hour | Psg. Trips Per Rev. Mile | Op. Expense Per Psg. Trip | Op. Expense Per Rev. Mile | Op. Expense Per Rev. Hour |
|------------------------------------------------|-----------------------------|-----------------------|---------------|--------------------------------|--------------------------|--------------------------|---------------------------|---------------------------|---------------------------|
| <b>Muskegon Area Transit System</b>            | <b>Muskegon Heights, MI</b> | <b>499</b>            | <b>28,645</b> | <b>8</b>                       | <b>2.23</b>              | <b>0.15</b>              | <b>\$40.40</b>            | <b>\$5.86</b>             | <b>\$89.91</b>            |
| Battle Creek Transit                           | Battle Creek, MI            | 73                    | 24,305        | 7                              | 2.22                     | 0.21                     | \$39.69                   | \$8.50                    | \$88.17                   |
| Bay Metropolitan Transit Authority             | Bay City, MI                | 442                   | 48,161        | 14                             | 1.86                     | 0.11                     | \$56.33                   | \$6.35                    | \$105.04                  |
| City of Jackson Transportation Authority       | Jackson, MI                 | 702                   | 36,449        | 10                             | 2.34                     | 0.18                     | \$42.38                   | \$7.53                    | \$99.34                   |
| Harbor Transit                                 | Grand Haven, MI             | 54                    | 255,210       | 21                             | 5.41                     | 0.36                     | \$12.06                   | \$4.34                    | \$65.31                   |
| Livingston Essential Transportation Service    | Howell, MI                  | 568                   | 142,228       | 23                             | 3.55                     | 0.2                      | \$16.68                   | \$3.26                    | \$59.29                   |
| Macatawa Area Express Transportation Authority | Holland, MI                 | 42                    | 77,759        | 14                             | 2.61                     | 0.20                     | \$25.08                   | \$5.03                    | \$65.35                   |
| Shoreline Metro                                | Sheboygan, WI               | 23                    | 35,589        | 6                              | 2.84                     | 0.23                     | \$21.35                   | \$4.89                    | \$60.59                   |

## On-Time Performance

MATS' on-time performance for GoBus service is shown in **Figure 116**. For the purposes of this analysis, early pick-ups are defined as instances when the vehicle arrives more than 5 minutes early, and late pick-ups are instances when the vehicle arrived more than 15 minutes past the scheduled pick-up time. As shown in **Figure 116**, over 60 percent of GoBus trips arrive on-time, while about one-third arrive early. When GoBus vehicles arrive early, they wait until the scheduled trip pick-up time, plus five minutes, for the passenger to board. Passengers may, but are not required to, board early. Given this, MATS has nearly 95 percent *effective* on-time performance, with only five percent of GoBus pick-ups occurring after the scheduled window.

Figure 116 | On-Time Performance for GoBus Service (October 2018)

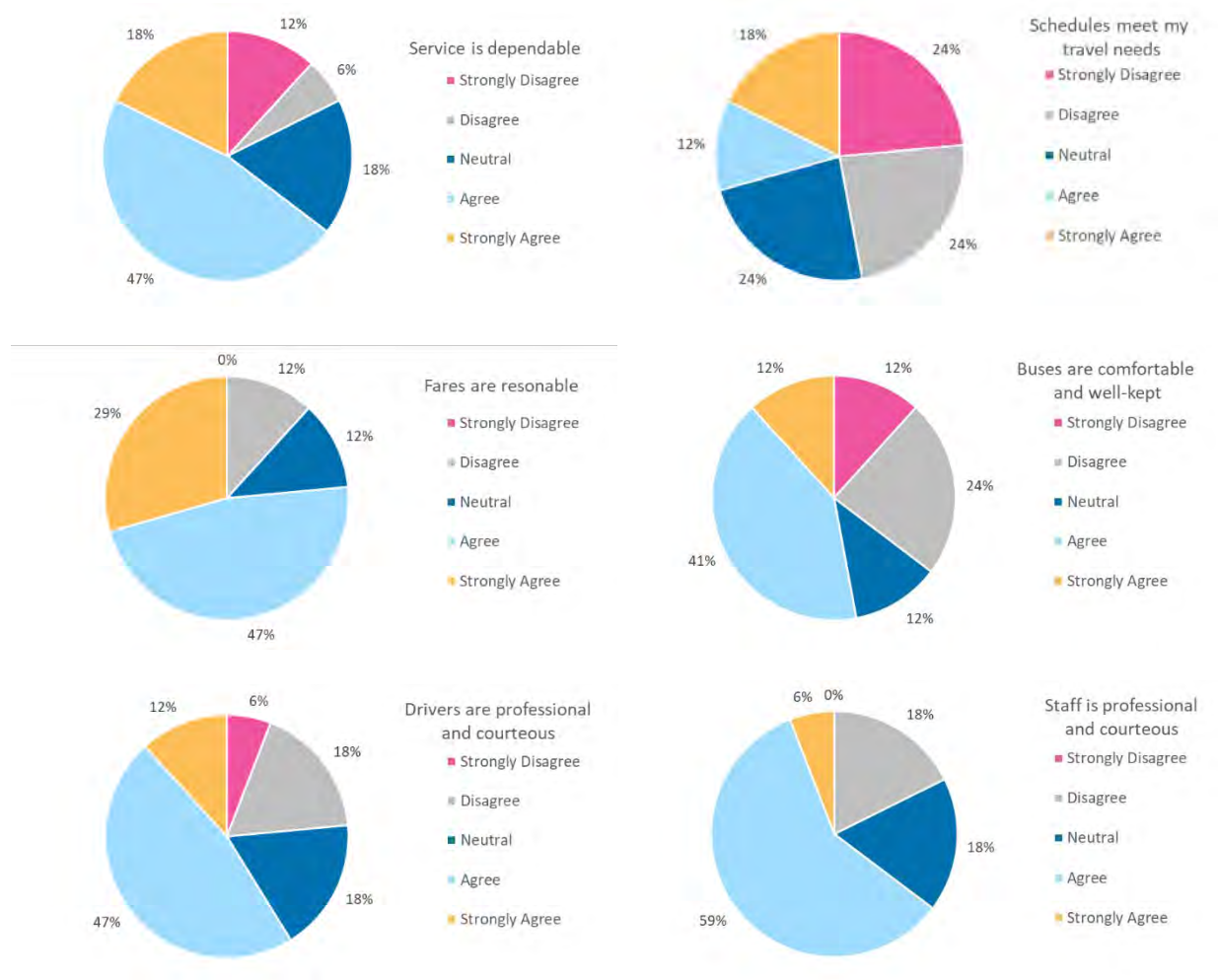


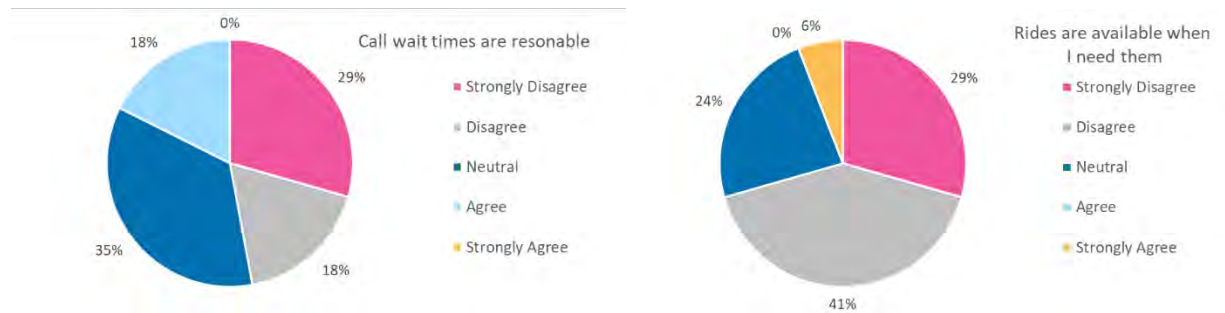
In addition, nearly 80 percent of MATS' on-time arrivals occur before or within the first five minutes of the 0-15 minute window. The very high incidence of early and on-time arrivals indicates that there may be potential for MATS to schedule additional rides within the current GoBus level of service and reduce the high volume of trip denials. However, this would likely increase the percentage of late arrivals.

## Rider Feedback

The survey conducted in the summer of 2019 provided an opportunity to gather feedback from GoBus riders on what they perceive to be working well with the service and where they see opportunities for improvement. About 20 individual GoBus riders provided responses on a Likert scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree) to a series of statements about the service; the results from these questions are shown in **Figure 117**. In general, a majority of riders agreed that service is dependable, fares are reasonable, drivers and staff are professional and courteous. Riders were relatively split in response to statements related to buses being comfortable and well-kept and call wait times being reasonable. A majority of riders said that schedules do not meet their travel need and that rides are not available when they need them. This suggests that when riders are able to get service, they are pleased with its quality, but that there isn't always enough service provided to meet their travel needs.

Figure 117 | Responses to Survey Questions regarding GoBus Service Quality





## Capacity Challenges

MATS is facing very significant challenges related to accommodating the level of demand for travel among all GoBus system users within current funding levels. In early 2019, MATS was obligated to consider cuts to the fixed-route service in order to address significant budget shortfalls. After a public hearing process, it was determined that the fixed route service cuts would not occur in 2019, pending the outcomes from the Comprehensive Operational Analysis. As such, throughout 2019, MATS has been forced to address its budget shortfalls by other measures, including by reducing the number of GoBus vehicles available to riders. Between October 2018 and July 2019 alone, the number of GoBus rides provided by MATS has decreased by approximately 25 percent.

The results of these cuts have been predictable: The agency's denial rate has increased, the percentage of subscription trips as a portion of all trips has increased, and the likelihood of a rider having a trip scheduled without making the request two weeks in advance has decreased. Based on this experience, it is likely that a number of riders have reduced their use of the GoBus service - in some cases, substituting rides previously taken via GoBus with other modes of travel (e.g., getting a ride from a relative or friend, or through another local organization), while others have simply not been able to make trips they would have otherwise made. During public outreach in July 2019, some riders indicated that there have been times when they were able to get rides scheduled from their origin (typically home location) to their destination, but they were not able to get a ride scheduled for the return trip. For these reasons, it is critical that a variety of changes to the GoBus system and service delivery be considered.

## GoBus Service Assessment

### Strengths

- Provides demand response transit coverage beyond the requirements of the Americans with Disabilities Act.
- Fare structure is based on travel distance (to some degree).
- Late arrivals of GoBus are rare.

### Weaknesses

- High rate of trip denials, resulting in lack of reliability of the service for customers to meet their travel needs,
- Inability, under current operating procedures, to prioritize customer trips based on level of need (apart from ADA-eligible and subscription trips).
- High levels of customer no-shows and late cancellations.
- Lack of public clarity regarding the process for obtaining ADA-eligibility status.

## Service Improvement Opportunities

Potential opportunities to strengthen MATS' GoBus service and set it on a sustainable financial path are described below. Some suggestions may align better under one fixed-route service scenario (e.g., one that includes microtransit service) than another. Further, implementing some of these opportunities may negate the need to implement others. For this reason, the opportunities laid out in this section should be viewed as a menu of potential options for improving GoBus service.

### Implement Agency Fares

An agency fare is the amount charged to human service organization purchasing transit services on behalf of clients. Agency fares are permitted by federal regulations<sup>4</sup> and can be determined by the local public sponsor of the transit service (in this case, Muskegon County). Agency fares are higher than those for the general public and would allow MATS to recoup a larger portion of the full expense of providing rides, ensuring that rides booked by organizations, which enable such organizations to carry out their activities, do not disproportionately reduce the resources available for providing transit service to the public at large. MATS already has agreements in place, such as with the Muskegon Community Health Project, to provide trips at a cost that more closely matches the cost of providing the trip; implementation of agency fares would make similar arrangements more systematic rather than necessitating bilateral negotiations to agree upon fares for trips provided to and for an agency or organization.

### Obtain Additional Funding to Better Meet the Demand for GoBus Service

Obtaining additional funding for GoBus service would enable MATS to provide a level of service that would more closely meet the level of demand and significantly reduce the number of trip denials. This could be done through any combination of the following changes:

3. **Increase contributions to fund the service from the jurisdictions** whose residents benefit from the service. Contributions could be determined, for example, using a formula based on the number of trips that originate in the jurisdiction and/or the number of regular system users from the jurisdiction.
4. **Develop new partnerships** with businesses and organizations that benefit from the service provided by MATS. Future partnerships between MATS and health care providers could take many forms including, but not limited to, per-trip subsidies or a lump sum annual contribution. Implement or redirect senior,<sup>5</sup> veterans, or other **millage funding** to support GoBus service.

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<sup>4</sup> 49 CFR § 37.131(c):

(c) Fares: The fare for a trip charged to an ADA paratransit eligible user of the complementary paratransit service shall not exceed twice the fare that would be charged to an individual paying full fare (i.e. without regard to discounts) for a trip of similar length at a similar time of day on the entity's fixed route system.

(1) in calculating the full fare that would be paid by an individual using the fixed route system, the entity may include transfer and premium charges applicable to a trip of similar length at a similar time of day on the fixed route system.

(2) The fares for individuals accompanying ADA paratransit eligible individuals who are provided service under 37.123 (f) of this part shall be the same as for the ADA paratransit eligible individuals they are accompanying.

(3) A personal care attendant shall not be charged for complementary paratransit service.

**(4) The entity may charge a fare higher than otherwise permitted by this paragraph to a social service agency or other organization for agency trips (i.e. trips guaranteed to the organization.)**

<sup>5</sup> Providing senior millage funding for GoBus trips would likely necessitate a reduction of the GoBus service eligibility age for seniors from age 65 to age 60, increasing overall demand for GoBus service.



5. Pursue **additional revenue streams**, such as increasing advertising offerings (on buses or at bus stops, for example).
6. If MATS continues to provide service for non-ADA-certified individuals (per eligibility change discussion below, **increase fares** for some (non-ADA-certified) individuals. Trip prices could also be based on factors that incentivize productive use of system resources, such as the day of the week on which a non-essential trip is taken.
7. On a related note, the County government could also negotiate with organizations currently receiving millage funding for transportation services (e.g., Pioneer Resources) to determine whether some trips that GoBus denies could be made by another local service provider.

### Create and Enforce No-Show and Late Cancellation Policy

Currently, a significant portion of GoBus trips that are scheduled do not result in completed passenger trips due to a combination of outcomes (advance cancellations, same-day cancellations, late cancellations, no-shows, etc.). While cancellations due to illness or other unforeseen circumstances are generally not preventable, having a significant number of scheduled trips result in cancellations or no-shows, particularly if they occur closer to the time of the trip, is detrimental to the performance of the entire GoBus system, and unnecessarily increases MATS' trip denial rate. Creating and enforcing no-show and late cancellation policies would reduce the number of times such incidents occur and enable the travel needs of more riders to be met. Passengers who *repeatedly* cancel rides at the last minute, at the door, or simply do not show, should see their privileges to use the GoBus system reduced or temporarily removed. An example of a policy (which would be implemented in full accordance with federal regulations<sup>6</sup>) could be a "three strikes" policy, under which three or more late cancellations, at-door cancellations, and/or no-shows (or combinations of these actions) over the course of a six-month period would result in removal of GoBus travel privileges for the subsequent three months. In addition, individuals granted the privilege of a subscription GoBus service could be held to a slightly higher standard, such as allowing only two "strikes" per six-month period before service is suspended and/or losing their subscription status (again, as an example). An appeal process would also be necessary to consider special exceptions to the policy based on extenuating circumstances.

### Adjust Service Eligibility Requirements

At present, MATS is trying to serve a population that is much larger than the population that can reasonably be served within its current levels of funding. As long as this imbalance exists, MATS will need to consider ways to adjust its service eligibility requirements to better align service with the populations in greatest need. With respect to service eligibility adjustments, MATS could consider:

1. Providing only the level of service required under the Americans with Disabilities Act (i.e. service to ADA-certified people who live within, or get transportation to a location within, 3/4 mile of MATS fixed route service during fixed-route service hours.
2. Providing service only to individuals who are identified, through a formal eligibility/certification process, to have disabilities that necessitate the level of specialized transportation service that GoBus provides, with those meeting all ADA eligibility criteria (i.e., trip originating within 3/4 mile of fixed-route) continuing to receive the highest level of scheduling priority.

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<sup>6</sup> As described in 49 CFR § 37.125(h), agencies "may establish an administrative process to suspend, for a reasonable period of time, the provision of complementary paratransit service to ADA eligible individuals who establish a pattern or practice of missing scheduled trips." Also outlined in 49 CFR § 37.125 are the requirements related to making exceptions for trips missed for reasons beyond the individual's control, providing notifications to affected riders, and providing opportunities for affected riders to pursue a hearing to dispute a potential suspension. For more information about implementation of such policies nationally, see: <https://www.nap.edu/catalog/13856/practices-in-no-show-and-late-cancellation-policies-for-ada-paratransit>.

Under any of these scenarios, and regardless of whether MATS changes its eligibility requirements, the process through which individuals can seek ADA-certification (or recertification) should be available on the MATS website. ADA certification can be full, conditional, or temporary. In addition, MATS would need to ensure enforcement of eligibility requirements.

### Provide Service to Zone 2 Areas (or Areas Outside the Fixed-Route Service Area) on Specified Days

Operating service in the relatively low-density areas of the county, particularly Zone 2, is important for residents in need of transportation but comes with a high operating cost and results in low service productivity. To provide services to all parts of the county but increase productivity, MATS could consider reducing service to areas outside the central part of the county, and/or all areas outside of the fixed route service area, such that they would receive service on alternating days. For example, GoBus could provide service originating from (or traveling from central areas too) the northern portion of Zone 2 on Mondays and Wednesdays, and service originating from the southern portion of Zone 2 on Tuesdays and Thursdays. This recommendation could be implemented in a universal manner or specifically with respect to certain eligible groups, such as seniors who do not have a certified disability. Adjusting service levels by geographies could be implemented in various ways.

### Implement Automated Notifications to Reduce Missed Trips

Trapeze offers a module that enables passengers to be notified about upcoming trips. This could include a 24- or 48-hour reminder notifications, which would likely prompt some riders who need to cancel their rides to do so in advance. This could also include notifications for riders when their vehicle is a few minutes away from their pickup location. Notifications can be sent via a recorded phone call or text message. Vehicle status notifications would allow GoBus to maintain or improve its on-time performance and possibly accommodate more travelers. A notification system increases the likelihood that a passenger is aware of an upcoming trip and ready at the time of the vehicle's arrival, minimizing dwell time.

### Update Ride Request Call System

Currently, customers who call MATS to schedule GoBus rides may have difficulty reaching a CCR on their first try. In October 2018, of the 5,296 individual calls received, nearly half (47 percent) of these calls were transferred to voicemail. The largest percentage of calls to MATS (around 40 percent) occurred between the 7:00 and 8:00 a.m. hours. While MATS may have limited room in its budget to hire additional CCRs, it is recommended that MATS consider one or more of the following options to address this targeted capacity issue:

3. Employ additional CCRs (part-time staff) during the hours of highest demand (i.e., 7:00 a.m. to 9:00 a.m.).
4. Implement a phone system that enables CCRs to place calls on hold and answer them in the order in which they are received.
5. Implement a phone system that enables callers to leave a number and receive a call-back.
6. Implement an automated attendant or interactive voice response (IVR) call system<sup>7</sup> that interacts with callers to schedule rides (or assist in the scheduling process), resulting in labor savings and improved customer experience for most users.
7. To more evenly spread calls across the day, change ride request parameters such that rides can only be scheduled 14 days in advance starting at the same time as the requested trip time. For example, to

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<sup>7</sup> An automated attendant would gather key background information (client ID number, trip origin, trip destination, requested pick-up time), and then pass this information on to a live CCR to fully schedule a trip. An IVR system would fully automate the trip booking system, although some callers who face difficulties using the system would still be attended to by a CCR.

request a ride at 3:00 p.m. on a date two weeks away, the earliest time during the day when a person could make the request, exactly two weeks in advance would be at 3:00 p.m.

### Update/Replace Scheduling Software to Increase Productivity

The Trapeze software currently used by MATS for GoBus has outdated maps and does not appear to be producing trip solutions that create as high a level of productivity as those created by some competitor products. In addition, requirements currently programmed into the scheduling software do not seem to be flexible enough to allow for more dynamic solutions in response to cancellations or new ride requests. For these reasons, it is recommended that MATS take a comprehensive look at available scheduling and dispatch products and consider switching to a newer (and possibly cheaper) option. Higher performing scheduling software could potentially increase MATS' passenger trips per revenue hour by between 20 and 40 percent without requiring additional staff to book trips. (However, MATS CCRs would need to be trained in using the new system and implementing this recommendation would have administrative costs for the procurement process.)

Whether MATS decides to continue using Trapeze or chooses a new product, it could also make parameter adjustments such as widening pick-up windows to increase its ability to make adjustments to routes and schedules to increase productivity (e.g., a trip would be considered on-time anywhere between the scheduled pick-up time and 30 minutes afterward).<sup>8</sup> Given the high level of early and on-time arrivals at present, and the need to reduce MATS' current high level of trip denials, it is worth exploring whether additional trips can be accommodated within the current level of service hours, even if it would slightly increase the incidence of late arrivals and backtracking.

### Implement Contracted Services to Reduce Operating Costs per Revenue Hour of Service

Compared to some peer agencies, MATS' operating costs are relatively high. In the short term, labor requirements and the difficulty of recruiting and retaining high-performing bus operators are likely to prevent significant reductions in operating costs. In the long-term, however, the agency could consider the possibility of contracting out portions of its service, either generally or through the use of contractors to cover certain service types, such as microtransit. Reducing the cost per revenue hour of providing GoBus service will allow MATS to bring its capacity to provide service more in line with the high demand for service—demand that is likely to increase with time as the county's population ages. Similarly, implementing microtransit that could serve some customers that currently use GoBus could reduce the burden on the GoBus operators and fleet.

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<sup>8</sup> Currently, riders are promised a 15-minute pick-up window, which does not leave much flexibility to adjust routes and schedules to maximize efficiency and optimize grouping of rides as new trips are booked. When riders request a ride, they could provide MATS a time at which they must be at their destination (if applicable, such as for a doctor's appointment) or a window (which could be wide if riders are flexible in their travel times) during which they'd like to make a trip. As additional rides are scheduled, the scheduling software could be given more flexibility to rearrange pick-up times (within time constraints provided) to maximize routing and schedule efficiency. Under such a system, it would be recommended to also implement a notification system (as discussed above) so that riders would receive a final notification of their confirmed pick-up time around 24 hours before the trip.

## APPENDIX B: PRELIMINARY PUBLIC OUTREACH

### In-Person Engagement

#### Mayors and City Managers Meeting

##### *Meeting Participants*

- City of Muskegon
- City of Muskegon Heights
- City of Norton Shores
- City of Roosevelt Park
- Muskegon Charter Township

##### *Q: What is MATS doing well?*

- MATS is well managed and well operated.
- Numbers aren't working but it is not a reflection on management and operations.
- Care for riders is excellent, you know the administration and county care about passengers.
- Customer service is good. Drivers assist people with wheelchairs and bikes. Good rapport between riders and operators.
- Communication has been fairly strong. Within the last 12 months, Jim has been accessible when contacted.
- The perception of equipment and vehicles is that it is good quality and well maintained.
- There has been a concerted effort to provide more shelters and places for people to rest. This has been well received.

##### *Q: How could MATS serve your community or the region better?*

- Give the public a better understanding of where routes go and timing.
- MATS should be subsidized by the entire community, not just users.
- Have to consider benefits to the transportation network - e.g. Taking cars off the streets.
- Service should adapt to align with demand; both spatially and time-wise.
- Ridership by the time of day should be considered. Service seems to be primarily used for grocery shopping and commercial activity, routes in the evening may not be as necessary. Routes added in the recession may not still be needed.

##### *Q: What are the top 2 or 3 most important goals that MATS should focus on in the coming years?*

- Providing people the service they need and right-sizing service should be top priorities.

##### *Q: Are there any current MATS routes that should be changed or eliminated?*

- Consider that eliminating one route impacts the entire network.
- Routes may be good but stops could be improved. Driver studies showed 3 of 11 stops didn't have anyone board or alighting.
- The Trolley was eliminated due to ridership and cost of operations. The service also wasn't aligned with MATS' core mission.

##### *Q: Are there areas that are not currently being served by MATS that really should be?*

- Citizens in Muskegon Heights have been claiming that there are not enough stops - but that seems to be more of a feeling than a data-driven conclusion.
- For Muskegon Township, residents having access to Meijer (on the north side of the township) would be beneficial. Great Lakes Fresh Market has closed. People prefer Meijer over Walmart.
- A Demand-Response model could fulfill trips to Grand Haven or Grand Rapids.
- Currently, there are retired people who offer shuttles to Grand Rapids and further destinations. They have their own companies and charge per ride fee. This could also be done for rides to Holland or up to Ludington.

*Q: Are there other service issues that need attention (service frequency, hours of operation, fares, etc.)?*

- Members of the neighborhood association have reported its hard for them to get to doctor's appointments because of timing.
- The Manufacturers Association and Chamber of Commerce are critical of the fact that people can't use the system to get to work. This is not what the service is designed to do and the service would be viable if it provided these services. Trips may be better served by a demand-response service.
- Some home healthcare providers don't seem to understand the system very well. There should be an increased partnership with these providers, communication and education are needed. Provider organizations are not always thinking about their customer's transportation needs.
- There may be an issue with perception vs reality of trip time. e.g. Chicago area - know that if I'm driving - can take 45 mins to go 4-5 miles. Everyone in Muskegon is used to being 10 minutes away from anything. The issue is that people here aren't used to long trips/commutes.
- Ridesharing services like Uber are typically oriented toward nightlife events with not many operating during the day. They mostly drive to large markets like Grand Rapids.
- Taxicab companies should update their equipment. There have been negative experiences with Uber and Lyft. And, the background checks of cabs make people feel safer.

*Q: Do passengers have the tools they need to understand and use MATS / MARC / GoBus service?*

- Maps needed at stops.

*Q: Do MATS / MARC / GoBus provide an inviting passenger environment?*

- Happy to see shelters, especially in winter they are really needed. However, most stops aren't covered and many don't have benches.
- GoBus limited the number of groceries a mother could take on the bus.
- The Muskegon Heights terminal is deficient. Study providing a new terminal.
- Apple Ave. corridor customers have complained about the lack of covered stops.

*Q: Are there other communities that "get transit right" and could serve as a model for Muskegon?*

- Grand Rapids has useful route cards. They post on stops saying what time the bus will be there which makes it easier to understand the service.
- There are positives from other systems and things we can learn from. For instance, Seattle has a totally different market but their system was easier to understand, and they have a better Park-and-Ride system.
- In San Francisco, service went to factories where people worked. Tons of people got on buses to get to jobs and there were no stops in-between. Cost of parking was also a factor.



## Regional Planning Bodies, Municipalities, and Transportation Providers Meeting

### Meeting Participants

- City of Montague
- Harbor Transit
- Hope Network
- The Rapid
- West Michigan Shoreline Regional Development Commission
- White Lake Area Chamber of Commerce

### *Q: What is MATS doing well?*

- The White Lake area has one of the newer routes and ridership is just starting to pick up. Those using the service enjoy being able to access Muskegon.
- The COA is a start in the right direction.

### *Q: How could MATS serve your community or the region better?*

- Michigan Adventures is a seasonal attraction. The hours of service on that route don't serve to get their evening employees home after work.
- Arconic in Whitehall is a major employer. They don't see transit being their solution right now. Accommodating different shift times is difficult. They have a lot of jitneys/employment shuttles bringing people in.
- Conversations regarding regional connections seem to come up every 5-7 years. Seems like there is a need for more commuter service but not enough political will to take action.
- The region is plotting its resurgence and a lot of that is based on employers. One thing that hasn't been fully vetted is what kind of need the employers have. More visioning discussions needed rather than just looking at what's there. So, outreach to employers.
- There is a long history in Muskegon of attempting ridesharing programs. Everyone wanted a ride, no one wanted to drive. Probably 6-12 vanpools from Muskegon go to Grand Rapids.
- The Hope Network runs hub-based transportation to work program. They are not currently active in Muskegon.
- Getting employees to work is an issue.
- It's hard to know the depth of interest and the need for new services.

### *Q: What are the top 2 or 3 most important goals that MATS should focus on in the coming years?*

- In the Weels to Work program, 68% of rides don't have or want a car. In dealing with millennials, the new workforce, they have very different expectations of employers. They increasingly expect employers to provide transportation. It is important to remember that different generations have different outlooks.
- Transportation should connect jobs with affordable housing and amenities in the community. There is a huge problem in Grand Rapids with vacant jobs that can't be filled. The workforce can't afford to live in the service area.
- Employees expect transportation but, employers expect communities to have it.
- MATS largely serves a transit-dependent population, it is not a commuter service. If we get too far off into what industries need we risk missing people that need to get to DHS. It is important to remember who our market is. Right now, MATS is a safety net system. Only those who need it use it, but it would be good if a wider group would choose to use it.
- In regards to the organizational structure, the county has done a great job. But, is the structure sustainable or should it be a county-owned system? We should think about the best governance option.

- We should consider how changes to MATS routes would interact with the city's other plans.
- We need to be clear with Montague and Whitehall that MATS can provide what they are willing to fund but long-term considerations need to be made. Think about the five to ten-year range.
- Regarding a potential West Michigan Express to Holland and Grand Rapids, the service would need to be connected to employers or it would fail. The service has a lot of interest from employers.
- We have begun talking with municipalities and townships to get a feel for what they are interested in. Discussions have also been conducted with employers from Hudsonville.
- In addition to increasing the tax base, affordable housing is also important. Hope College did a study on this need.
- The Grand Haven - Muskegon connection may be significant and has been discussed for many years. MATS could try a pilot program. Muskegon is becoming known for various medical service they have. Not all Grand Haven residents are able to access these amenities. There was regional funding through CMAQ for the route back in 2000. At the time, there was political resistance on both sides. The county wanted to take care of itself before serving others and Downtown Grand Haven businesses didn't want people escaping to buy things in the Muskegon area.

*Q: Are there other service issues that need attention (service frequency, hours of operation, fares, etc.)?*

- Service Hours.

*Q: Do passengers have the tools they need to understand and use MATS / MARC / GoBus service?*

- Maps are highly sought after. People still want a physical map in their hand with stating times, routes, and locations.

## Education, Healthcare and Business Representatives Meeting

### *Meeting Participants*

- Automotive Employer
- Baker College
- Hackley Community Care
- Muskegon ISD and Tech Center
- Muskegon Lakeshore Chamber of Commerce
- Muskegon Community College
- Muskegon County's Homeless Continuum of Care / Muskegon Community Health Project
- Orchard View School
- West MichiganWorks

*Q: What is MATS doing well?*

- Extended hours made a difference for evening students and evening programming. Since 2000, ridership is up. Classes typically end around 9 p.m., some go as late as 10 p.m. Some students have all classes in one location (Downtown or Marquette).
- Extended hours have also been helpful for patients going to appointments.
- MATS does a good job getting unemployed persons to social and medical services.

*Q: How could MATS serve your community or the region better?*

- Developing commuter routes to benefit employees and students.

- Students have transportation issues. Service hours and frequency limit their access to campus. Some students will bike to reach the bus.
- For commuters, there should be a straightening out of some of the routes. Second shift work is an issue but allowing access to first shifts is still beneficial.
- Second and third shift work is an issue. Service currently ends before second shift ends (11 p.m.) and employees have no viable way to get home. Third shift has no options. This is true for factory and hospital workers.
- Microtransit should be considered as a way to broaden service and provide options for riders.
- Short distances take a long time, a six to seven-mile trip can take up to two hours.
- Attracting and retaining employees is a big issue because of transportation.
- Trips should be under one hour and require less time than a bike ride.
- Job access and training are top priorities. There is a need for healthcare workers in the Muskegon Area. Maybe a program could be developed for the Adult Education Center and Tech Center.
- Service to Fruitport Township should be eliminated until they provide funds. Municipalities are not contributing to what they should be.
- People complain about buses, but they don't go to their lawmakers and ask for more money.
- Community College Students really appreciate the Marquette Express route.
- In 2008, students did an analysis to promote the expansion of evening services. They didn't like having to get downtown in order to get anywhere else.
- Baker College has low transit ridership. Students prefer to rideshare.
- People were using Marquette express to get downtown to go where they need to go (rather than taking a long loop)
- Routes need to be more direct. Longer walks are ok if it will speed up the service.
- Increased GoBus service to Hackley Community Care would be great. In some cases, patients need to make a medical appointment with less than two-weeks notice and this is an issue for GoBus scheduling. Additionally, procedures often start early in the morning and there are situations when patients cannot get there with GoBus. They require cabs.
- People who arrive at medical facilities by ambulance don't have a way to get home.
- The Tech Center conducts training after school hours. Service is needed to transport students home thereafter. This fall, the transition campus is moving to the old school building (Craig). This move will eliminate the need for service at the old location.
- It should be possible to build an efficient life around the routes.
- It is currently easier to call friends and family than to take loops.
- Millennials don't have licenses and need to learn the system.
- MATS needs to better serve areas rather than expand to new places.
- There are no significant gaps in coverage. MATS is a coverage model, it's just not efficient.
- Wolf Lake has a healthcare center that needs access.
- Regional Connections should be provided to Grand Haven and Holland.
- People need to get from Oceana to Muskegon Hospitals.
- The monthly pass is an issue. Its only good for that month and students complain that semesters don't coincide with months.
- MATS should give cities the ability to purchase packets of 10-rides.
- MATS should stop discounting 10-ride passes. Providing rides for \$1.25 is way below what is costs.
- Politics can get intense here because everyone knows everyone. If you don't serve someone's grandmother, you hear about it.

- Service needs to be simpler and more abundant.

*Q: Do passengers have the tools they need to understand and use MATS / MARC / GoBus service?*

- Provide training for Hackley employees and patients.
- MATS sent a bus and representative to Baker College during move-in weekend. Any student that wanted to learn about how to ride system could take advantage of that. It was part of the orientation process for new students living in Baker's housing.
- Mercy has new employee orientations every month. This might be an opportunity to educate potential riders.
- Michigan Works! conducts orientations every week for their welfare reform population. It would be great if there was a video that showed them how to use the system.

*Q: Do MATS / MARC / GoBus provide an inviting passenger environment?*

- Marquette Express was clean and not cushy but good.
- The outside environment at stops is problematic, they don't feel safe especially in the winter. Shelters and lighting would help. There is community support for improving stops. It may not be 100 percent dependent on MATS funds.
- A few bus drivers speed.
- Buses that depart early is a big issue.
- Sometimes you get the feeling that they are trying to get out of there before they have to load someone on the bus.

*Q: Are there other communities that "get transit right" and could serve as a model for Muskegon?*

- Chicago makes things simple. You walk in, buy a card and it can be used as long as you need it.
- Grand Rapids is a great example. The system used to be horrible but went through a transformation. They also have well-lit stops and new stops.
- Michigan Works! made improvements and their ridership has gone up.

## Healthcare Providers and Disability Advocates Meeting

### *Meeting Participants*

- AgeWell
- DaVita Dialysis
- Daybreak Adult Day Services
- Disability Network, West Michigan
- DHHS
- Goodwill
- Healthwest, Mental Health Division
- Kidney Dialysis
- Pioneer
- Senior Resources
- TheARC

*Q: What is MATS doing well?*

- GoBus service is reliable and on-time for the scheduling that they commit to.

- Have been a constant in the community for a long time.
- Reliable and helpful on the phone.

*Q: How could MATS serve your community or the region better?*

- There is a need for more GoBus vehicles to be available to meet the demand.
- Reducing the time to get from A to B. Oftentimes people don't want to ride because of how long trips take.
- Technology. Not everyone we serve has access to technology but, if people can even check times of buses even in the Herman Ivory lobby that would be great. People wait and wait and then miss the bus. In other communities, you can figure out where the bus is before you go out there. You have to ability to stay warm a bit longer without worrying about missing the bus.

*Q: Do you refer people to MATS?*

- From a mental health perspective, it depends on where the person is at in terms of recovery/illness. We want people to be independent and bus service is important for that. The general idea that we're working toward independence and that often involves using the bus.
- Some individuals already ride the bus, and others we assist with transportation due to their location.

*Q: Who qualifies for your service?*

- One provider explained that seniors (60 and over), as well as persons living in poverty qualify for their service.
- Another provider explained how they are mission-based, serving individuals with disabilities and seniors.

*Q: What's the top priority?*

- Medical is the top priority. The service is lifesaving, especially for people on dialysis.
- Helping people access jobs.
- From a Mental Health perspective, both job access and health services access is important. Independence requires both types of access.
- Employment and improving access to the community. The goal is to improve the quality of life so clients aren't isolated.

*Q: Are there any current MATS routes that should be changed or eliminated?*

- Tough question. Can't say I ride so don't know. Seems like a puzzle.

*Q: Are there areas that are not currently being served by MATS that really should be?*

- A few clients that live in Montague can't get down to Muskegon to attend appts. It may be because they are not familiar with the Montague route and rely on volunteers. We use a few companies to transport those in wheelchairs.
- The Getty route is currently on the other side of Getty so individuals with disabilities need to cross the street for destinations on Wesley Street.
- The easternmost part of county such as Ravenna and Bailey is not currently served.
- There is no easy way to connect people to Kent or Ottawa County. It's come up in the context of jobs on a fairly consistent basis. If service existed to connect people to Grand Rapids or Holland (more those two than Grand Haven), it would be utilized.
- Often wish there were a way to get to Grand Rapids other than Greyhound in the evening.
- For medical care, access to Grand Rapids is a high-need.



*Q: Other service issues to consider?*

- There have been times when GoBus is considerably late, and there's no contact after hours to find out where that bus is.
- There needs to be a way for people to be able to cancel after hours.
- Fares need to be reasonable.
- Same-day or next-day transport needed.

*Q: How soon do riders have to schedule other services?*

- As soon as the appointment is scheduled. This is rarely same-day.
- We require 48 hours. But if they call we try to do our best.
- No shows are not a major issue.
- There are a lot of individuals who want to volunteer, intern, staff — utilize GoBus to get to work. The two-week expectation for GoBus scheduling is not ideal, it's a cumbersome barrier. If you're trying to promote independence and people face these challenges, it is discouraging. A 23-year-old chair user who was volunteering had a terrible experience with GoBus.
- There should be an appropriate place for customers to air grievances.

*Q: Do passengers have the tools they need to understand and use MATS / MARC / GoBus service?*

- Informally, current riders teach others how to use the system.
- For Gobus, people don't know where to get an application, and sometimes applications are restricted.
- The math for GoBus service with different zones is difficult. Oftentimes, we purchase GoBus passes and give them to participants. They often use the \$5 pass just to make sure they are covered since it's hard to see the boundaries.
- We had a staff member who would come and pick up GoBus brochures, they were told last time that they were not able to get any.
- MATS is not intuitive, it is more difficult than Grand Rapids or Flint to figure out. We have heard that consistently.

*Q: Do MATS / MARC / GoBus provide an inviting passenger environment?*

- For GoBus, we have received a number of complaints that riders feel unsafe with drivers. They still use the service because they rely on it. This includes restraints not being done correctly.
- Staff is an issue. On fixed-routes, people have their favorite bus drivers but stakeholders hear consistently about other routes where people feel the drivers don't treat them or talk to them well.
- Cleanness of buses is also a complaint stakeholders hear often.

*Q: Are there other communities that "get transit right" and could serve as a model for Muskegon?*

- Kalamazoo County – partnerships with organizations that provide services to people with disabilities - have people with disabilities providing training for people who want to ride the bus, ride alongside them. Areas for getting on and off are more accessible - no curb issues for people with mobility issues.
- Grand Rapids -- people will ride the bus system that don't necessarily have to. Not the case in Muskegon. More inviting environment. Messaging and marketing can be helpful.

*Q: From your perspectives, would you prefer to see fixed-route improved or GoBus?*

- Some stakeholders reported relying more heavily on GoBus whereas others reporting using both services.

- There is an opportunity with GoBus to look at efficiency. We'll have a driver come pick up one person, then pick up their neighbor later.
- The 2-weeks notice is an issue. At 8 a.m. two weeks, ahead of everyone is calling at the same time. If you miss out, you may not get a ride.

*Q: With respect to GoBus users, If we could solve the two weeks in advance concerns and provide something more responsive, but could only do that in a smaller part of town - what would be implications to your users? If just urban core service area. Instead of countywide?*

- This is a double-edged sword - those living outside of the center are typically more isolated. Because of geographic placement. We'll make service better if we can concentrate it more. Doesn't feel like a good payoff to people in outlying areas.
- Already limited availability to the outlying areas. One stakeholder noted that they can get someone to their program but can't get them home.
- The stakeholders discussed whether the county would consider funding partners. It's possible that they could partner with some other agencies to improve transportation services.
- Areas that receive service should pay and be held accountable. Some representatives feel there are no repercussions for them if they don't provide funding.

## County Commissioners Meeting

### Summary of Discussion

- A commissioner inquired about whether any self-driving vehicles were being used in other areas. FITP noted that self-driving vehicles are just being piloted but that electrification is happening faster.
- A commissioner asked what level of improvement should be expected following the redesign. FITP responded that a ten percent increase in ridership would be reasonable.
- A commissioner asked whether there was a plan for crosstown buses. FITP noted that there are two ways to build connections: Hub and spoke, or grid system.
- The commissioners discussed the fact that funds are needed to supplement revenue.
- FITP confirmed that County Commissioners will have the opportunity to review route options prior to the next round of public outreach.
- When considering changes, the commissioners discussed how the full picture/whole system should be examined. There may be internal changes we could make that would be advantageous such as positions or purchasing issues. It is important to study the management side and when conducting peer comparisons we should consider how agencies are staffed. There may also be inexpensive and simple fixes such as posting schedules along the routes.
- The commissioners discussed the issue of senior transportation. Red Cross senior transportation is gone, the service has been picked up by Senior Resources. Tanglewood may have up to 100 Pioneer buses. There are resources out there but no one is working together. There are 200+ PACE program clients at Tanglewood who are being transported. Perhaps Pioneer could help meet the needs of seniors in the future, rather than GoBus.
- In more rural districts it is difficult to sell transportation funding to participants. They only benefit from GoBus but something more is needed to convince constituents. The commissioners discussed whether service should be provided to every area of the county. In 1974, the core communities asked the county to take on transportation because the private sector couldn't do it. The local communities came to the county.
- GoBus poses an ADA issue if MATS doesn't improve service. The commissioners discussed ADA and GoBus requirements. Fewer GoBus vehicles have been deployed to address budget problems. Ridership per hour remains fairly steady. Four vehicles are being deployed during peak service hours.

## Public Meeting

*Q: What is MATS doing well?*

- You're here today talking to everyone.
- The fact that GoBus travels outside of the central city area.
- One isn't more important than the other; GoBus and fixed-route are both really important.

*Q: How could MATS serve the community or region better?*

- Provide direct routes instead of looped routes.
- Create a mechanism for public input to the transportation system. Perhaps there could be a written complaint policy or forum for citizens to provide input.
- Buses should be cleaned better and drivers should be trained in disability etiquette.
- If you're from out of town or a tourist, it is challenging to figure out where the bus goes.
- It is too complicated to ride the bus from Lakeside to Laketon.
- Routes should be direct and on main corridors. It needs to be simple for people to learn how to ride.
- My wife is blind and has difficulties with the system. She has been told she can't schedule a ride, she's been told she can't schedule two weeks in advance. There are also no-shows when she does get on GoBus. There should be consequences for people who don't show up. We are willing to pay a higher fare.
- The efficiency of the GoBus system needs to be addressed. We need to listen to people out there who have struggles.
- One day per month with reduced fares would increase ridership, get people on the bus, and they will realize it's a good travel option.
- Google transit should display transportation options in Muskegon.
- There are not schedules posted at each stop, I have no idea when the bus comes.
- Hospital directors report that buses should run a bit later in the evening.
- People coming out of late classes don't have a way to get home.
- Frequency of service to the industrial park is an issue. If I wanted to ride the bus to work, I could have gotten there quickly but the trip home is a huge challenge.
- I wish MATS had the flexibility to increase the frequency of service to meet special needs such as on election days.
- The City Clerk's office is open Saturday and sometimes Sunday but there is not enough service to get people there or back.
- There should be more shelters.
- Snow accumulation is an issue.
- The Apple route should go a half mile further east then turn around.
- Is there a form that, if it were filled out, would guarantee an ADA pick-up?
- Seems like buses work well in dense urban areas.
- Dispatching is an issue. The service model could work better.
- The bus system is invaluable to people age 18 to 26 who are learning to be independent. The service limits their job opportunities. We should consider increasing buses into rural communities and allowing bikes on the bus. Spoke with a few students who just gave up. Not sure what that teaches them, very sad.
- Could Montague be served better by a circulator?

*Q: What are the top 2 or 3 most important goals that MATS should focus on in the coming years?*

- Increase investment in public transportation.

*Q: Are there any current MATS routes that should be changed or eliminated?*

- Upset that service was expanded to Montague without accessible stops. It's a legal issue.
- Would like to see the Montague route go to Fruitvale. It would be super easy to extend it a little bit, there's a bike path that goes there.
- Not many stops in North Muskegon.

#### *Other Comments*

- Public transportation is funded differently in every community. In Muskegon, the county said they'd operate if funds would match grants.
- Muskegon county has veterans and senior millages.
- Drivers need to learn how to work with customers with disabilities better, sometimes they are rude, refuse to repeat information, etc.
- There have been complaints regarding the cleanliness of buses.
- In Grand Rapids, their system was previously underfunded and poorly performing. Then churches and the disability community advocated for more transit. They built a coalition and are now reaping the benefits. Perhaps we should implement some of Grand Rapids's system strategies here.
- Please wait until spring for implementation.

## Pop-Up Meeting with Operators in Break Room

#### *Summary of Discussion*

- Ridership on 115 (Montague/Whitehall) is growing - perhaps consider a circulator route just within the White Lake area.
- There should be more frequency on busy routes.
- Would like to see more focus on key corridors and demand response service in other areas.
- A smartphone option would be useful.
- Muskegon Heights should be used less and Herman Ivory more.
- There should be more protected turns on Peck/Sanford, Apple 1, and Henry.
- Peck/Sanford should operate later.
- The busiest routes are Getty/Wood, Lakeshore and Sherman. Peck/Sanford has low ridership, which will be even lower once Hackley campus closes.

#### *GoBus*

- GoBus dispatchers are not grouping trips from similar origins as much as they used to.
- Major issues with GoBus offering to give people rides only one way (not the return trip).

#### *Route Modifications and Additional Services*

- MATS should serve new clinics opening on Seminole Road.
- Consider connections to Spring Lake and Grand Rapids.
- Want more protected turns on Peck/Sanford, Apple 1, Henry
- The loop on East Sherman should be removed. Right now people can't exit on the Northside of the street. It would be better if the route just went up and down Sherman.
- Would like a bi-directional route that goes from downtown to Mercy Hospital and Walmart.
- It is hard for Apple bus riders to get to the hospital, would be nice to see a connection between Sherman and Apple corridors that don't require riders to go to downtown terminal and transfer.
- Industrial park (just east of Mercy Hospital) is getting busier, it needs to be served.

- Getty/Wood is a high ridership area, but also a high crime area. People may not feel safe waiting there, it might be better to keep the route on Getty.
- A direction from East Sherman to Jefferson Towers would be good. Instead of going up 3<sup>rd</sup> the bus could go up to 5<sup>th</sup>.
- Many people take the Sixth route to the Men's Mission. The loop requires them to travel a long distance to get there.
- There should be a connection to Grand Haven.
- A direct connection between the mall, mercy hospital and industrial park without having to transfer a Muskegon Heights Terminal would be nice.
- The Apple routes are good and serve the area well.
- Connections between 10 and 15 are not good and could be improved.
- At the corner of Barclay and Hackley, it would be good if passengers could get off before making the trip down to the plasma center, otherwise, they need to ride the loop.
- Airport and Medi-Clinic should be serviced by request only.
- The traffic lights near the mall and Meijer are very long.
- On the Apple route, the loop by McLaughlin is not needed. The bus should stay on Apple.
- Multiple comments were received regarding the issue of Wolf Lake service. People in Wolf Lake and other areas east of where the Apple route ends have to walk a long distance to get to the bus (2.5 miles) -- if you could even just bring the route a bit closer, it would make a big difference for them.
- Service to Mill Iron Road and Apple is needed.
- Whatever happened to the Walmart shuttle that was bringing people to the store?
- There is an issue at Laketon and Dangl.

## Pop-Up Meeting with Riders at Herman Ivory Terminal

### *General Comments*

- It is difficult to get GoBus reservations. The situation is better in Grand Rapids where you can get a same-day reservation.
- It's hard to figure out which routes a person has to take to get from A to B. Routes are way too loopy and confusing. Travel training for the average citizen shouldn't be required in order to understand the service.
- Sidewalks and improved pedestrian facilities are needed on Sherman between Broadway and Summit as well as on Walker.
- Muskegon Heights transfer center is not safe and not clean.
- It can take two hours to travel four miles if you need to switch routes. Traveling to and from somewhere can take all day, I've had to shorten work hours to use the bus to get to work.
- There should be 30-minute frequencies on busier routes such as Apple and Harvey during peak hours.
- The system should advertise.
- Bus stops have no information about schedules or even about which route a bus is on.
- Corner-to-corner service would be better than curb-to-curb.
- Would like to see unlimited transfers be free. Just because you have to transfer twice to get from one location on the system to another doesn't mean you should have to pay double the fare (for the same trip - right now, fare only pays for one transfer).
- Errand shouldn't take 2-3 transfers in most cases.
- Sometimes drivers leave the terminal too late at the top of the hour. Would like to see punctual departures. If they are ahead of schedule, they should stop to make adjustments to avoid early arrivals. Sometimes it seems like they want to depart a stop earlier so they can avoid having to pick up people.



- Multiple comments urging MATS not to reduce service.
- Support cutting low-ridership routes if necessary.
- Need to consider the transportation needs of vulnerable populations. As a community, we have responsibility to help them be independent, productive citizens. Service is very important.
- There is too much stigma against the bus. If service improves the hope would be that we could attract some choice riders. Have heard from many people that they'd be willing to take the bus if it was a reasonable travel option (higher frequency, fewer transfers).
- Hours could be better.
- The system should do poor air quality action days - when air quality is bad, make fares free to encourage people to ride.
- Snow clearing at Herman Ivory Terminal needs to be improved.
- Rules should be enforced better.

#### *Fares*

- Support increasing regular fares if that's necessary to improve service.
- Fares should be fair (rider's impression is that they raised prices for discounted passes but not for regular rider passes).
- The monthly passes are good.

#### *GoBus*

- It is difficult to get GoBus reservations. The situation is better in Grand Rapids where you can get a same-day reservation.
- Would like to use GoBus but it is always booked.

#### *Route Modifications and Additional Services*

- Multiple comments about residents not being able to access doctor's offices in North Muskegon.
- From Fruitport, it would nice have faster service.
- It would be nice if the Harvey route went to the Meijer on Norton.
- There should be a connection between MCC and the Harvey Route that doesn't require transferring.
- The Lakeshore route should not be eliminated.
- Would like to see Harvey route extended to downtown. There should be no transfer at the Muskegon Heights Terminal.
- Would like to see Mill Iron Road served at Violet Avenue. Sherman route service should be extended to Mill Iron Road.
- Muskegon area library system has 380,000 visits per year. Many visitors there would like service.
- There should be more service in rural areas.
- Access to CVS pharmacy on Apple Avenue is critical. There is only one in the area and people need to access prescriptions.
- Connection to Grand Haven would be nice.
- Apple Route should travel further east to Wolf Lake.
- Would be nice if the Sherman route went east to Ollies. Right now it only stops at Sams Club. People have to cross the street to get there and it's not safe.
- Reduce the number of stops near Save-a-Lot. People can cross the street if needed.
- Bus service is needed between McCracken and Lincoln.
- Residents at Glen Oaks on Harvey Street depend on the Apple route. Many seniors take the bus, please don't take away their service.

### *Weekend Service*

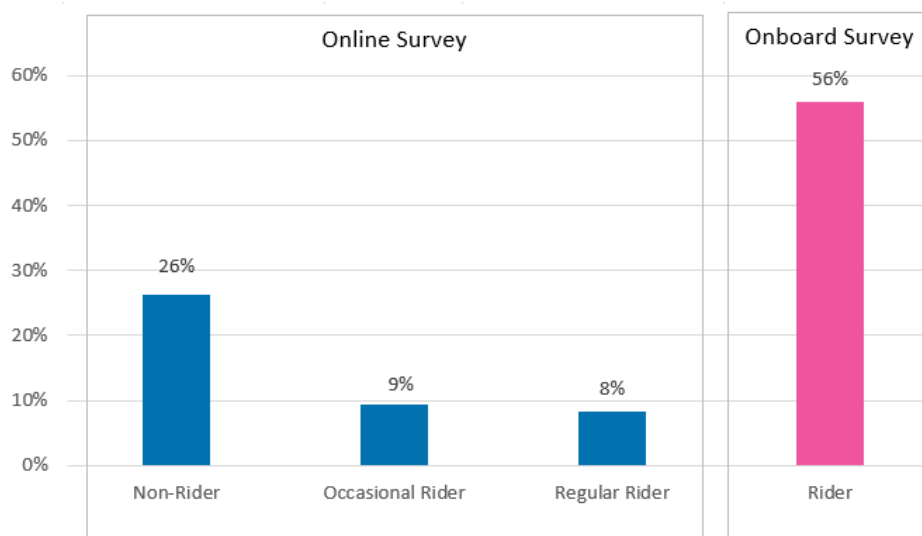
- Would like weekend service on Harvey route especially Sundays. People need to access retail jobs on that day.
- There should be a weekend service to Montague.
- On Saturday, it would be nice if the service started at 8 a.m. instead of 10 a.m.
- There should be Peck/Sanford service on weekends

### *Wheelchair users*

- Multiple comments regarding drivers complaining when they have to help passengers in wheelchairs. The argument that they can just take GoBus instead is false as it's often not available.
- A wheelchair user confirmed that driver attitudes are bad. However, the system is good, and gets them where they need to go.

## Survey of Riders and Non-Riders

Figure 118 | Level of Transit Use



## Demographics

### Employment Status

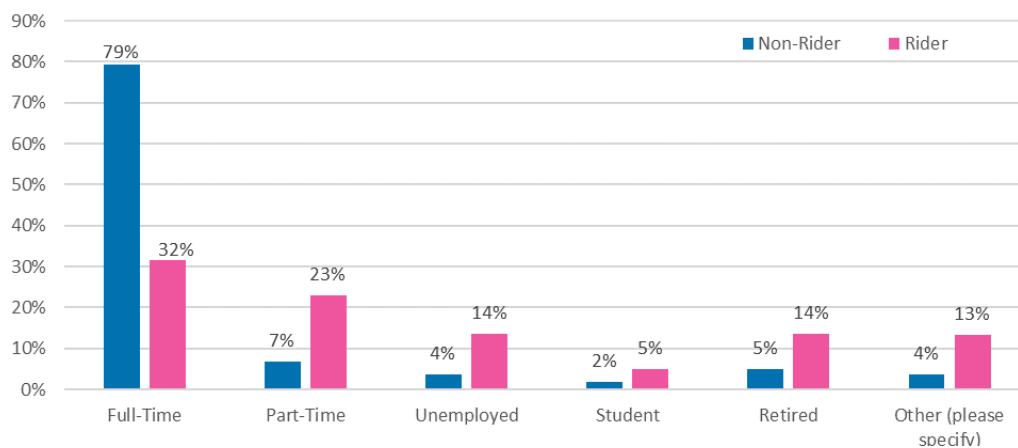
**Figure 119** summarizes the employment status of riders and non-riders. Over 30 percent of riders reported being employed full-time (32 percent). When combined with those employed on a part-time basis, the percentage of employed respondents increased to 55 percent. 14 percent of riders and four percent of non-riders identified themselves as unemployed in their survey response. By comparison, in May 2019, the unemployment rate in Muskegon County was 3.9 percent.<sup>9</sup>

Students and retirees accounted for five percent and 14% of respondents, respectively, among riders and two percent and five percent, respectively, among non-riders. Among survey takers who selected “other” for the employment status, the most common explanations provided by both riders and non-riders were “disabled” and “stay-at-home parent.”

<sup>9</sup> Muskegon Unemployment Rate:

[https://www.bls.gov/regions/midwest/mi\\_muskegon\\_msa.htm#eag\\_mi\\_muskegon\\_msa.f.2](https://www.bls.gov/regions/midwest/mi_muskegon_msa.htm#eag_mi_muskegon_msa.f.2)

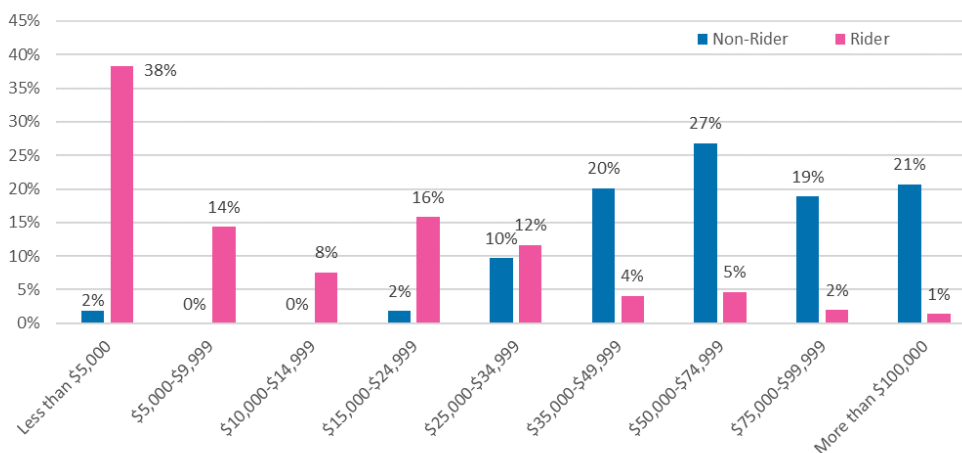
Figure 119 | Employment Status



## Household Income

As of 2017, the median household income in Muskegon County was \$46,077.<sup>10</sup> As **Figure 120** indicates, a significant number of riders reported earning less than this median household income, with over 75 percent of riders earning less than \$25,000 per year. On the other hand, most non-riders reported earning more than the median household income of the county. Only 34 percent of non-riders earn less than \$50,000, as compared to 92 percent of riders.

Figure 120 | Annual Household Income



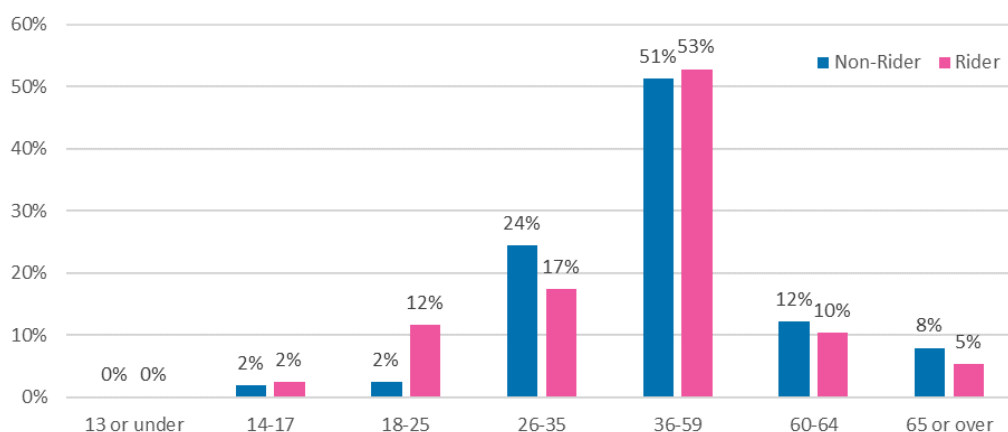
## Age

**Figure 121** summarizes the distribution of rider and non-rider respondents by age. The distribution of riders and non-riders is fairly evenly split within each age group. Based on this sample, the majority of MATS riders are between the ages of 36 and 59.

<sup>10</sup> United States Census, Quickfacts: Muskegon, MI

<https://www.census.gov/quickfacts/fact/table/muskegoncountymichigan,US/PST045218>

Figure 121 | Age



## Motivation for Transit Use

In order to better understand area residents' motivations, survey respondents were asked why they choose to either take or not take transit. Riders were asked to select the reasons which contribute to their decisions to utilize transit, including issues of convenience, cost, necessity, and care of the environment. Non-riders, on the other hand, were asked to identify the reasons that they choose to not use transit, including a lack of interest, convenience, or information.

## Transit Riders: Reasons for Using Transit

**Figure 122** and **Figure 123** summarize riders' reasons for using transit. Topping the list for MATS and MARC riders was car ownership; 54 percent of respondents indicated that they do not own a car. The majority of GoBus riders reported using the service because they either do not own a car (22 percent) or cannot drive for legal or health reasons (43 percent).

Figure 122 | Reasons for Taking Transit MATS and MARC riders

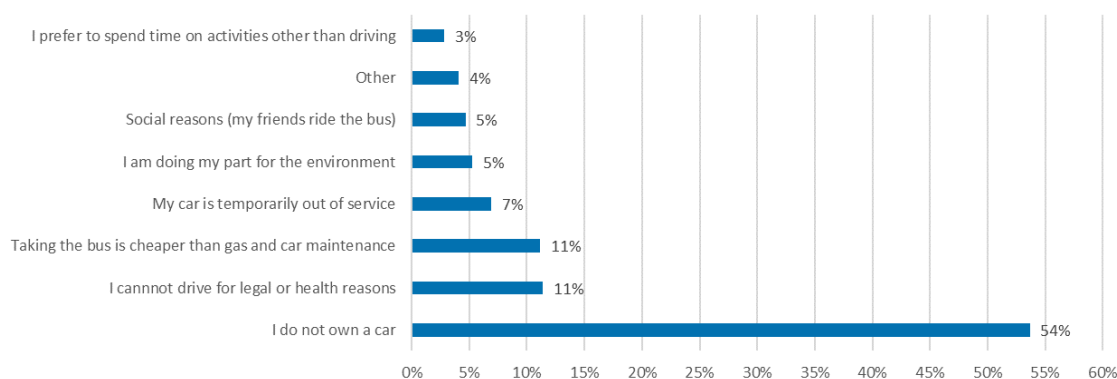
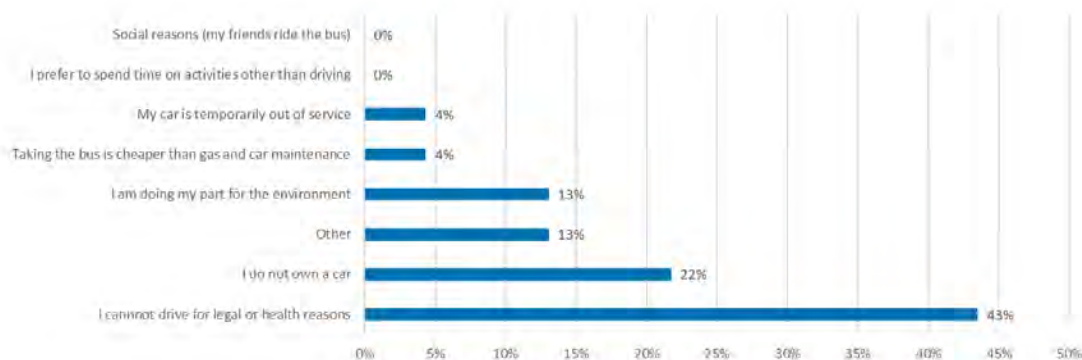




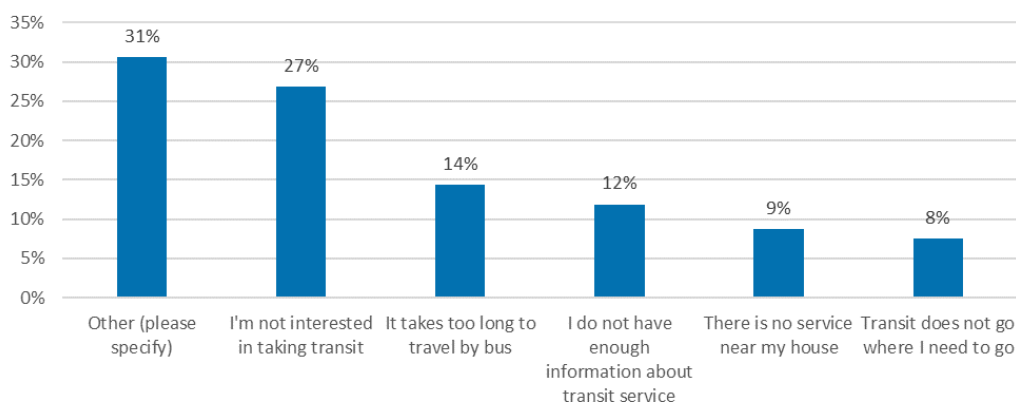
Figure 123 | Reasons for Taking Transit GoBus riders



### Non-Riders: Reasons for not Using Transit

Survey responses revealed two primary reasons why residents choose to forego transit (**Figure 124**). Thirty-one percent of non-riders cited “other” when asked why they do not use transit. A majority of the respondents who selected “other” specified that they have their own vehicle. Meanwhile, 27 percent of respondents simply expressed a lack of interest in transit.

Figure 124 | Reasons for Not Taking Transit



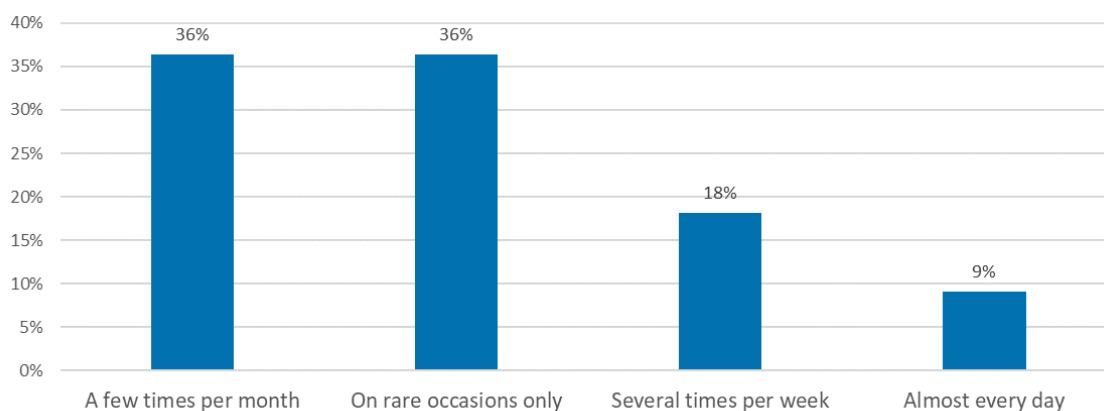
### GoBus Service Use

Survey respondents who indicated that they were GoBus riders were asked to consider their most common trip and then answer a series of related questions.

### Frequency of Trips

Nearly thirty percent of GoBus riders in the survey indicated that they use the service at least a few times every week. Nine percent use GoBus daily and 18 percent use it several times a week **Figure 125**. However, the most common responses to the question of frequency of GoBus use was “a few times per month” and “on rare occasion,” at 36 percent each.

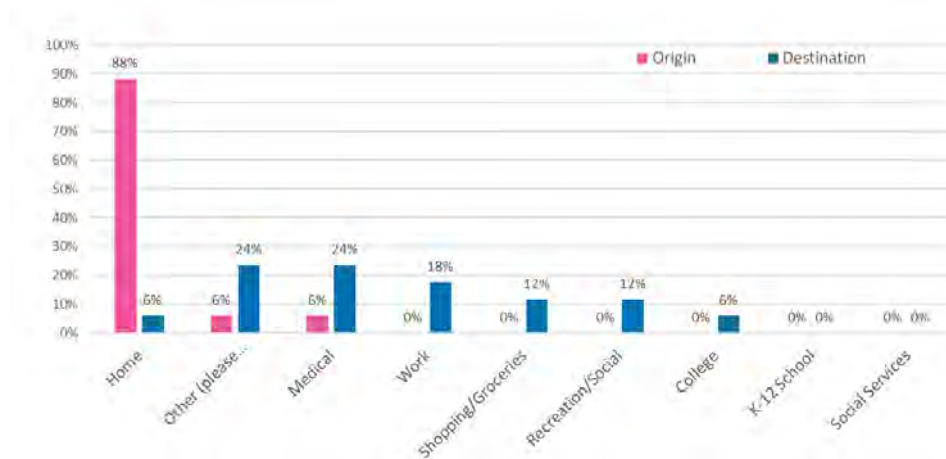
Figure 125 | Frequency of GoBus Use



### Trip Origins and Destinations

**Figure 126** shows the typical trip origins and destinations of GoBus trips by category. The highest percentage of riders reported traveling between their home and medical appointments. Among riders who cited “other” when asked about their trip origin and destination, written responses included “client’s place of residence” and “volunteering in the city.”

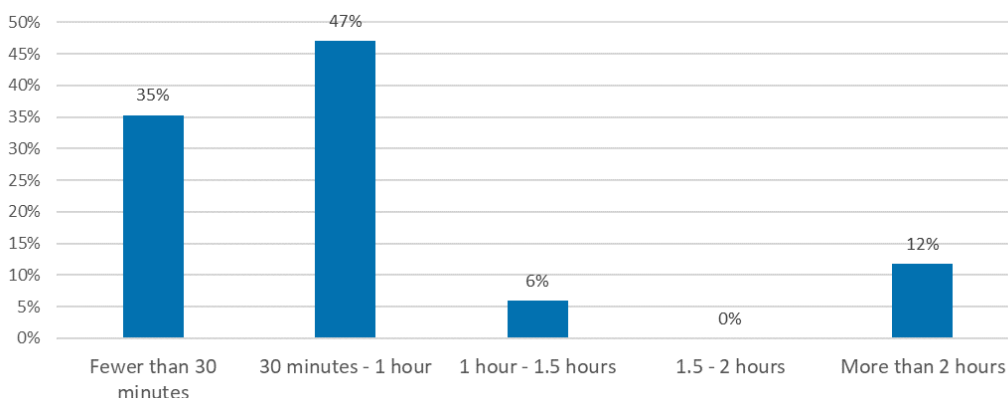
Figure 126 | GoBus Trip Origins and Destinations



### Duration of Trip

The majority of GoBus respondents said that their most common trip takes either fewer than 30 minutes (35 percent) or between 30 minutes and one hour (47 percent). Meanwhile, twelve percent reported that this trip takes more than two hours in **Figure 127**.

Figure 127 | Length of Most Frequent Transit Trip



### Fare Medium Used to Complete Trip

A majority of GoBus riders responding to the survey reported using cash to pay for their most common transit trip (53 percent). 48 percent reported using fare coupons (**Figure 128**).

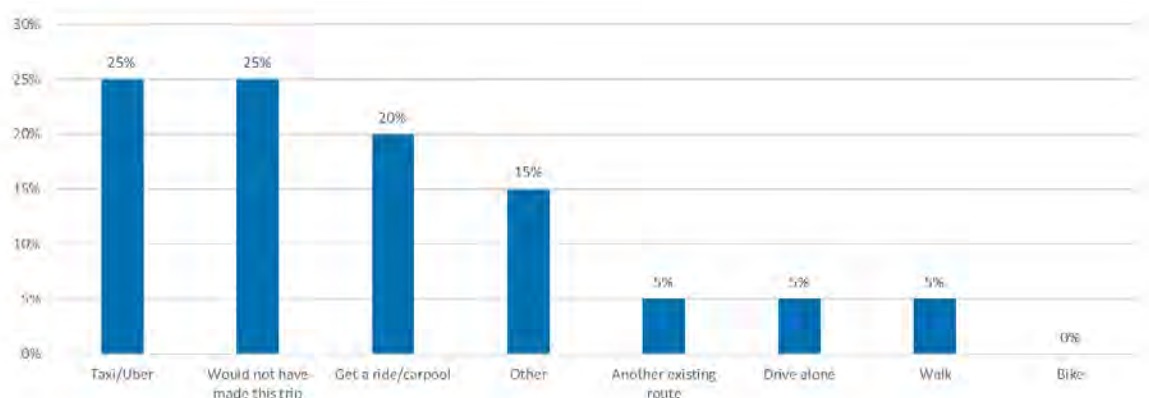
Figure 128 | Type of Fare Used on Most Common GoBus trip



### Alternate Mode of Travel

GoBus survey respondents were asked to evaluate their transportation options if it were not possible to use GoBus to make their most common trip (**Figure 129**). An equal number of respondents indicated they would opt for Taxi/Uber service, or would not have made the trip at all (25 percent). These results suggest that GoBus users are very dependent on the service.

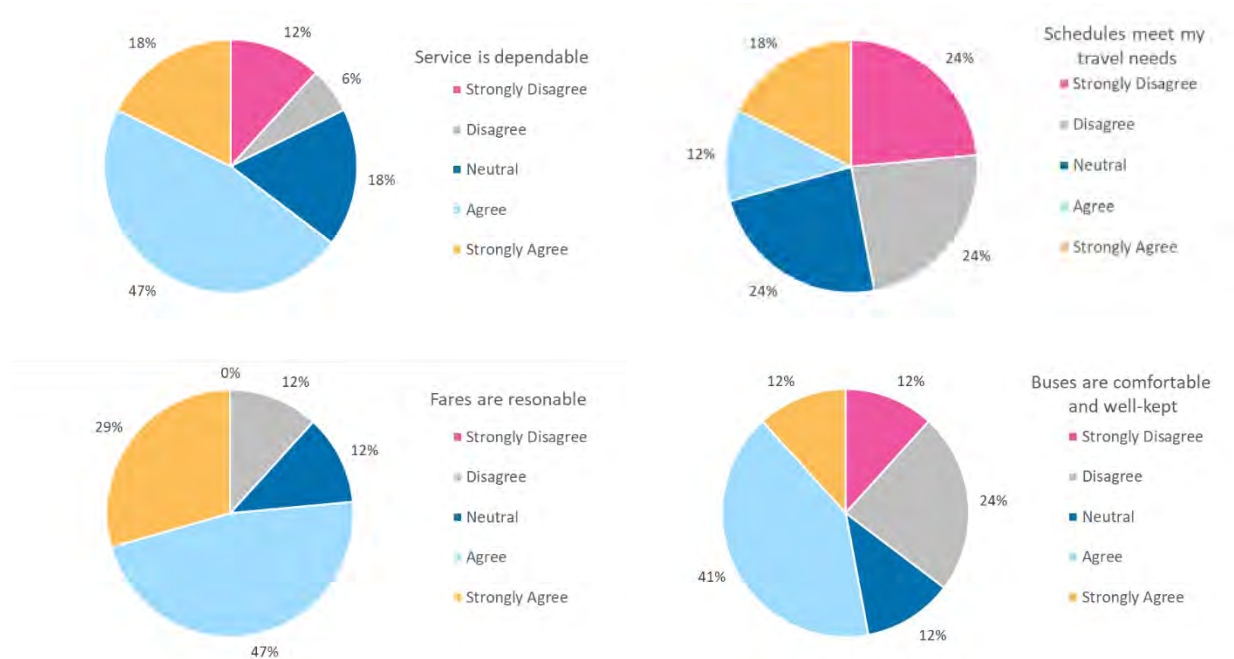
Figure 129 | Alternative Method of Completing Most Common GoBus Trip

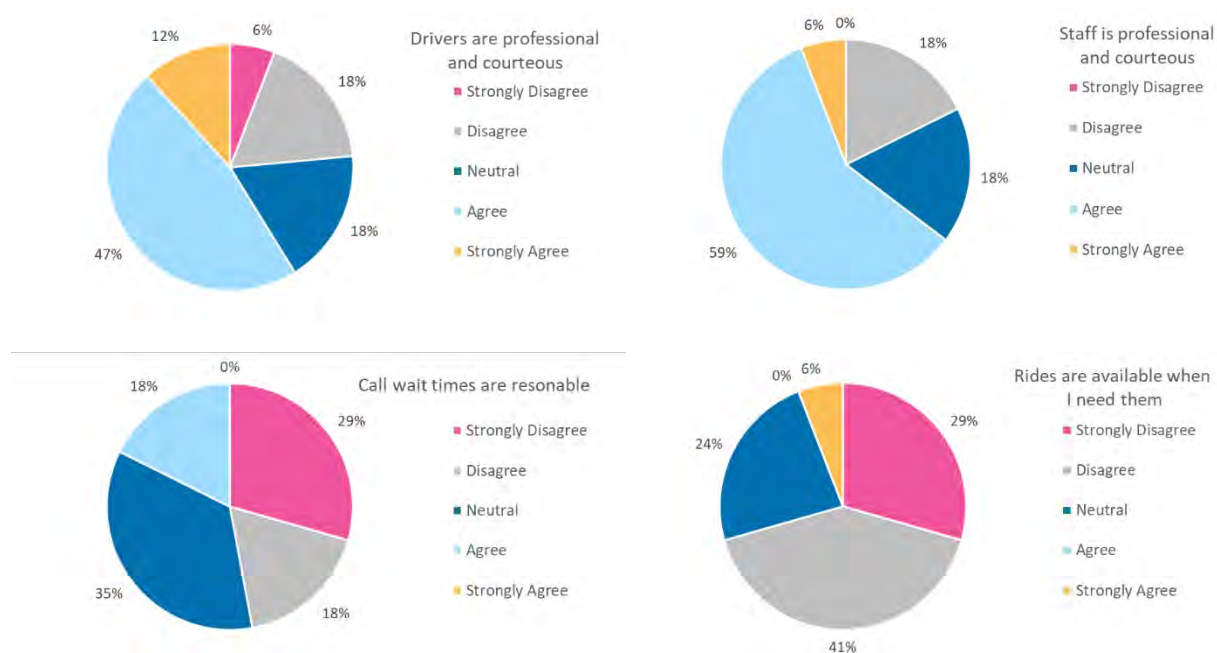


## Rider Perception

GoBus riders responding to the survey were asked to evaluate the quality of the service on a scale ranging from strongly agree to strongly disagree, based on their experience. The results, shown in **Figure 130** indicate that on average, current riders are satisfied with GoBus dependability, fares, staff, drivers and buses. In contrast, many riders are dissatisfied with schedules, call wait times, and service availability,

Figure 130 | GoBus Rider Perception





## MATS Service Use

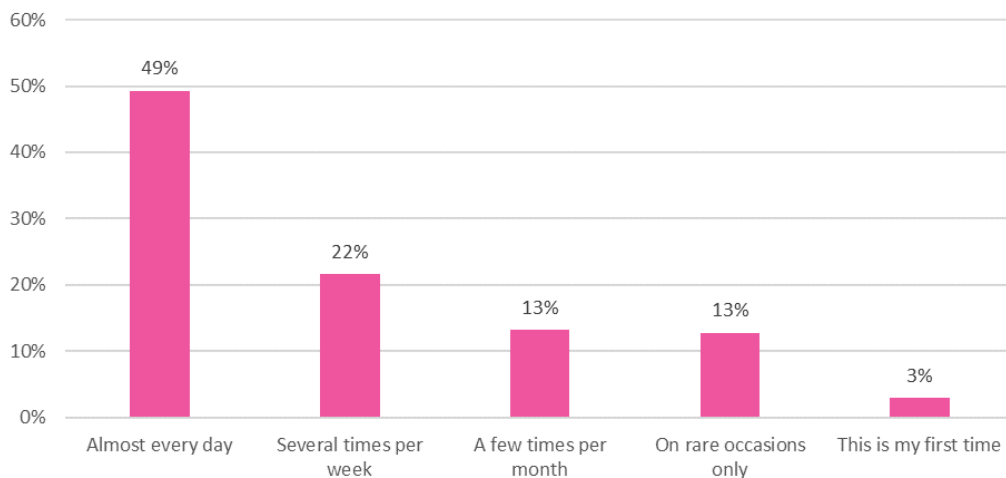
Survey respondents who indicated that they were MATS riders were asked to consider their most frequent trip and then answer a series of related questions.

### Frequency of Trip

Over half of the MATS riders responding to the survey indicated that they use transit at least a few times every week; 49 percent daily and 22 percent several times a week (**Figure 131**). Twenty-nine percent of riders taking the survey use MATS service a few times per month or less.



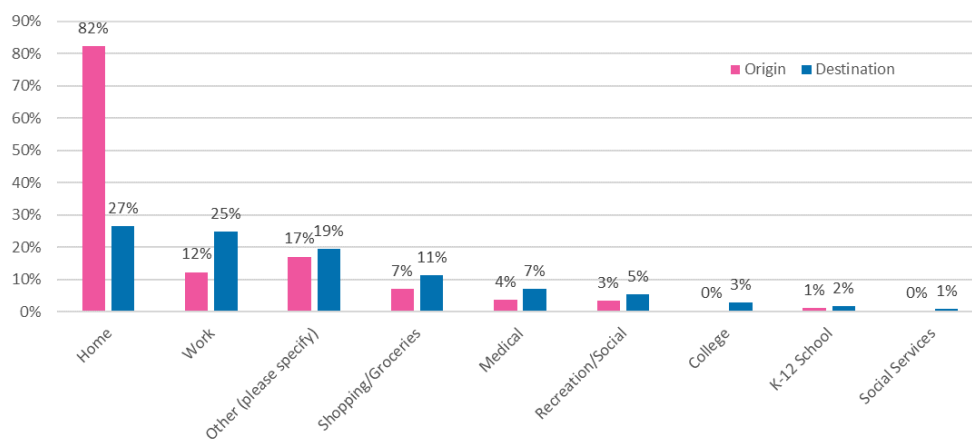
Figure 131 | Frequency of MATS Use



### Trip Origins and Destinations

**Figure 132** shows the typical trip origins and destinations of MATS trips by category. The highest percentage of riders reported travelling between their home and work. Among riders who cited “other” when asked about their origin and destination, written responses included “transition school,” “downtown,” and “the terminal.”

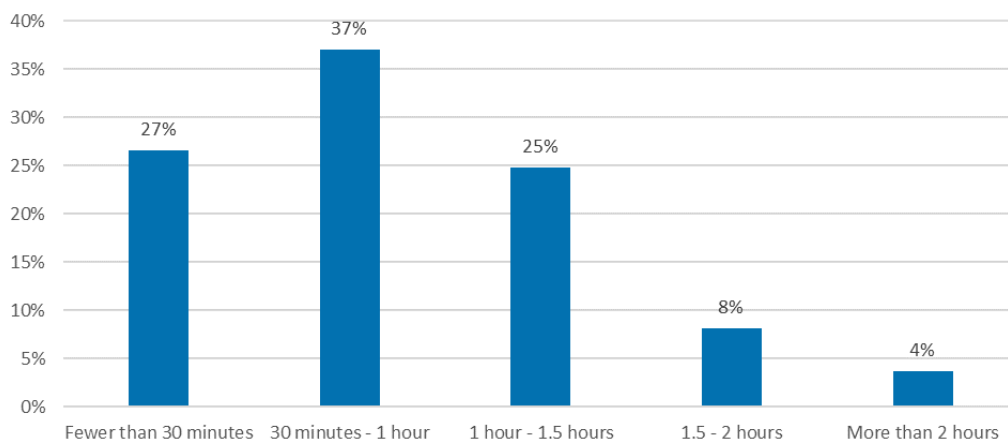
Figure 132 | MATS Trip Origins and Destinations



### Duration of Trip

A majority of MATS respondents (64 percent) said that their most common transit trip takes less than 1 hour to complete. 37 percent reported that this trip takes more than 1 hour (**Figure 133**).

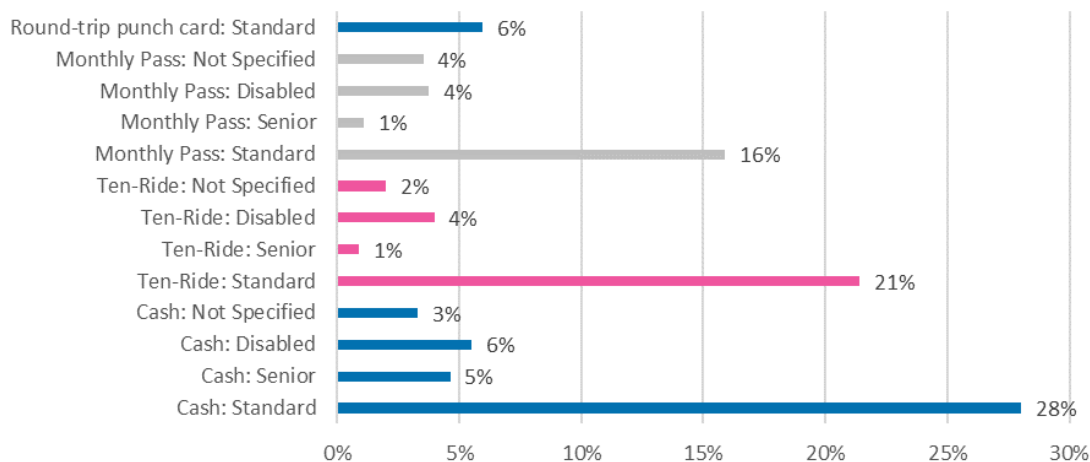
Figure 133 | Length of Most Common Transit Trip



### Fare Medium Used to Complete Trip

As indicated in **Figure 134**, the greatest number of MATS riders participating in the survey (42 percent) reported using cash to pay for their most common transit trip. Twenty-eight percent of riders used a ten-ride pass and 25 percent used a monthly pass.

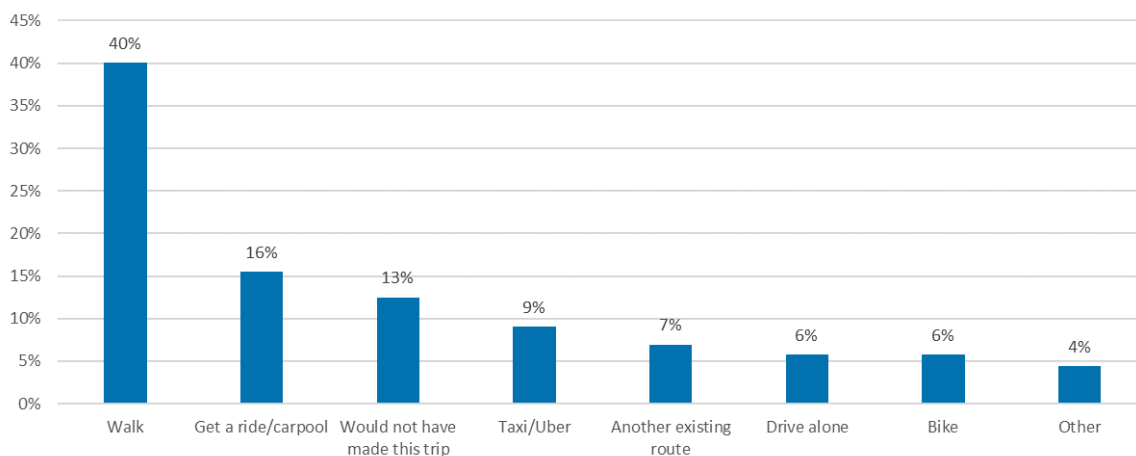
Figure 134 | Type of Fare Used on Transit Trip



### Alternate Mode of Travel

Survey respondents were asked to evaluate their transportation options if it were not possible to make their most frequent trip by bus (**Figure 135**). Among riders, walking scored highest (40 percent), followed by getting a ride/carpool (16 percent). 13 percent of riders said they would not have made the trip at all if transit were not available. Fewer than ten percent of riders indicated that they would use a taxi or Uber, take another existing route, drive alone, or bike if their current route were not available.

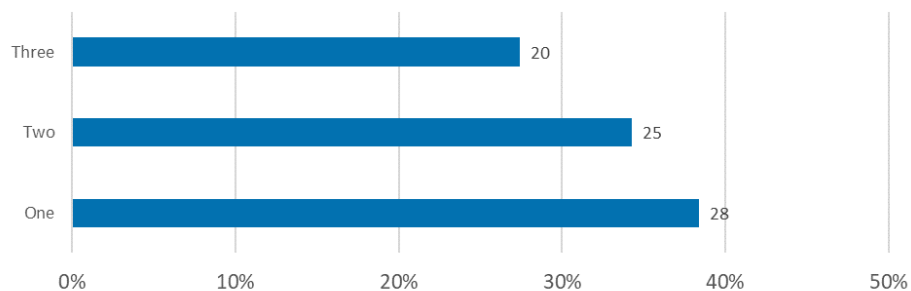
Figure 135 | Alternative Method of Completing Most Common Transit Trip



### Route Use and Transfers

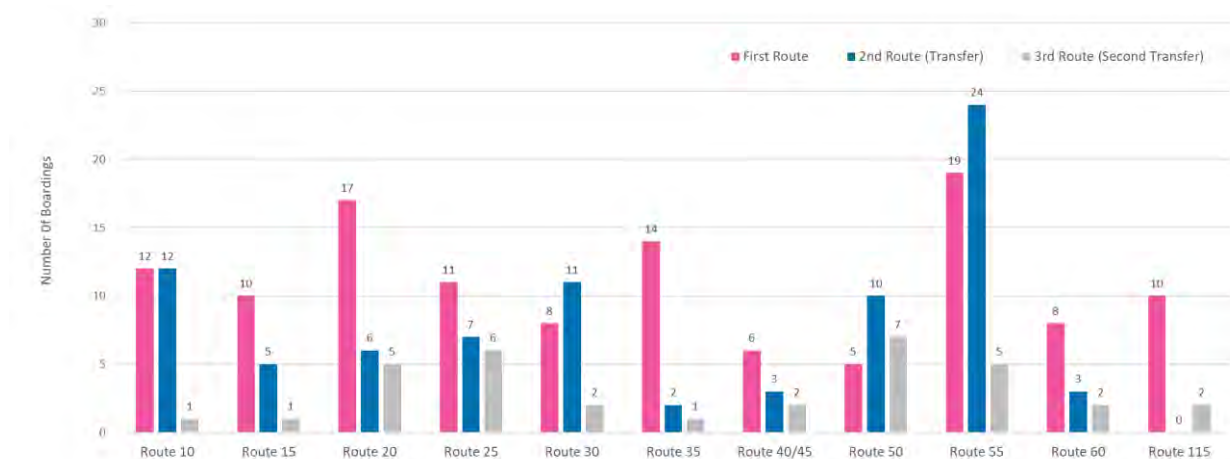
MATS riders were asked to describe their most common one-way trip in terms of routes used to complete their journey. Thirty-eight percent of respondents reported using just one route to complete their trip (**Figure 136**), while 34 percent reported making at least one transfer over the course of their trip.

Figure 136 | Number of Routes Utilized for Most Common Trip



**Figure 137** shows the number of MATS survey takers who noted each route as the first, second, or third leg of their most common trip. This figure highlights the key role of Route 55 in the MATS network, as it is the most frequently cited first and second leg of passengers' trips.

Figure 137 | MATS Route Usage



**Figure 138** shows the number of transfers reported between any two routes. The most common transfer cited by MATS survey takers were between Route 30 and Route 55, and between Route 35 and Route 10. In both cases, these transfer patterns illustrate cases of riders transferring from a route serving primarily residential land-uses to a route that is rich in destinations such as retail and medical centers.

Figure 138 | Transfer Between Routes

|       | 10 | 15 | 20 | 25 | 30 | 35 | 40/45 | 50 | 55 | 60 | 115 |
|-------|----|----|----|----|----|----|-------|----|----|----|-----|
| 10    |    |    |    |    |    |    |       |    |    |    |     |
| 15    | 1  |    |    |    |    |    |       |    |    |    |     |
| 20    | 1  | 1  |    |    |    |    |       |    |    |    |     |
| 25    | 1  | 2  | 4  |    |    |    |       |    |    |    |     |
| 30    | 0  | 0  | 0  | 2  |    |    |       |    |    |    |     |
| 35    | 5  | 0  | 1  | 0  | 1  |    |       |    |    |    |     |
| 40/45 | 0  | 2  | 1  | 0  | 1  | 0  |       |    |    |    |     |
| 50    | 1  | 3  | 0  | 0  | 1  | 1  | 1     |    |    |    |     |
| 55    | 3  | 3  | 2  | 1  | 5  | 1  | 0     | 4  |    |    |     |
| 60    | 0  | 2  | 0  | 1  | 0  | 3  | 1     | 0  | 3  |    |     |
| 115   | 1  | 0  | 0  | 1  | 0  | 1  | 0     | 1  | 1  | 1  |     |

## Rider Perception

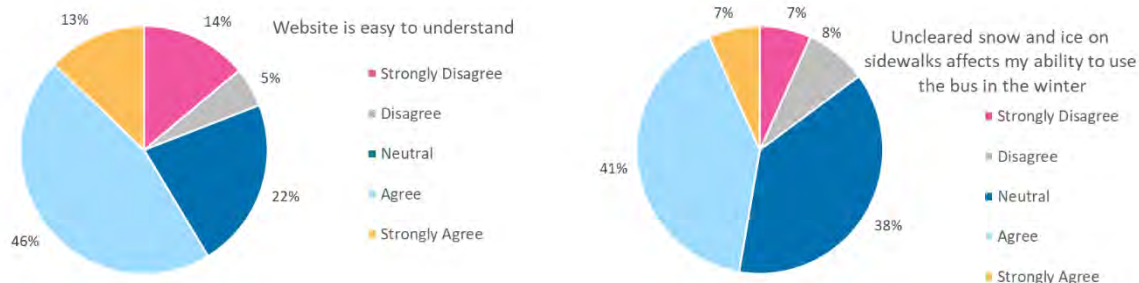
MATS riders responding to the survey were asked to evaluate the quality of the service on a scale ranging from strongly agree to strongly disagree, based on their experience. The results, shown in **Figure 139**, indicate that the majority of current riders participating in the survey are fairly satisfied with most aspects of MATS service. However, there is also clearly room for improvement on nearly all aspects of service, as the negative perceptions range from 13 to 20 percent for every metric of quality. More than 20 percent of respondents were neutral on the question of whether the MATS website is easy to understand. An even higher percentage (38) were neutral on whether uncleared snow and ice on sidewalks affects their ability to use transit in the winter.

While these responses are not negative, they are not positive either, and likely indicate additional room for improvement.

Figure 139 | MATS Transit Rider Perception







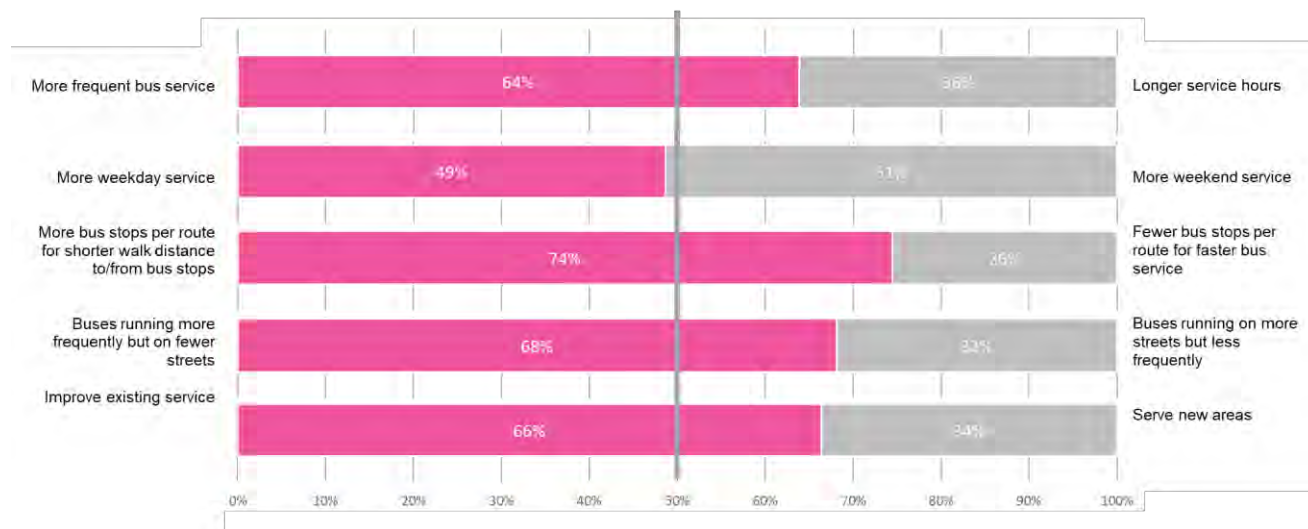
## Service Design Preference

Both riders and non-riders were asked to select their preference between a series of theoretical service improvement options. As these service improvements were posed as mutually exclusive options, respondents were asked to choose which type of improvement they would prefer to see adopted. Preference questions focused on service frequency, span of service, and coverage patterns. The data was broken out by riders and non-riders in order to show any potential differences.

### Riders Preferences

As shown in **Figure 140**, responding riders preferred more frequent service, more bus stops per route for shorter walking distance to and from stops, buses running more frequently but on fewer streets, and improvements to the existing service. Preference for more weekday service verses more weekend service was fairly evenly split.

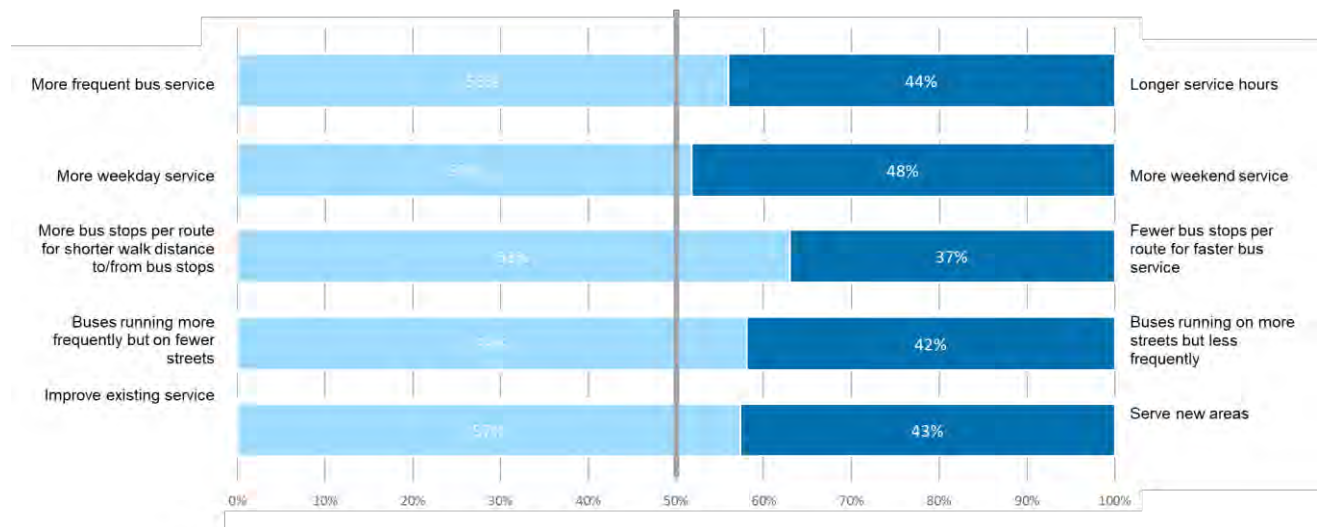
Figure 140 | Rider Service Preferences



### Non-Rider Preferences

Survey responses from non-riders generally aligned with the preferences of riders (**Figure 141**). Again, Non-riders preferred more frequent service, more bus stops per route for shorter walking distance to and from stops, buses running more frequently but on fewer streets, and improvements to the existing service. Preference for more weekday service verses more weekend service was fairly evenly split with slightly more non-riders opting for weekday service.

Figure 141 | Non-Rider Service Preferences



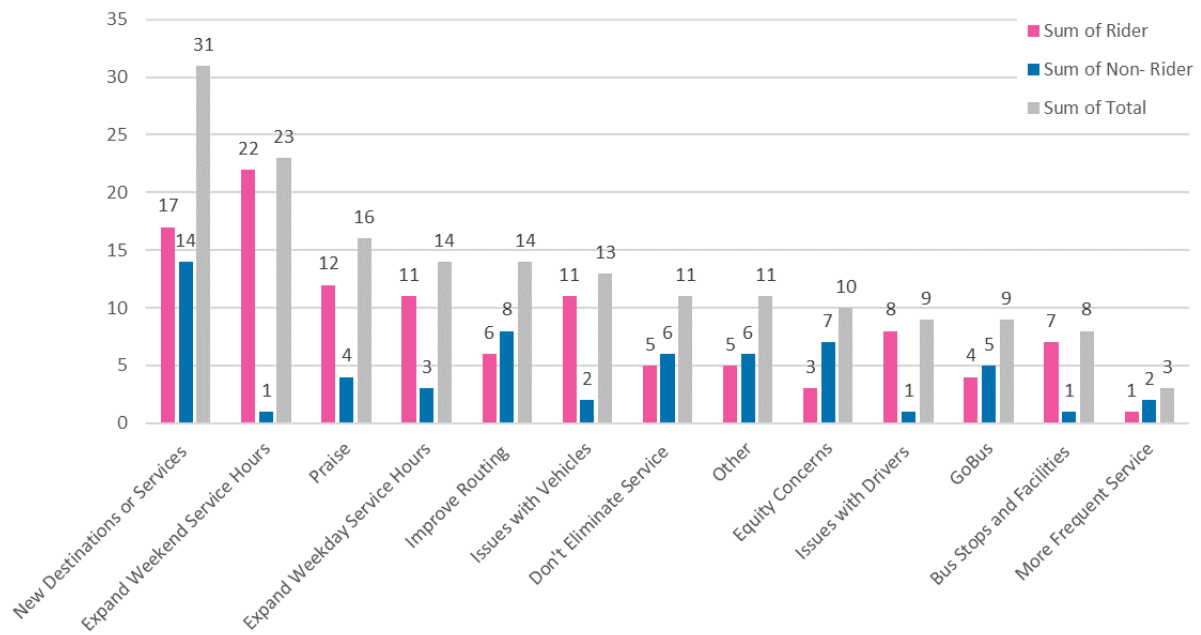
## Additional Comments

Both the onboard and online survey included the opportunity for respondents to write an open-ended comment. While many riders discussed one specific topic, a number of the responses included comments and suggestions on a variety of topics. For this analysis, each discussed topic was assigned to broader categories to help identify recurring themes (**Figure 142**).

The most frequent theme to emerge from an analysis of open-ended comments was the request for new destinations or services (31 comments). Requests for an expansion of weekend service also constituted a significant number of comments particularly among riders (23 comments). Other common topics included general praise for local transit service, requests for expanded weekday service hours, improved routing and issues with vehicles.

The full set of comments submitted by survey participants is included in Appendix A.

Figure 142 | Open-Ended Comments Organized by Theme



## Onboard Survey - Open-Ended Responses

8. The short Saturday & no Sunday service impacts my job opportunities-it costs me \$10 to get to work in a taxi-one way bus fares are good-buses are dirty & break down
9. Teresea is great
10. Buses should run longer and earlier on Saturdays
11. Buses need to be clean better & bus driver need to learn to have more respect to us people who ride the bus-not all are rude but some drivers are-some bus drivers need to be on time when leaving the downtown or heights terminal-people have to get to work and be there on time cause some people jobs are not at the bus stop area in have a little walking time-I also think that all the bus stops need huts & seats for raining days in bad snow days
12. I have filled out this survey before & I hope my concerns are recognized this time-firstly the most important change is the buses need to run longer & everyday not just Monday through Saturday-Sunday people still have to go to work-secondly offer your employees holiday pay to work some of these holidays that you usually are closed for-I know from personal experience everyone don't care about working on some holidays-thirdly the buses are sometimes very dirty & smelly-I believe if you know someone peed on bus switch buses-I don't know why we have sit on people urine-lastly some of your staff are very rude-I believe you should secretly be a patron and aboard the bus to check out their behavior-as well as the operators on your phone service-also phone service can open a little later too
13. Bus need to be cleaner and on time
14. Buses are dirty-smell bad-rude bus drivers are late leaving-sometimes and make me late for my appointment
15. I like weekend service on Sunday-I like Lakeshore Sherman bus go all the way to per Marquette beach bus stop at beach oval
16. Bus drivers are rude!!
17. Wish they can do same routes on Saturday at same time as weekdays
18. I currently have to take route 50 to route 30 on a daily basis. If 50 were stopped entirely I would have no means of getting to work.
19. I like Sunday weekend service 8am to 5 pm
20. Better routes out to the mall area and more time over the weekend
21. Saturday and Sunday wish bus runs
22. Some bus drivers are rude in talk crazy to bus riders
23. Need a little hut to sit under when rain and bad cold weather out
24. Some of the drivers need to be respectful to the people that's riding sometimes I feel like I by being harrassed and that just come to work mad in take it out on the other people but other than that I like riding the bus some can be nice some can be mean
25. Need a hut to sit under when rain or snow at every stop and to run Saturday and Sunday as it does on the weekday
26. Would like to see a bus stop earlier on 115 route in the am hours via Whitelake Dr & automobile stop
27. Wish transfers were available for longer times
28. Please provide benches
29. My biggest complaint is you do not run routes later than 4:45 on Saturdays-this leaves me stranded at work sometimes
30. How come they don't run mats on Sunday got to get to church
31. The E Sherman bus driver is very polite (1 shift bus driver)

32. I miss the paper pamphlets that explains the routes clearer-the website sometimes doesn't populate on all cell phones
33. Fix bug issues
34. I love toothpick gang we talk all the time he good with everybody best bus driver in town
35. I am an American Indian disabled veteran vet need these (rider) in the bus
36. Bus driver Mel (Sherman 557 is excellent friendly and courteous-favorite driver
37. Buses should run longer on Saturdays and run on Sunday but at a shorter schedule-there are a lot of people who work in the mall area and other areas that have to work weekends
38. Need a stop by port city so we don't have to walk as far
39. Bus driver on E Sherman mon-fri is awesome-he is very polite-he is a great example of how people should be-very knowledge about route
40. The drivers are respectful to what I have to ask them about the ticket slips that they give me to ride the bus and I tell them thank you and they explain to me very well-they are the best drivers in town
41. The drivers are helpful to me when I ask for help
42. Retire bus 704 brakes down too many times
43. Need new buses-if I ever come into a fortune you'll get them
44. Bus #704 the driver is always so nice and professional she makes my day a lot better if i'm having a bad start to the morning-she goes above and beyond I ride this bus everyday-thank you mats
45. The last question is contradictory-you need longer hours and bus times-hit all main streets & basic or major side streets
46. We love our driver rich-on route 115
47. I love riding the bus most of the drivers are cool & respectable-but I feel that we should not pay so much as a disabled person-thank you for your time
48. Bus need to run all day on Saturdays on start runing on Sunday-cleaner buses more buses stop needs more seats too set at sit at when waiting for bus
49. My ride was great
50. I love mats bus system
51. I would gladly pay \$0.25 to \$0.50 more per ride if we had later coverage to heavy business areas (henry-apple) and service on weekends
52. Walk from port city to adac like to see closer stop by port city on laddomore
53. Glad to hear you are moving toward improved service & not cutting service-muskegon needs good public transporation for the envnironment& to serve low income & senior & disabled people-smaller buses on routes that aren't as heavily used-make mats a bus service this city can be proud of
54. Would like longer weekend hours-earlier Saturday service-later Saturday service-have some Sunday service-extend apple route to Wolf Lake Rd have a grand haven route-bus service in muskegon is very good for a small city-please keep doing this much needed service
55. We need buses to run on Sundays as well as adding a route to the beach since we no longer have the trolleys/ thank you
56. Need a Sunday route- & keep apple 1 route and extend the hours
57. Need a pay phone located outside of terminals so if you get stuck there after hours (& no cell phone) you can try to call someone for a ride
58. The mats bus does a good for muskegon county
59. It would be nice if service was available to outlying areas-i used to live in wolf lake and had to walk three miles from e&a at apple and walker because the bus didn't go out any farther than that-my friend lives off brooks & heights ravenna and there isn't a stop by her any more either-if there aren't enough passengers



to make it a regular route maybe something like the go-bus by appointments? It might be a more cost effective option and I know my friend would use it so other people probably would also/ thanks

## Online Survey - Open-Ended Responses

60. 24/7 would be wonderful!
61. 90% of Whitehall/Montague is a mile away from Colby or the main stops. It should work on a more closed circuit the northbound/westbound should be different from the southbound east bound.. I mean goto new areas.
62. Although I no longer use the MATS bus system, I am no stranger to the service provided. I have many clients who ride the bus and as a student at MCC, I rode the bus as well. I believe we need to improve the service we have, and add routes instead of eliminating them.
63. Any changes will be difficult, as people dislike change in general. Smooth transition may be the key - more like morphing from what is existing to something that makes more sense for the service & the riders.
64. As buses are changed out go for smaller buses? 'Funner' buses (natural gas trolley or double decker types) so they are more touristy and less stigmatized? Focus on getting people to work, so factory hours prioritized (early and 2nd shift hours) with touristy schedules (fun runs with 2-3 hour gaps) during summer/fall daytime.
65. As I have not used the service I do not know what improvements are needed
66. Before retirement, I rode the MARC bus to work almost every working day from the inception of the route. Great bus drivers on that route! I worked downtown and the route was great for me.
67. Better education for drivers of the busses. Both street respect for other drivers and the people waiting at the stops.
68. Better service in south Norton Shores is needed. Also need to have a shared location with Ottawa County Transit system to help individuals get into Grand Haven for work
69. Bussing to key locations/areas of town need to be available and both hospitals need & primary care pavilions need to be on the route. Those routes should run more frequently while less active routes could have less frequent bussing. Everyone should have access to fresh foods, cultural activities and medical services on public transportation.
70. Calls to go bus difficult to get thru, use and get a bus schedule d
71. Clean the buses. They are dirty thats the 1st thing. Then courteous staff would be helpful and easier way to get information. It's hard to Understand transit bus routes
72. Current service is under-resourced and therefore does not meet community needs well.
73. Current Social Worker who has clients that benefit from MATS.
74. Do you guys run out to Michigan adventures?
75. Don't cut routes.
76. Expanding hours, service area, and stops with a really good marketing plan will increase ridership and help fund the program. If they don't know about it they can't use it! Find a successful model and follow it. Offer alternatives to bussing in rural areas.
77. Get rid of the loop service and go to a grid pattern. The roads are laid out that way.
78. Go Bus is supposed to be for disabled and elderly, but seems to be giving preference to employed and HealthWest participants. NEED HELP.
79. Go-Bus expanded to serve elderly/disabled with door-to-door service.
80. <https://t.co/qU3jhRCbdj>

81. I am not an expert by any means. I understand the economics of a bus transit system are difficult. Transit does seem necessary in Muskegon so I would encourage planners to provide the best possible service for a reasonable price. Thank you.
82. I do not currently use city bus services, but I did for many years in the past. I currently have a job where I work with the elderly and disabled in the Muskegon area. My clients depend on the MATS buses to conduct day to day activities. For many, it is the only reliable transportation they can access or afford. The MATS buses service an often over-looked and under-served part of our community. Further cuts to this service would impose a hardship on individuals that are least able to secure alternative options.
83. I do think it is very important that the route on apple in front of Healthwest remain open. it is vital to the clients that receive services there for transportation.
84. I don't have a liscense and moved her two years ago from Grand Rapids. When I looked at your maps they were very cluttered and hard to understand compared to The Rapid in GR. When I finally figured out what time I needed to be where I realized to go from Marquette to Sherman would take over an hour. I strongly recommend Cross road busses that do NOT go to the transit center. For example one the goes down Sheridan and does a loop and goes back. I also seen an ad stating that you had busses that ran to Michigan Adventure. I looked at the hours and they were severely limited.
85. I find your web site very complicated, routes are not direct, take way too long. In many cities transit is listed on google. Google does not know that Muskegon county has a bus service. I live here and I don't believe we have any bus service.
86. I have a granddaughter that needs transportation to and from head start in Orchard View school area. I wish there was a kid friendly safe option to get her there and back as her parents do not have a car and she misses alot of school for lack of transportation. If this is available or comes available please contact me at \_\_\_\_\_. God Bless you!
87. I live in fruitport township and work in Muskegon heights. More service areas would be great and could enable more people to be able to use public transit.
88. I rarely see anyone riding the Whitehall/Montague. It seems like a waste of money/pollution to run the buses in that area.
89. I think creating efficiencies within the current service area is probably the best route to take (pun intended) to make sure that people can get where they need to go without too much of an inconvenience.
90. I think the majority of the questions the answer should be both and not limited. Also there needs to be improvements for riders with disabilities. Services should be improved and not reduced.
91. I think we should do more door to door like the harbor transit!
92. I wish that we had busing in the orchard view an wolf lake area. I feel it would help lots of people.
93. I wish we could catch the bus on any corner again. It helps when you are tired from walking and need a ride to where you are going. Also it would be nice for longer hours in sequence with the jobs and factories here locally to get people to and from work. It would be nice to be able to take a bus to Spring Lake/ Grand Haven and then transfer to there bus for work purposes and getting to the local business or events going on in there town.
94. I work at a non-profit and know that transportation is pretty much the biggest barrier with employment. Your system is extremely important for our clients and people in the community. The more frequent times is necessary for work schedules, and possibly a little later in the day, perhaps 10:00 pm. I just know that these people rely greatly on your service and do appreciate it as well.
95. I work early and I would ride the bus to work and home but the time would be to long and you do not run early enough or late enough for whitehall/ montague routes
96. I work for a local non-profit. I have clients call frequently having trouble accessing services because the bus does not run late enough or near their home. Keeping and/or adding locations throughout highly populated areas of Muskegon County, including near senior living homes, is critical to success of clients. It

is important for seniors to get out of their homes, get exercise, and socialize with their peers. Without several bus stop locations, this impacts their quality of life. Please consider adding more stops and extending hours Monday-Friday. Thank you!

97. I work with many clients whom use the bus system and for the most part, they enjoy it.
98. I would like it to stop in the White Lake area. It doesn't seem to have many riders, it's obnoxious and seems like a waste here.
99. I would like to see better paratransit service and regular bus routes.
100. I would like to see longer service hours on Saturdays, also Sunday service. Myself and others work weekends and depend on MATS for transportation.
101. I would like to see more door to door services.
102. I would like to see the disabilities community and those living in poverty consulted in future plans and an advisory committee of riders formed. The above either or questions (10-14) could hurt this community greatly because they don't allow a thoughtful response that allows for options. For instance, I would like to see Sunday service, but the question makes me pit that against weekday service that is vital to poor, working people and people with disabilities who need to get to appointments, food pantries, and other services. Initially I chose not to answer these questions, but they are required to complete the survey. In every instance, I could see how either answer could harm the community that is most dependent on transit services. Where are options for a smaller community. These only make sense in a large community where bus service is possible 7 days a week and running nearly all hours.
103. I would love to see a corporate plan where a company could offer transit service to it's employee where the company could pay part or all of a reduced rate and offer it as a benefit to employees.
104. It would be nice if the bus worked better for people who are trying to make the normal 9-5 commute. Also, if the bus was more user-friendly during the weekends for when people go out drinking downtown and don't wanna drive home.
105. It's just hard to get a bus to go to my mom's 2x week and any Dr appointments. I've had to reschedule appointments because I didn't have a ride or \$ for Uber.
106. its me 45 mintues walk to the neareast bus stop then have to wait an hour that extends the time when there is snow on the ground, as you removed correction stop I now have to walk to the plow shop on otholoff streets whats the point if I am going to walmart on sherman walk 5 more mintues you are there, also the closest bus stop other then otholoff street is the dog house salon/credit union one, would like to see more seats at bus stops for elderly and disabled espichal when it rains, and a bathroom at muskegon hts terminal, to increase do free ride days when there are ozone days like grand rapids
107. lots of drivers are rude and sloppy. they act like we're an imposition to them. They need happy pills.
108. make routes reverse so I don't have to ride 55 mintues to go 5 min away from home. Maybe one direction odd hours and the other dierection even hours
109. MATS has been essential for me to get to work. I have a license but do not own a car due to budget. It also makes it possible for me to grocery shop and get around. I would love to see longer Saturday hours and Sunday service. I do taxi to work on Sunday evening as I work third shift, and would use it on Sunday morning to attend church. I have been riding for approximately two and a half years and very much appreciate the dependable and professional service. My main use includes E Sherman, Getty Wood, Apple 2 and Apple 1, and occasionally use Harvey to get out to the mall area.
110. Mats needs to go further east. The bus doesn't go further than Orchard View Adult Education on Apple Ave. We have students who need transportation from East Muskegon. The bus system needs to go out as far as Evanston and Brooks by the trailer parks, Arlington Woods and Eglecraft.
111. "Muskegon County Commission Transportation Committee 990 Terrace Street Muskegon, MI 49442  
Jim Koens Muskegon Area Transit System 2624 Sixth Street Muskegon Heights, MI 49444 Dear

Commissioners and Mr. Koens, We are from the Disability Justice League West Michigan, an all-volunteer collective of individuals with disabilities and our allies working to increase access in our community. We would like to help you find a way to improve our local transportation system through citizen input. Many of our members use Muskegon's public transportation system and have invaluable information regarding solutions big and small that could have a dramatic effect on ridership and the efficacy of the system as a whole. We are writing to you today to request that a mechanism for rider input into the Muskegon Area Transit System (MATS) be developed and implemented. We ask to receive a response by May 27, 2019. Currently, people who ride the bus feel that they have no consistent opportunity to provide input into the system. The recent proposal to eliminate two bus routes serving major corridors that link people with disabilities and seniors to essential services and public accommodations was an example of a "solution" that would have had a negative impact on people who depend on public transportation to live independently, the County economy, and the bus system itself (because decreased service will not increase ridership and will exacerbate the problem in the long run). We believe that we can help you identify solutions that will not only minimize harm to Muskegon citizens and residents, but also create a public transit system that brings increased benefit to Muskegon County socially, economically, and responsibly. A well-run transit system would help us create the kind of community we want to be. Our public transportation system is currently minimal. Many people are forced to travel by car, bike, or foot because the bus does not provide sufficient service to accommodate a wide variety of transportation needs, including to employment, health, recreation, and religious. Additionally, public transportation is essential for economic growth. According to the American Public Transit Association, every \$1 spent on public transportation generates \$4 in economic return. A well-run public transit system benefits the bottom line of businesses as well as our community as a whole. Cities with successful transportation systems achieve that success by placing a high value on the positive impact that a well-run transit system brings when it is properly funded and responsive to the needs of its riders. While that will require us to rethink the assumption that public transit is a drain on public resources, there are also many, many smaller steps that can be taken to improve our public transit system incrementally. We'd like to help you identify and assess those options on an ongoing basis. Some suggestions we have collected from riders so far include:

- Properly cleaned busses
- Operate smaller busses where feasible
- Polite, respectful drivers who are willing to provide information about the system
- Ability to contact MATS after 4:30 p.m. for scheduling and route information
- Working with the City to ensure that bus stops are cleared of snow in the winter (we will be following up about this issue specifically)
- Reduce cost in order to increase ridership (i.e., monthly passes)
- A consistent and accessible complaint system and complaint resolution process to address issues as they arise. Current system is, in practice, not satisfactory and complaints often go unresponded to.
- Post information about public transportation online. Muskegon does not have public transportation according to Google Maps, which could help increase ridership and availability of information in off-hours.

We will look forward to hearing from you about how we can work together to improve public transportation in Muskegon County. Sincerely, Disability Justice League West Michigan \_\_\_\_\_

112. Muskegon County needs to research similar economic areas with regard to public transportation. This is the only area I've experienced in the US, with similar makeup, that requires you to wait a whole hour if you, unfortunately, miss the bus or your connector. I also think it should consider a connector to both the Grand Haven and Grand Rapids areas. We should not compete with them for business, but make it possible for people to travel back and forth to work in these stronger economic areas and bring their earnings back home to Muskegon County.
113. My clients depend on the bus service daily for Doctors appointments. They tell me that the Whitehall run to Muskegon is very helpful
114. Need to downsize ALL buses. Its not rocket science. Dont need big city buses in a small community. Smaller buses means less fuel and maintance. Go buses need to down size also to vans if only one or two

riders. We are not a big city. stop try'n to be. Stop the STUDIES down size and see saving of a third within a short period. Thank you \_\_\_\_\_

115. Need to run till at least 12 or longer
116. Need to start earlier and run later.
117. needing a bathroom at heights terminal I got of at Getty bus stop Sherman and walked to the professional building mercy hospital with transfer but they would not take the transfer tickets because I was not at transfer station and it was time with the transfer ticket, and would like to have receipts for keep and other agency proof that we took the buses and for tax purposes
118. Not too aware of line-haul issues.
119. Offering discounts to College students.
120. please dont stop or lessen the bus routes in front Healthwest in Muskegon
121. Please keep all routes. Decrease the standard bus pass to \$40. Add another E. Sherman bus. Run until midnight during the week and have longer hours of service on weekends.
122. Please keep the routes along Apple Avenue. The Apple Corridor currently served by MATS averaged 1 pedestrian-automobile crash per quarter over the past five years. Those rates will only increase if service is decreased and more people are forced to cross Apple.
123. Public Transportation is one of the best ways to invest in the community. For every dollar invested in public transportation nearly four are returned to the community. For every 1 million invested, 50 jobs are created. This is not new information: <https://www.nationalexpresstransit.com/blog/9-benefits-of-public-transportation/> Please listen to the public on this issue. We should be investing more in public transportation, not less.
124. Routes need to be turned into Express routes like the Marquette express route was, the big routes that loop are horrible for riders. Start the Whitehall road route at northern most point in the morning, which would mean running it empty up there, but would allow those coming in to Muskegon for work and college etc to arrive on time. The main reason I can't use the bus every day is there is no way for me to get to work on time and stay the full day and get home.
125. Service later on Sat and existing on Sun would help many people get around, get involved and enjoy our beautiful city and events more. I'm stuck home for most of them due to short hours on Sat and nothing for Sun.
126. Service needs to extend routes past Walker/Apple. Need to go around Oakridge area as well.
127. Service on Sunday and have routes to Grand Haven
128. The densest areas may provide most riders especially if running to employment area such as industrial parks, medical centers, grocers. "Suburban" and rural routes probably can't support ridership though the MATS system is reliant on some contribution from outlying areas. I'd focus on the "metro area" downtown millennials and empty nesters, some without cars, college and choice high school students crossing districts and using Tech Center, etc. Well deployed assets, transit, could dovetail I economic development. Place and improve where the population is and go, Greater Muskegon from Four Corners to the north to the Norton industrial parks south. Lakeside to Muskegon industrial park and college campus.
129. The go bus is so important to Seniors in Muskegon County. Transportation has been a huge barrier in this county. What ever can be done to assist Senior with transportation in Muskegon County.
130. The list of preferences is not logical. The choices are not either or but consequential; if this, than that. Why not ask what changes would actually increase our ridership or make it a more satisfactory choice? People depend on the go bus because the fixed routes are impractical if not impossible to access. The survey requires a response to both but it distorts the results - add a choice of NA.
131. The MATS system currently only works as a backup for me as I need to be to work by 8am, but current schedules and service times do not allow me to get to work on time. Even with walking I would be to work



20 minutes or more late. Additionally ride times (time on the bus) is significantly longer than what I prefer. I would get home 80 minutes after leaving work. Some MATS drivers are amazing (Amy Rocks), other drivers are rude, grumpy and disrespectful. As someone who works with individuals with special needs and/or mental illness I've heard drivers comment negatively regarding having to assist a person with getting onto or off the bus as well as getting their wheelchair strapped in. Some drivers do not even properly (4 point) hook chairs to the floor. Some drives will not kneel the bus for anyone unless they are in a wheelchair, without considering that others may have a hard time getting into the bus at full height. In my experience MATS mismanages the buses that have been bought at taxpayer expense. Thankfully it appears this has taken a turn for the better. Unit 0704 is noted to have had at least 4 brake fires which at the time was noted as a maintenance problem. Additionally I have been on buses that have had to be switched out mid day. I've can't count the number of times drives have had to shut buses down to clear a warning signal/alarm (per direction) only to have it come back. Drivers regularly stated that issues with buses was a lack of proper maintenance (although over the last couple years this seems to be better). A newer mechanic hired in the last 4 years seems to be actually doing his job as drivers stated that the other mechanic spent "more time chasing tail" than actually working. This likely led to the fires on unit 0704 and numerous other maintenance issues on the buses. Buses have not always been clean as a general rule. Additionally buses outside appear beat up from getting hit, or from driver error. Additionally since the bus system continues to just stick advertising to the outside of the buses, those spots must be scraped to get large banners off, thus leaving dirty spots, scrapes, and the like, making the buses look even more beat up. Other bus systems use holders that allow large signs to be slid into the holders thus significantly reducing the damage to the bus. It appears from times I have rode the bus more frequently 2013-2016 that there are a number of people who appear to ride the bus hours on end, paying only one fare. Some drivers do not follow the approximate pick up times and just race through their routes to get back to the terminal so they can smoke, gab with drives/staff or play on their phones. While there is a rough time frame they will arrive (early or late) they should not run ahead. MATS staff back drivers every time, despite things occurring to the contrary. I'm hoping a full evaluation of ridership is conducted as I have driven around town and seen numerous buses on numerous routes with few or no riders on them. Additionally a survey of the community should be conducted to determine why other people don't use the system. MATS recent attempt to arbitrarily stop a route was a poor choice without any input as well as without completing a system wide evaluation. While routes need some fixing, buses need work, and other changes need to occur the biggest issue with the MATS system is poor long term oversight and leadership of the bus system. Current high administration in the MATS system should be evaluated. Problems currently facing the MATS system would not be problems if administration had managed the system better. Oversight of staff is obviously a concern that thankfully has not led to major accidents, but had Jim Koens among others done his job this likely would have helped. Had he required his maintenance worker to take better care of the fleet of buses, things might be better. However he allowed this person to "chase tail" and spend his time with the office staff. Additionally vulgar stickers would not have stayed in a bus for months on end right on the bulkhead. It should also be noted that MATS almost lost major government funding for the downtown terminal due to mismanagement of planning. Currently the push for new Muskegon Heights terminal has been occurring. This causes additional expense for the system and should not be considered. A re-work to manage using a 1 terminal system should be done. This causes significant confusion and issues with the system.

132. The one time we recently could have used transit, we couldn't because harbor transit doesn't come to Muskegon county. My husband works in Grand Haven, I work in Spring Lake. Having something similar to harbor transit in addition to our regular buses would be hugely beneficial with the growing number of people who can't afford the ridiculous prices in the tri cities but still work there.

133. The one-hour frequency that's happening now is not convenient and seems unlikely to ever draw new riders. Each stop should be reviewed to determine if it really needs to exist based on boarding volumes and proximity to other stops/transfer points, and each stop's location at an intersection should be

analyzed to determine if that has an effect on service efficiency. The circuitous routes that are currently in place make it difficult for those living or working nearby to get where they need to go; more direct routes connecting more people to more jobs and activities should take precedence over coverage. The location of existing and future amenities (benches, maps, shelters, trash cans) at individual stops should be more thoroughly reviewed, as many seem to have been placed without much thought as to how many riders actually use the stop. If amenities like a bench or shelter can only be located on private property at a stop, please put in the extra effort to work with the property owner to get it done, don't use it as an excuse for inaction.

134. The Peck/Sanford bus schedule is hard to understand and it is not marked on any maps which bus/buses go to Mercy Health Hackley Campus.
135. The Mats bus have to go out to Holton again
136. Think it would be way more cost effective to run the smaller bus only on the Whitehall/Montague routes. The bus is important to those who do use it, but ridership could be higher. I think the smaller bus would service the needs and be more cost effective for you.
137. This service should be eliminated or privatized entirely. It is unsustainable and unprofitable for the county and is being subsidized by funds that are stolen from me under threat of force. Taxation is theft.
138. transportation is a huge problem in Muskegon County below average incomes in this area the need for transportation is under estimated and there is a shortage to get people to and from jobs and different appointments
139. Transportation is the number one barrier for people in the area trying to find work. Improving the local options for transportation, would be an asset to those wanting to find work.
140. Why doesn't the bus go across Henry's bridge?
141. WiFi on buses Bus location APP
142. Would like to see service out to Hoffmaster, and other state/ county parks
143. Would like to see two routes for East Sherman. My doctor and most medical needs are by the main Mercy Sherman campus.
144. would love to see Sunday hours and bus stops on not so busy streets - I am scared to cross the busy streets to get to stops
145. You need to put radios in the terminal so that passengers know when the buses are arriving. The drivers need to stop at the designated clearly marked stops (at the signs) just like the passengers, not where they think the stop should be.
146. You can do better.
147. Your either or questions are difficult to answer; I work to help unemployed individuals find work, their two big obstacles are lack of transportation and safe affordable child care

## APPENDIX C: SERVICE IMPROVEMENT SCENARIOS

### Survey Comments

#### Do you have any comments regarding MATS Scenario 1?

- Both new scenarios look good, either will work, but I think a combo of both might be best to include as much area as possible. I believe that there needs to be a volunteer group recruited from the non-participating townships etc. to attend township meetings to educate the elected officials on the numbers of voters that would benefit from regular transportation in their districts. Critical to improving the economic status of those citizens and the community as a whole.
- does not appear to help improve Norton Shores area or southern end of county service. consider Pontaluna and Henry corridors linked to bike ridership
- I am concerned that this route will increase segregation in Musken Area.
- I appreciate the revised routes linking the challenged routes with life sustaining destinations such as medical, groceries, etc. however the elimination of the route to Pere Marquette Beach severely isolates/insulates those areas from the members of the
- I don't like that Lakeside is dropped. I do like how the routes out to the colleges are handled
- I like the back and forth routing. It makes more sense and is easier to understand.
- I need to have route 60 in existence for my travel to work
- It leaves an impression that seniors, the disabled and low-income families only need to go to the doctors' or Walmart. The proposed route is so narrow that people going to work in the industrial parks or suburban manufacturing would not benefit. It will place a lot more demand on para-transit because it limits access to routes.
- Lakeside needs to be serviced to McCracken and we need to find a way to keep walks clear of snow and ice if folks are going to have walk further to catch a bus.
- Not a good idea
- Opposed to elimination of neighborhood buses. My 6th st bus will no longer pick me up in front of senior housing building where I live to take me to Meijers
- wasted run in lakeside
- Why not eliminate some of the neighborhood routes but not all? Why not run a bus down 5th Street to the high school, turn West on Southern and go down Park? Don't have to make a bunch of turns and is pretty direct. A lot of people still want to go to Meijer and can use the Walmart there across the street. I think you eliminating neighborhood service altogether is going to severely impact handicap people. Is there a bias toward the poor person sure seems like it.

#### Do you have any comments regarding MATS Scenario 2?

- does not appear to help improve Norton Shores area or southern end of county service. consider Pontaluna and Henry corridors linked to bike ridership
- Find a way to clear the walks
- HA-HA-HA Who is this designed to serve or support. Public transportation shouldn't be defined by people who don't use or need the bus system. If you want fewer riders this is a good plan.
- I am concerned that this route will increase segregation in Muskegon.
- I feel you service more people with route 2
- I like that Lakeside will still be served

- I would like to see a seasonal bus go to the beach again.
- Like the idea of the route 50 bus going out of the terminal and down Getty street. I have took the route 50 bus before but The transfer at the Heights terminal is very upsetting to me. I have seem people exposing themselves, using the area to urine in. And By the time the police show up if they show up the people are gone. I am a senior woman and to be honest with you. That transfer point scares me. So I don't go out to the mall even though I want to very much.
- Not a good idea
- Same as above
- See above.
- This is better for my commute needs
- This is the best for getting folks to their places of employment.
- Why not eliminate some of the neighborhood routes but not all? Why not run a bus down 5th Street to the high school, turn West on Southern and go down Park? Don't have to make a bunch of turns and is pretty direct. A lot of people still want to go to Meijer and can use the Walmart there across the street. I think you eliminating neighborhood service altogether is going to severely impact handicap people. Is there a bias toward the poor person sure seems like it.

### Please enter any additional comments on MATS scenario.

- City bus services on Sunday people's going to the church on Sunday
- Consider the decision making model. You and the commission are going to have many more uncomfortable public meetings unless you use a process that engages the people who are impacted by MATS service. I mean the planners should spend more time listening to ideas and understanding needs of the ridership. If you have listening sessions and tools for collecting data about what riders want, what is working and what isn't working, you wouldn't have to defend your plan because the audience would see their ideas and their groups discussions addressed in the plan. The public, residents, taxpayers, need to be involved in the design, delivery and monitoring of CHANGE. Participation is more complex than commenting on solutions dictated from above. Unfortunately, many people don't trust our governmental bodies to be just. Are the millions of taxpayer dollars intended to expand opportunities for residents being used effectively? Education, employment, business transactions, recreational spaces, social and political engagement are fundamental to the health of our community and its members. We all put money into our governmental entities as an investment in our community-based, public services; subsidized, public transportation connects people to the community their tax dollars support. Some residents will use the streets and highways, some the airport (questionable return on investment) and some will use the bus system. We should take care that all the people receive equal consideration in the allotment of taxpayer resources. And how you communicate your decision-making process will determine the response.
- could never get an actual boundary for the Gobus. Would like to see the boundaries listed by streets instead of just a mile or 3/4 of a mile from the route. Is that from a stop, or a street the bus drives down.
- could you try having Sunday morning service
- express service from Muskegon to Grand Rapids airport express service from downtown MKG to MKG airport and Muskegon lake Express Ferry when in season other experimental trials that are advertised to test market demand and response
- Great improvement over all. Highly supporting scenario 2!
- Having the stop put back in at Blue Lake Residences would be extremely beneficial. Or at least a stop that's closer than Russell Rd and White Lake Dr. I use the bus fairly often as I cannot drive due to medical reasons and I often have trouble finding someone to take me where I need to go. Because of my medical condition, it's sometimes difficult for me to walk that far because I get overheated quickly which causes me to have a vertigo attack. Having a bus stop that's much closer to home would be so helpful!

- I am concerned that you are using the fact that your proposals to get around your obligations under Title VI.
- In scenario 1, please consider Peck Street as opposed to Sanford. Two of the four polling places are on Peck street.
- Instead of using just the route numbers, print the street names, it would make things easier to understand
- it is hard to get to Pioneer Resources on Wesley with the bus stops - especially in the winter
- Not a good idea
- Please continue to grow with Muskegon and what other successful Transit authorities are doing.
- Seniors , disabled people and African American passengers negatively affected by both proposals.

### Do you have any comments regarding GoBus Scenario A?

- \$30 is sure damn expensive.
- Abandoning 75% of the county domain and the residents living in the pink service area is bad politics. The people who can afford \$60 round-trip will have a public option but that will surely exclude seniors and people with disabilities who live on limited incomes.
- As other side
- covers the needs better, would really help serve the ALICE population that is a large, very high risk group in Muskegon County.
- Don't expect it to work any better than current system, which is terrible
- I don't think \$30 is manageable for people out of area
- It is more fair
- Na
- see previous comments
- Too many people who ride it, can use the regular bus. People can't get a ride in the morning or late afternoon because of Daybreak riders taking all the spots

### Do you have any comments regarding GoBus Scenario B?

- As an ADA disabled individual it would be more advantageous for me to utilize scenario B especially due to the fact that the majority oh individuals as myself receive Social Security and the funds within a budget is very tight
- As other side
- I think that limited service at \$10 would be an easier sell than \$30 service
- Keep it simple. Too much technology isn't always good. I'm not going to buy a smart phone to ride the bus.
- leaving disabled and seniors out no right
- Na
- Same as above
- see previous
- The designated day in an area does not help folks that need rides daily (7 days a week) for work, school etc. Also MATS has not been good at promoting itself and the designated days would need a huge promo campaign for folks to learn about it and understand it, also would serve only specific needs, not daily needs.
- you're going to need a lot more small buses.



### Please enter any additional comments on GoBus scenarios

- As other side
- Calling two weeks in advance to make appointment and being on go bus for two hours to get where you are going is unreasonable
- Getting a ride when I need one. They are always booked up. call at 8:05 and they're already booked up 2 weeks out. Shouldn't use public transit for Daybreak.
- I'm not sure what GoBus is but please develop this to state of the art transportation also.
- it is very hard to have to call at 8 am to get an appointment set up for two weeks out especially since I have to call every wed and thur to schedule - let us set up a weekly pick up. sometimes no one answers and then when I can get a person on the phone they are all taken
- more focus on Norton Shores potential ridership and south end of county
- Na
- The new changes would mean I would no longer be able to ride to my destinations. I'm on Social Security Disability, use oxygen, and cannot walk far. I'm also out of your designated areas and couldn't afford to pay \$10 or \$30 dollars. I can no longer drive. What am I supposed to do?
- use better planning and pick up more than one person at a time
- You haven't given enough detail about how the plan will operate logistically. What outcomes do you foresee?

## APPENDIX D: RIDERSHIP ESTIMATE

Table 37 | Step 1, Ridership Redistribution by Geographic Coverage, Proposed Route and Distribution Factors

| Existing Ridership |                        | Proposed Route and Distribution Factors |      |      |      |      |      |      |
|--------------------|------------------------|-----------------------------------------|------|------|------|------|------|------|
| Route              | Daily Riders           | 10                                      | 15   | 20   | 25   | 30   | 50   | 55   |
| 10                 | 141                    | 0.76                                    | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.15 |
| 15                 | 205                    | 0.08                                    | 0.44 | 0.01 | 0.00 | 0.00 | 0.45 | 0.03 |
| 20                 | 113                    | 0.00                                    | 0.14 | 0.30 | 0.41 | 0.14 | 0.00 | 0.00 |
| 25                 | 184                    | 0.00                                    | 0.12 | 0.25 | 0.44 | 0.05 | 0.04 | 0.06 |
| 30                 | 231                    | 0.00                                    | 0.23 | 0.14 | 0.03 | 0.18 | 0.41 | 0.00 |
| 35                 | 124                    | 0.59                                    | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.18 |
| 40                 | 122                    | 0.00                                    | 0.13 | 0.05 | 0.03 | 0.10 | 0.65 | 0.00 |
| 45                 | 104                    | 0.00                                    | 0.13 | 0.05 | 0.03 | 0.10 | 0.65 | 0.00 |
| 50                 | 139                    | 0.00                                    | 0.00 | 0.00 | 0.00 | 0.00 | 0.96 | 0.00 |
| 55                 | 231                    | 0.00                                    | 0.12 | 0.00 | 0.00 | 0.33 | 0.15 | 0.37 |
| 60                 | 66                     | 0.73                                    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| 70                 | 54                     |                                         |      | 0.45 | 0.45 |      |      |      |
| 115                | 29                     | 0.00                                    | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                    | <b>Total<br/>1,742</b> |                                         |      |      |      |      |      |      |

Table 38 | Step 1, Ridership Redistribution by Geographic Coverage, Revised Ridership Estimates

| Ridership Estimate |  |     |    |    |    |    |     |    |
|--------------------|--|-----|----|----|----|----|-----|----|
| Route              |  | 10  | 15 | 20 | 25 | 30 | 50  | 55 |
| 10                 |  | 107 | 2  | -  | -  | -  | 1   | 21 |
| 15                 |  | 17  | 90 | 1  | -  | -  | 91  | 6  |
| 20                 |  | -   | 16 | 33 | 46 | 15 | -   | -  |
| 25                 |  | -   | 23 | 45 | 81 | 9  | 7   | 11 |
| 30                 |  | 1   | 54 | 31 | 7  | 43 | 94  | 1  |
| 35                 |  | 73  | -  | 1  | -  | -  | 9   | 23 |
| 40                 |  | 0   | 16 | 7  | 4  | 13 | 79  | 0  |
| 45                 |  | 0   | 13 | 6  | 3  | 11 | 67  | 0  |
| 50                 |  | -   | -  | -  | -  | -  | 134 | -  |
| 55                 |  | 1   | 28 | 1  | -  | 77 | 35  | 86 |
| 60                 |  | 48  | -  | -  | -  | -  | -   | 9  |
| 70                 |  | -   | -  | 25 | 25 | -  | -   | -  |
| 115                |  | -   | -  | -  | -  | -  | -   | -  |

|                                                          |  |     |     |     |     |     |     |     |
|----------------------------------------------------------|--|-----|-----|-----|-----|-----|-----|-----|
| <b>Ridership Estimate Based on Coverage Only</b><br>1643 |  | 246 | 241 | 150 | 165 | 167 | 517 | 156 |
|----------------------------------------------------------|--|-----|-----|-----|-----|-----|-----|-----|

Table 39 | Step 2, Ridership distributed by hour using the distribution curve of current MATS ridership

\*Early morning and evening hours will be eliminated. The 7 a.m. and 5 p.m. hours are allocated half of the ridership from the 6 a.m. and 6 p.m. hours, respectively.

|                  | Distribution of Ridership based on Ridecheck Data | Ridership Estimate Based on Coverage Only | Distribution of Coverage-Based Ridership Estimate | Reallocation of Ridership Outside of Fixed-Route Hours |
|------------------|---------------------------------------------------|-------------------------------------------|---------------------------------------------------|--------------------------------------------------------|
|                  | A                                                 | B                                         | A x B = C                                         | D*                                                     |
| 6 a.m. to 7 a.m. | 2%                                                | 1643                                      | 38                                                | 0                                                      |
| 7 am to 8 a.m.   | 5%                                                |                                           | 85                                                | 104                                                    |
| 8 am to 9 am     | 7%                                                |                                           | 110                                               | 110                                                    |
| 9 am to 10 am    | 6%                                                |                                           | 99                                                | 99                                                     |
| 10 am to 11 am   | 10%                                               |                                           | 156                                               | 156                                                    |
| 11 am to 12 pm   | 8%                                                |                                           | 132                                               | 132                                                    |
| 12 pm. to 1 pm   | 10%                                               |                                           | 159                                               | 159                                                    |
| 1 pm to 2 pm     | 9%                                                |                                           | 144                                               | 144                                                    |
| 2 p.m. to 3 pm   | 12%                                               |                                           | 203                                               | 203                                                    |
| 3 p.m. to 4 pm   | 9%                                                |                                           | 147                                               | 147                                                    |
| 4 pm to 5 pm.    | 6%                                                |                                           | 104                                               | 104                                                    |
| 5 pm to 6 pm     | 5%                                                |                                           | 83                                                | 110                                                    |
| 6 pm to 7 pm     | 3%                                                |                                           | 55                                                | 0                                                      |
| 7 pm to 8 pm     | 2%                                                |                                           | 40                                                | 0                                                      |
| 8 pm to 9 pm     | 3%                                                |                                           | 43                                                | 0                                                      |
| 9 pm to 10 pm    | 2%                                                |                                           | 38                                                | 0                                                      |
| 10 pm to 11 pm   | 0%                                                |                                           | 7                                                 | 0                                                      |
|                  |                                                   |                                           |                                                   | <b>Estimated Daily Riders (Baseline)</b><br>1469       |

Table 40 | Step 3, Ridership impact of service characteristics, Projected Ridership Calculation

| Proposed Route | Estimated Daily Riders (Baseline) | Estimated New Daily Riders (Coverage) | Estimated Total Daily Riders (Pre-Impact) | Assumed Impact | Projected Ridership |
|----------------|-----------------------------------|---------------------------------------|-------------------------------------------|----------------|---------------------|
|                | D                                 | E                                     | D + E =F                                  | G              | F x (1 + G) =H      |
| All            | 1469                              | 0                                     | 1469                                      | 0.20           | 1762                |

Table 41 | Step 3, Ridership impact of service characteristics, Assumed Impact Calculation

\*Factors based on TCRP 66 Fixed-Route Transit Ridership Forecasting and Service Planning Methods

\*\* Factors based on analogous project experience

| Impact Calculation  |                                             |                                    |                                   |                                      |                      |
|---------------------|---------------------------------------------|------------------------------------|-----------------------------------|--------------------------------------|----------------------|
| Increase frequency* | Simplify route/<br>bi-directional service** | Straighten route/<br>more direct** | Establish Repeating<br>Headways** | Establish<br>Clockface<br>Headways** | Decrease frequency * |
| 0.5                 | 0.1                                         | 0.1                                | 0.02                              | 0.03                                 | -0.5                 |
| 0                   | 1                                           | 1                                  | 0                                 | 0                                    | 0                    |

## APPENDIX E: FLEET INVENTORY

Table 42 | Muskegon Area Transit System Vehicle Fleet (January 1, 2020)

| Local Unit # | Manufacturer      | Model          | VIN                | Fuel | Mode  | Mileage as of 1/1/2020 | In-Service Date | Age (yrs.) | Altoona Useful Life |
|--------------|-------------------|----------------|--------------------|------|-------|------------------------|-----------------|------------|---------------------|
| 0701         | GILLIG            | LOWFLOOR - 35' | 15GGB2914 61076851 | DSL  | MD/DO | 472,787                | 12/18/2006      | 13.0       | 12yr/500k           |
| 0702         | GILLIG            | LOWFLOOR - 35' | 15GGB2916 61076852 | DSL  | MD/DO | 523,885                | 12/19/2006      | 13.0       | 12yr/500k           |
| 0703         | GILLIG            | LOWFLOOR - 35' | 15GGB2918 61076853 | DSL  | MD/DO | 487,462                | 12/23/2006      | 13.0       | 12yr/500k           |
| 0704         | GILLIG            | LOWFLOOR - 35' | 15GGB291X6 1076854 | DSL  | MD/DO | 528,601                | 12/27/2006      | 13.0       | 12yr/500k           |
| 0901         | GILLIG            | LOWFLOOR - 35' | 15GGB2719 91078554 | DSL  | MD/DO | 428,810                | 3/21/2009       | 10.8       | 12yr/500k           |
| 0902         | GILLIG            | LOWFLOOR - 35' | 15GGB2710 91078555 | DSL  | MD/DO | 441,650                | 3/21/2009       | 10.8       | 12yr/500k           |
| 0903         | GILLIG            | LOWFLOOR - 35' | 15GGB2712 91078556 | DSL  | MD/DO | 455,737                | 3/21/2009       | 10.8       | 12yr/500k           |
| 0904         | GILLIG            | LOWFLOOR - 35' | 15GGB2714 91078557 | DSL  | MD/DO | 478,362                | 3/21/2009       | 10.8       | 12yr/500k           |
| 0905         | GILLIG            | LOWFLOOR - 35' | 15GGB2716 91078558 | DSL  | MD/DO | 401,474                | 3/21/2009       | 10.8       | 12yr/500k           |
| 1105         | GILLIG            | LOWFLOOR - 35' | 15GGB2716 B1180528 | CNG  | MD/DO | 326,055                | 12/15/2011      | 8.1        | 12yr/500k           |
| 1106         | GILLIG            | LOWFLOOR - 35' | 15GGB2718 B1180529 | CNG  | MD/DO | 329,957                | 12/15/2011      | 8.1        | 12yr/500k           |
| 1107         | GILLIG            | LOWFLOOR - 35' | 15GGB2714 B1180530 | CNG  | MD/DO | 311,622                | 12/15/2011      | 8.1        | 12yr/500k           |
| 1201         | GILLIG            | LOWFLOOR - 35' | 15GGB2713 C1180567 | CNG  | MD/DO | 314,436                | 9/28/2012       | 7.3        | 12yr/500k           |
| 1401         | GILLIG            | LOWFLOOR - 35' | 15GGB2715 E1182405 | CNG  | MD/DO | 224,797                | 9/9/2014        | 5.3        | 12yr/500k           |
| 1402         | GILLIG            | LOWFLOOR - 35' | 15GGB2717 E1182406 | CNG  | MD/DO | 218,487                | 9/9/2014        | 5.3        | 12yr/500k           |
| 1403         | GILLIG            | LOWFLOOR - 35' | 15GGB2719 E1182407 | CNG  | MD/DO | 234,276                | 9/9/2014        | 5.3        | 12yr/500k           |
| 1501         | ELDORADO NATIONAL | AEROTECH       | 1FD4E4FS2F DA02907 | CNG  | MB/DO | 95,669                 | 1/2/2015        | 5.0        | 7yr/200k            |
| 1901         | ELDORADO NATIONAL | AEROTECH       | 1FD4E4FS2K DC30433 | UNL  | MB/DO | 9,955                  | 9/9/2019        | 0.3        | 7yr/200k            |
| 1902         | ELDORADO NATIONAL | AEROTECH       | 1FD4E4FS4K DC30434 | UNL  | MB/DO | 5,853                  | 9/9/2019        | 0.3        | 7yr/200k            |



| Local Unit # | Manufacturer      | Model         | VIN                | Fuel | Mode    | Mileage as of 1/1/2020 | In-Service Date | Age (yrs.) | Altoona Useful Life |
|--------------|-------------------|---------------|--------------------|------|---------|------------------------|-----------------|------------|---------------------|
| 1303         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG3 DR651056 | UNL  | DR/DO   | 50,922                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1304         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBGX DR780704 | UNL  | DR/DO   | 53,095                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1305         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG1 DR780705 | UNL  | DR/DO   | 52,556                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1306         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG3 DR780706 | UNL  | DR/DO   | 42,942                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1307         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG5 DR780707 | UNL  | DR/DO   | 42,190                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1308         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG8 DR780703 | UNL  | DR/DO   | 52,044                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1309         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBG7 DR780708 | UNL  | DR/DO   | 49,873                 | 9/1/2013        | 6.3        | 4yr/100k            |
| 1310         | GOSHEN COACH      | GCII          | 1FD4E4FS4D DA50941 | CNG  | DR/DO   | 99,563                 | 9/1/2013        | 6.3        | 7yr/200k            |
| 1311         | GOSHEN COACH      | GCII          | 1FD4E4FS6D DA50942 | CNG  | DR/DO   | 87,044                 | 9/1/2013        | 6.3        | 7yr/200k            |
| 1312         | GOSHEN COACH      | GCII          | 1FD4E4FS8D DA50943 | CNG  | DR/DO   | 100,473                | 9/1/2013        | 6.3        | 7yr/200k            |
| 1313         | GOSHEN COACH      | GCII          | 1FD4E4FSXD DA50944 | CNG  | DR/DO   | 93,312                 | 9/1/2013        | 6.3        | 7yr/200k            |
| 1903         | ELDORADO NATIONAL | AEROTECH      | 1FD4E4FS6K DC30435 | UNL  | DR/DO   | 976                    | 9/9/2019        | 0.3        | 7yr/200k            |
| 1904         | ELDORADO NATIONAL | AEROTECH      | 1FD4E4FS8K DC30436 | UNL  | DR/DO   | 1,055                  | 9/9/2019        | 0.3        | 7yr/200k            |
| 1905         | ELDORADO NATIONAL | AEROTECH      | 1FD4E4FSXK DC30437 | UNL  | DR/DO   | 955                    | 9/9/2019        | 0.3        | 7yr/200k            |
| 1906         | ELDORADO NATIONAL | AEROTECH      | 1FD4E4FS1K DC30438 | UNL  | DR/DO   | 978                    | 9/9/2019        | 0.3        | 7yr/200k            |
| Local Unit # | Manufacturer      | Model         | VIN                | Fuel | Mode    | Mileage as of 1/1/2020 | In-Service Date | Age (yrs.) | Altoona Useful Life |
| 0302         | CHEVROLET         | SILVERADO     | 1GCHK24U7 3E283218 | UNL  | Support | 98,833                 |                 |            | 4yr/100k            |
| 0601         | CHEVROLET         | SILVERADO     | 3GCEK14X26 G223478 | UNL  | Support | 58,297                 |                 |            | 4yr/100k            |
| 1301         | ELDORADO NATIONAL | AMERIVAN      | 2C7WDGBGX DR651054 | UNL  | Support | 46,165                 |                 |            | 4yr/100k            |
| 1701         | DODGE             | GRAND CARAVAN | 2C4RDGBGX HR802863 | UNL  | Support | 13,656                 |                 |            | 4yr/100k            |
| 1702         | DODGE             | GRAND CARAVAN | 2C4RDGBG1 HR802864 | UNL  | Support | 15,304                 |                 |            | 4yr/100k            |
| 1703         | FORD              | F250          | 1FTBF2B61H EE08784 | UNL  | Support | 5,226                  |                 |            | 4yr/100k            |
| 1704         | FORD              | F250          | 1FTBF2B63H EE08785 | UNL  | Support | 8,145                  |                 |            | 4yr/100k            |

