








Bismarck Public Schools

Transportation Operations & Route Efficiency Assessment

Project Update #1
March 11, 2024

AGENDA

-  Scope of Work Overview
-  Policy & Financial Analysis Summary
-  RouteYield™ Summary
-  Bell Time Alternative Scenarios
-  Next Steps

Scope of Work Overview

TransPar was engaged by BPS in November 2023 to conduct the following phases of work:

- Assessment of Current Operations and Routing Review
 - Policy Analysis
 - Financial Analysis
 - Performance Baseline and Cost Analysis
 - Current Bell Time and Routing Assessment
- RouteYield™ Analysis
- Bell Time Alternative Scenario Development Analysis

Executive Summary Brief:

- The primary factor impacting overall levels of service and operational efficiency for BPS in current state is the lack of adequate time between school start and end times/bell schedules
- The ability for a system to be properly tiered and balanced through appropriately spaced bell times is a key contributing factor to determining how many resources are required to operate a system
- Adjusting bell times to a framework that best promotes meeting student curriculum and academic needs while also ensuring students arrive to school on time and ready to learn is challenging. This will impact school policy and programs and the community at large

Policy & Financial Analysis

Policies

- Overall, BPS' policies regarding transportation are thorough and provide clear expectations and/or guidance for how transportation services are to be provided to students

Fiscal Year 2023 Budget and Expenditures indicated:

- Total expenditures of \$6,546,668
- Top categories as follows:
 - 45% = Contracted Services/Harlow's Contract
 - 21% = BPS Driver Wages, Benefits, Retirement
 - 8% = Vehicle Maintenance, Repair, Insurance; Fuel & Oil
 - 4% = Buses
 - 4% = BPS Monitor Wages, Benefits

Financial Analysis

- The financial analysis will be focused on how operational recommendations made regarding bell times and routing can potentially:
 - Enhance service delivery to students eligible for transportation
 - Reduce operational costs
 - Both

Bell Time Analysis

Grid Bell Time

District operates primarily with a single-tier system, with the exception of start and end times for special programs and schools

AM time between main bell times = 0 – 27 minutes

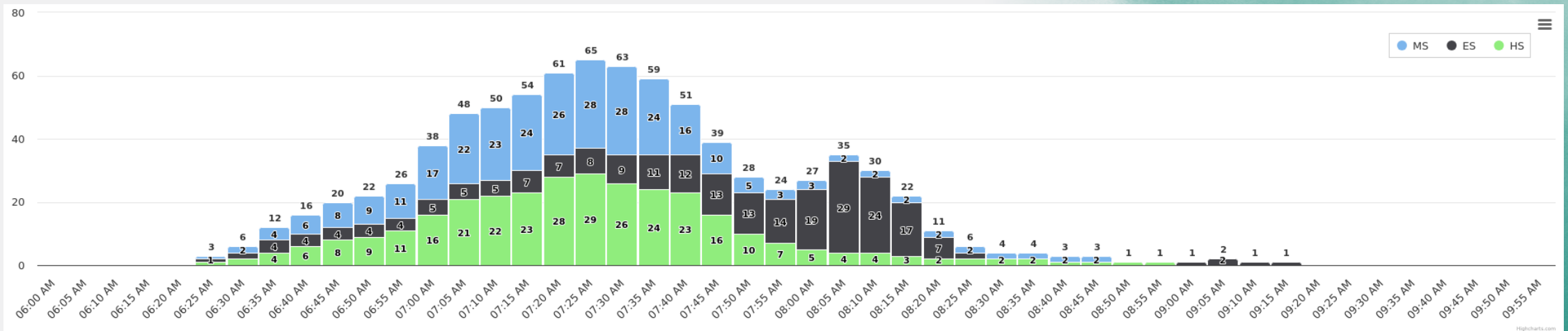
PM time between main tiers = 2 – 25 minutes

		Sch# Len		Runs			
8am	9am	10am	11am	12pm	1pm	2pm	3pm
8:08 AM	MS		1 7:17	21			3:25 PM
8:10 AM	MS		2 7:10	43			3:20 PM
8:10 AM	HS		1 7:20	22			3:30 PM
8:20 AM	HS		2 7:08	41			3:28 PM
8:35 AM	ES		18 6:30	75			3:05 PM
7:25 AM	HS		2 8:00	0			3:25 PM
8:30 AM	HS		1 5:45	0		2:15 PM	
8:15 AM	ES		11:15 AM 1	0			

Harlow's RegEd: AM Deployment Model Analysis

Is there sufficient time between tiers to make efficient use of resources?

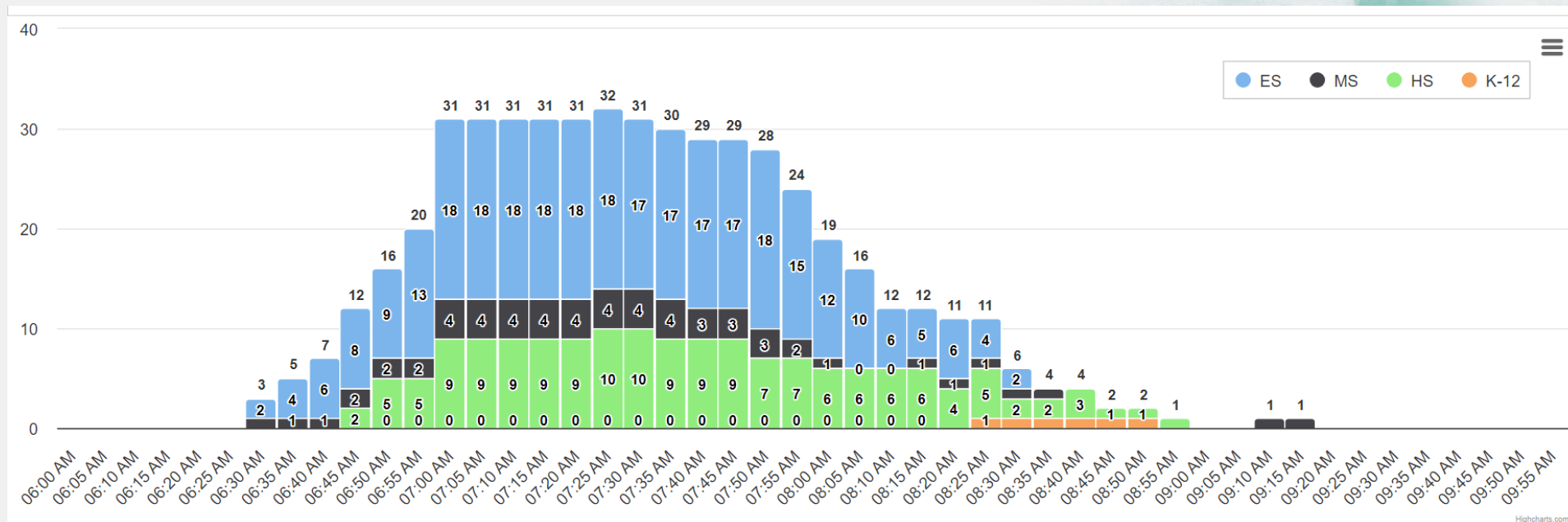
🌈 Only in rare cases



BPS SPED: AM Bell Time Deployment Model

Is there sufficient time between tiers to make efficient use of resources?

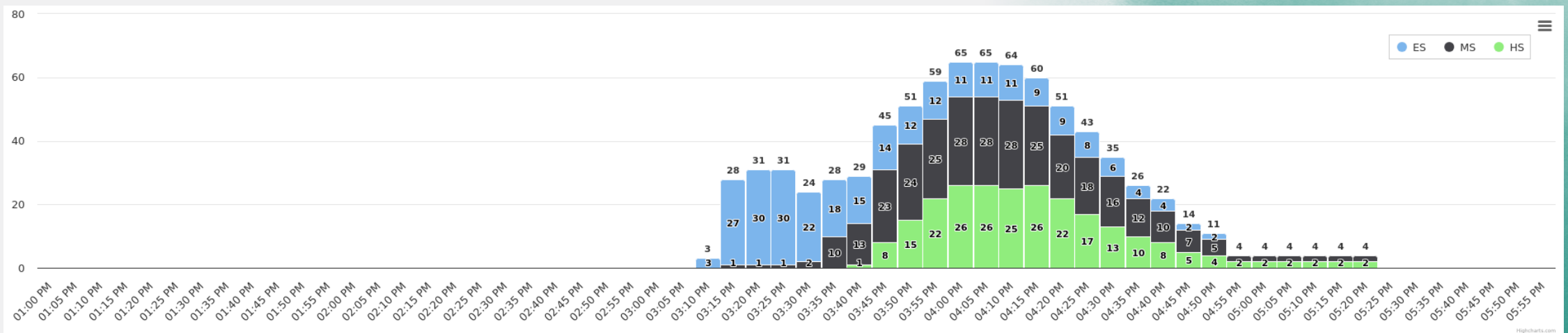
🌈 Only in rare cases



Harlow's RegEd: PM Deployment Model Analysis

Is there sufficient time between tiers to make efficient use of resources?

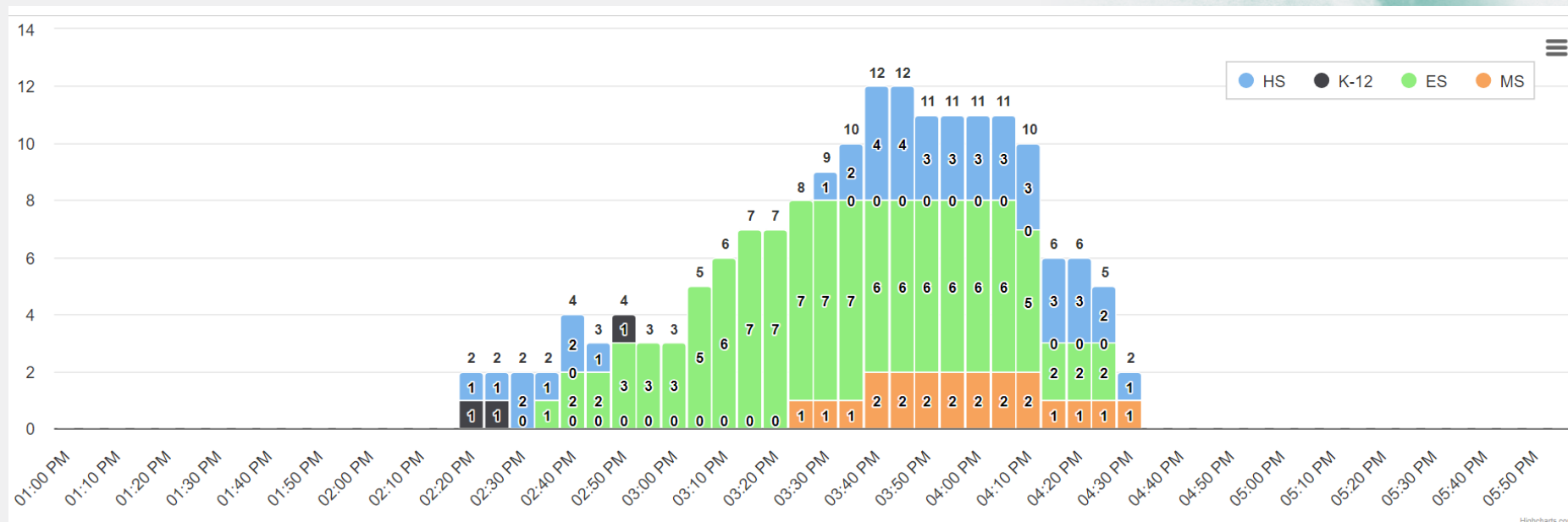
🌈 As in the AM, only in rare cases



BPS SPED: PM Bell Time Deployment Model

Is there sufficient time between tiers to make efficient use of resources?

🌈 As in the AM, only in rare cases

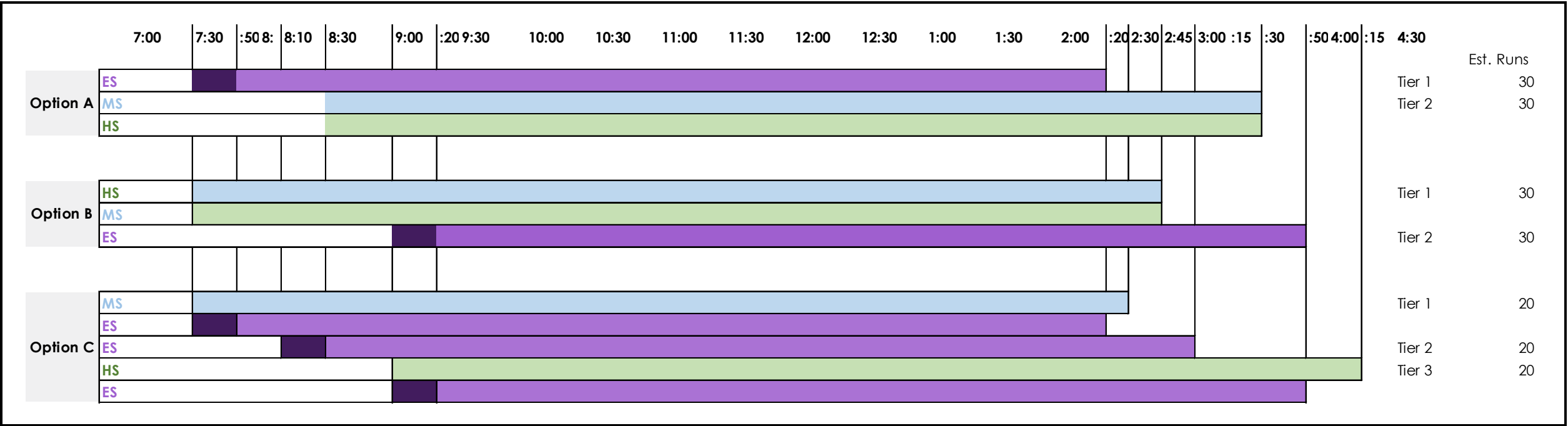


Bell Time Analysis

RouteYield™ analysis found that:

- Both differing lengths of day and bell times create a difficult framework for BPS to execute transportation efficiently
- The geographic distribution of students creates very long runs for some schools/students
- To achieve the desired level of service delivery for students, families, and schools, changes will need to be made to the BPS framework
- Changes to the framework are likely to result in many benefits to all stakeholders, including drivers, and may allow for Harlow's (BPS current vendor) to take on more work and alleviate current strains on BPS' transportation team

Possible Future Bell Time Scenarios



- Option A:** Pros: Reduces total buses and drivers needed; maintains current length of day for all levels; most change only implacts one school level
Cons: ES school level will start and end school much earlier than they do today
- Option B:** Pros: Reduces total buses and drivers needed; maintains current length of day for all levels
Cons: Start and end times change for all levels
- Option C:** Pros: Largest reduction of buses and drivers needed; maintain ES and HS LOD
Cons: Lots of change; ES do not have consistent start/stop times; MS LOD changes

	ESTIMATED			
	AM Riders	PM Riders	Min. Buses	Max Buses
ES	800	1190	25	32
MS	648	852	15	22
HS	301	433	12	13
Total	1749	2475	27	35

Next Steps

Answer questions from 1/26/23 email:

- 🌈 Acceptable length of day range by school level
- 🌈 Earliest pick up time and bell time by school level
- 🌈 Latest drop off time and bell time by school level

Obtain feedback from BPS on bell time scenarios

Make adjustments to Scenarios, Policies, etc.



Thanks for your time today

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High-Level Operational Challenges

In meeting with both BPS and Harlow's staff in November 2023, the following were primary challenges expressed:

- 🚌 Increasing number of students requiring transportation, particularly across the following student segments:
 - 🚌 Special Education
 - 🚌 Hardship/Students in Transition (McKinney-Vento)
 - 🚌 Foster Care (ESSA)
 - 🚌 *Many of these students live outside of school or district boundaries, compounding complexities of routing
- 🚌 School start times all fall within a 30-minute window of one another and special program times, like that of BESEP directly conflicts with special education times which mirror school release times
- 🚌 Program times can change often throughout the school year for students
- 🚌 Timing of student information being provided to the Transportation Department places a high level of stress on students being routed in a timely manner
- 🚌 BPS is lacking the type of spare buses it needs to respond appropriately to operational needs in the event of a breakdown, accident, or other unforeseen circumstances
- 🚌 An increasing van white fleet has posed additional challenges and created questions around maximizing use of these vans efficiently
- 🚌 The size and use of the transportation facility is being stretched as transportation needs continue to grow

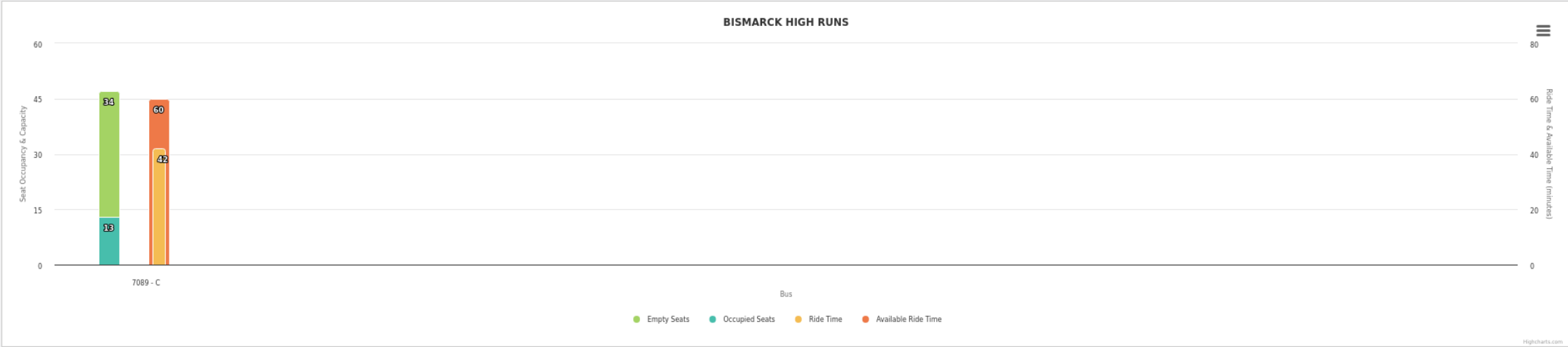


AM Time And Capacity

BISMARCK HIGH RUNS

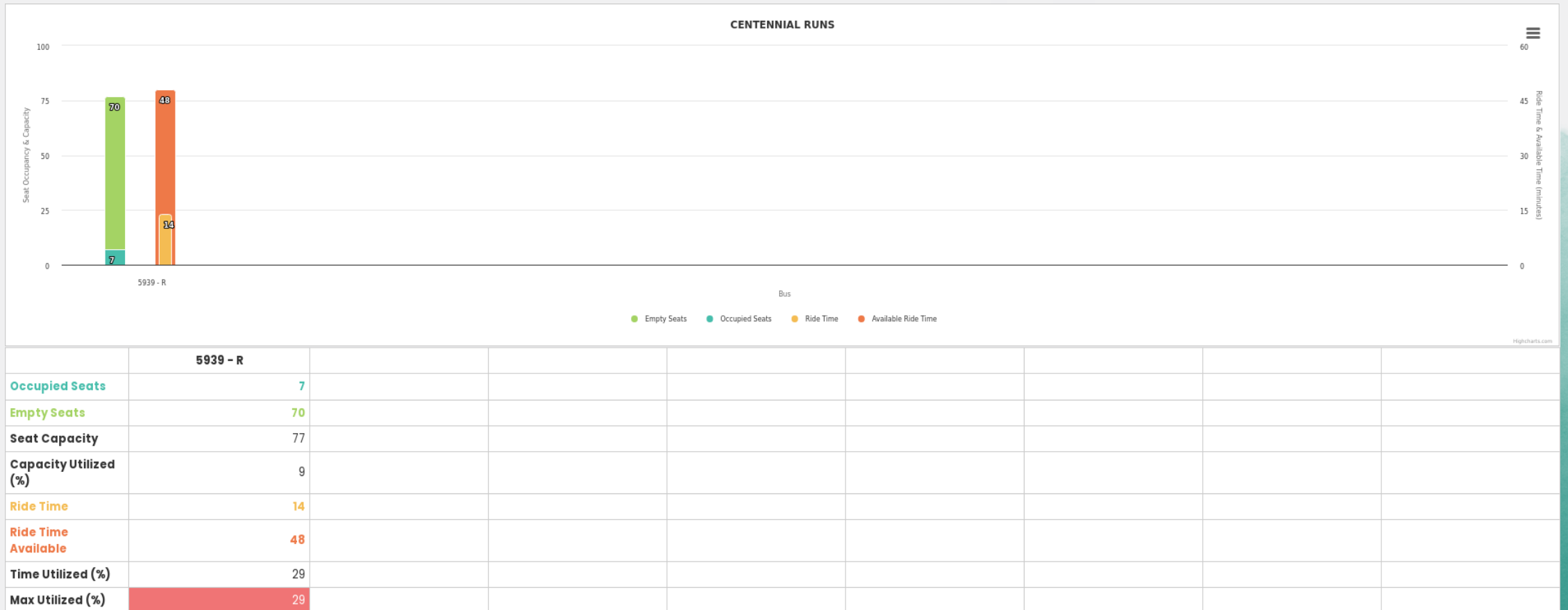


BISMARCK HIGH RUNS



	7089 - C							
Occupied Seats	13							
Empty Seats	34							
Seat Capacity	47							
Capacity Utilized (%)	27							
Ride Time	42							
Ride Time Available	60							
Time Utilized (%)	70							
Max Utilized (%)	70							

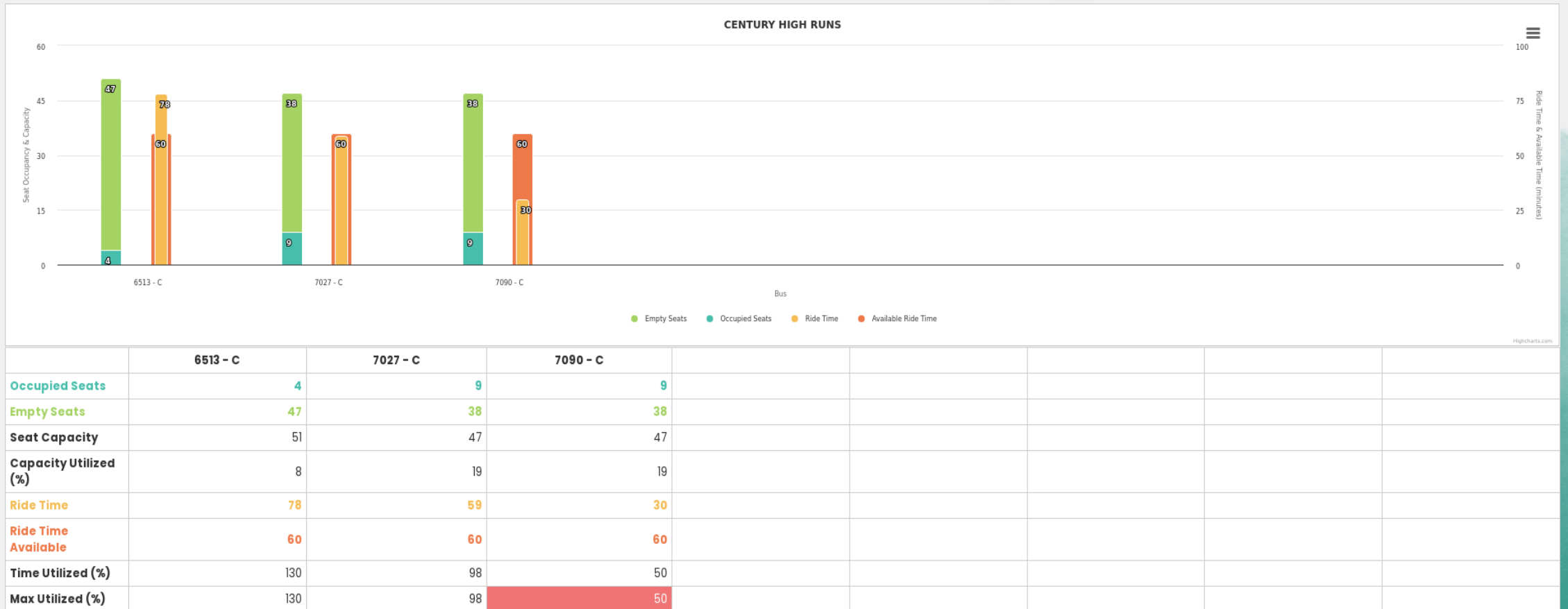
CENTENNIAL RUNS



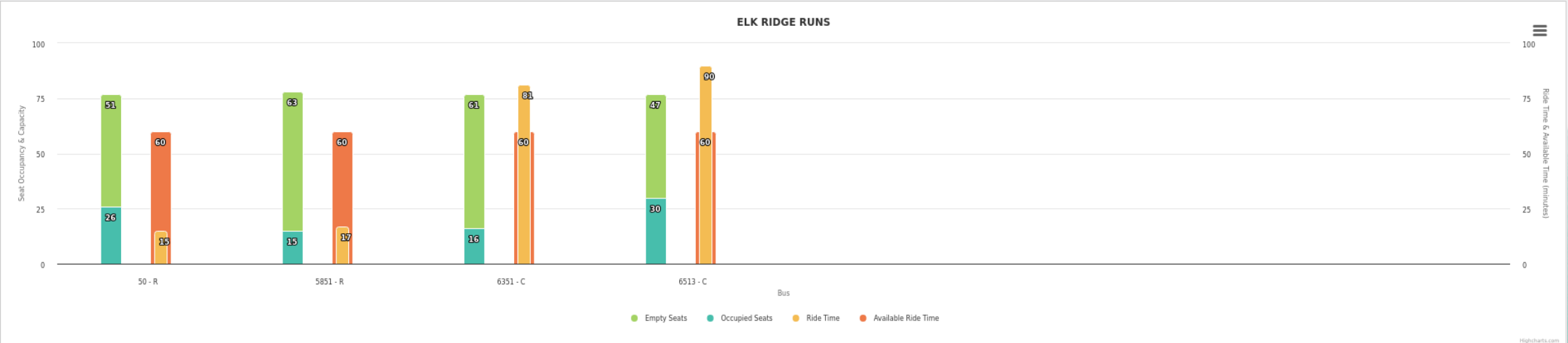
CENTURY HIGH RUNS



CENTURY HIGH RUNS

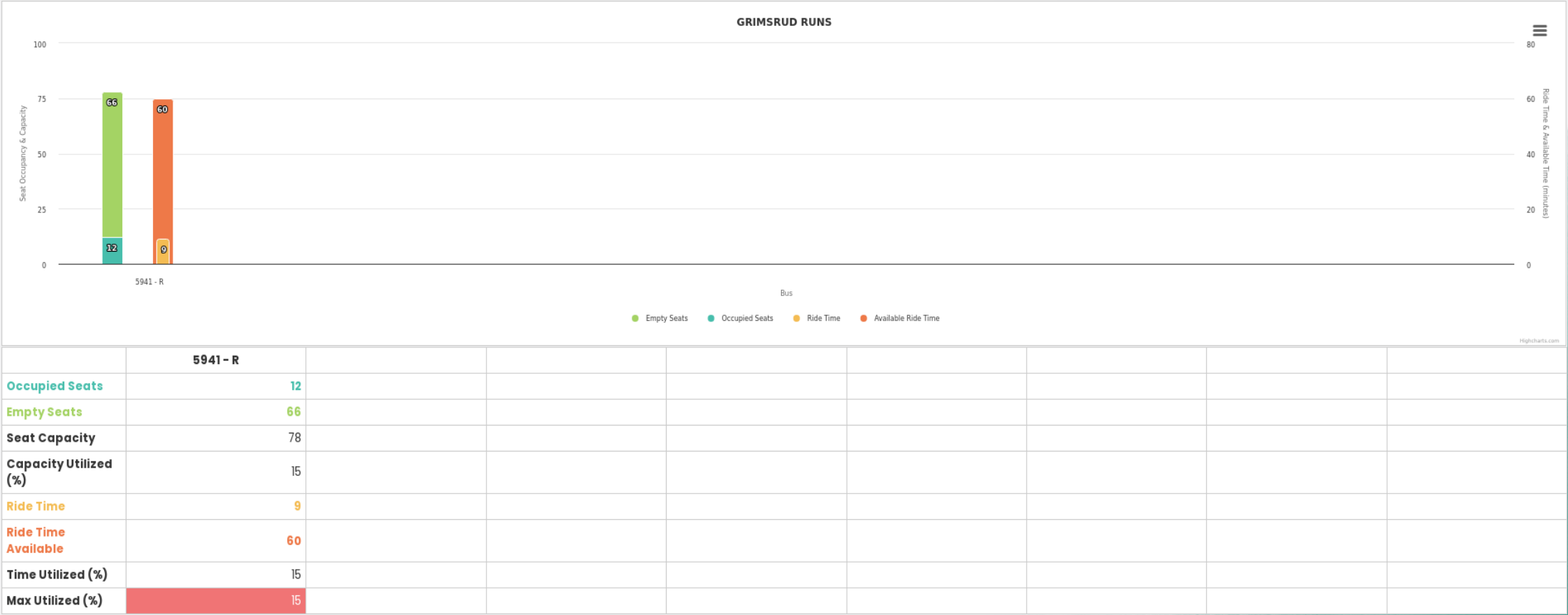


ELK RIDGE RUNS



	50 - R	5851 - R	6351 - C	6513 - C				
Occupied Seats	26	15	16	30				
Empty Seats	51	63	61	47				
Seat Capacity	77	78	77	77				
Capacity Utilized (%)	34	19	21	39				
Ride Time	15	17	81	90				
Ride Time Available	60	60	60	60				
Time Utilized (%)	25	28	135	150				
Max Utilized (%)	34	28	135	150				

GRIMSRUD RUNS



HIGHLAND ACRES RUNS

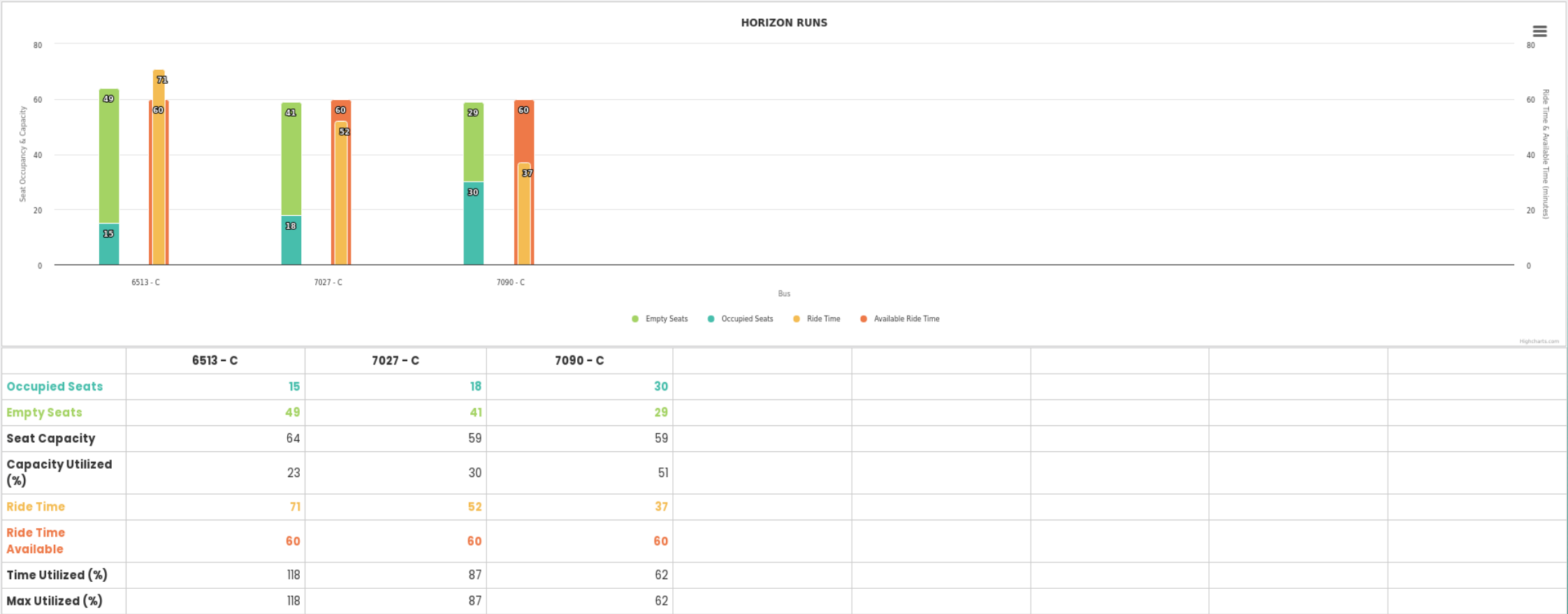


	5950 - R							
Occupied Seats	9							
Empty Seats	69							
Seat Capacity	78							
Capacity Utilized (%)	12							
Ride Time	10							
Ride Time Available	43							
Time Utilized (%)	23							
Max Utilized (%)	23							

HORIZON RUNS



HORIZON RUNS



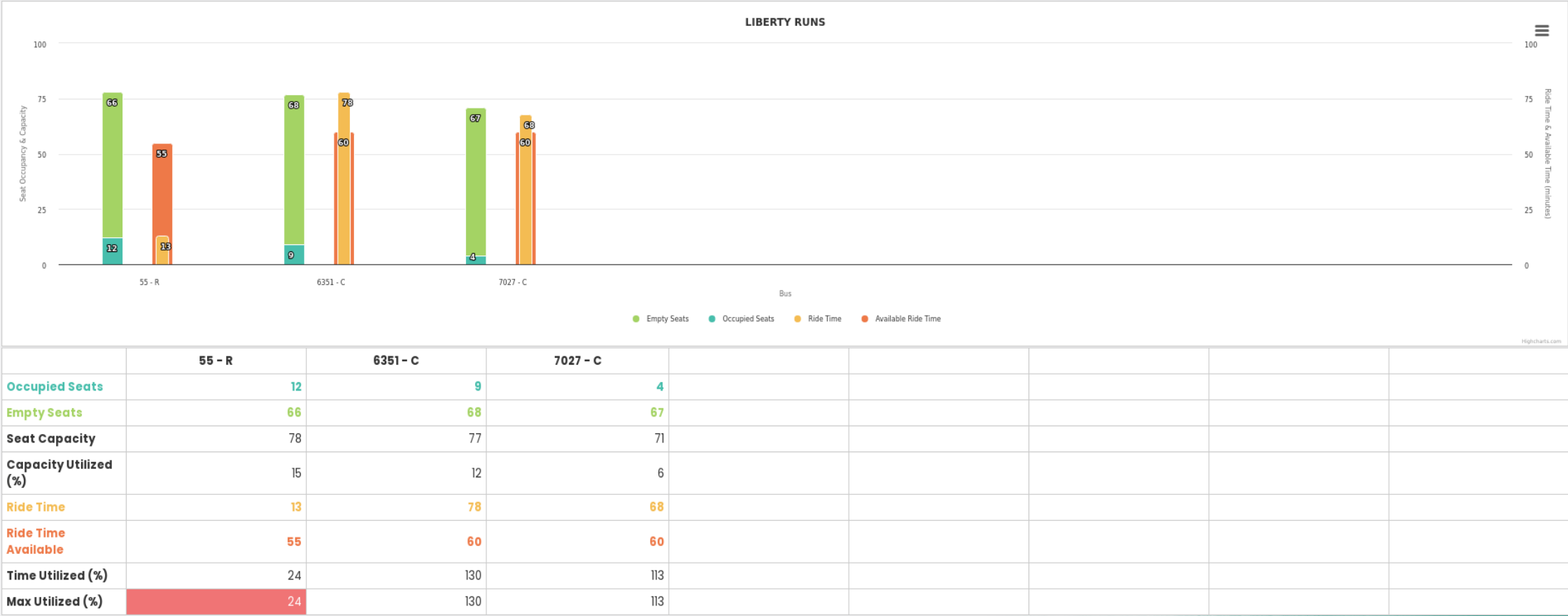
LEGACY HIGH RUNS



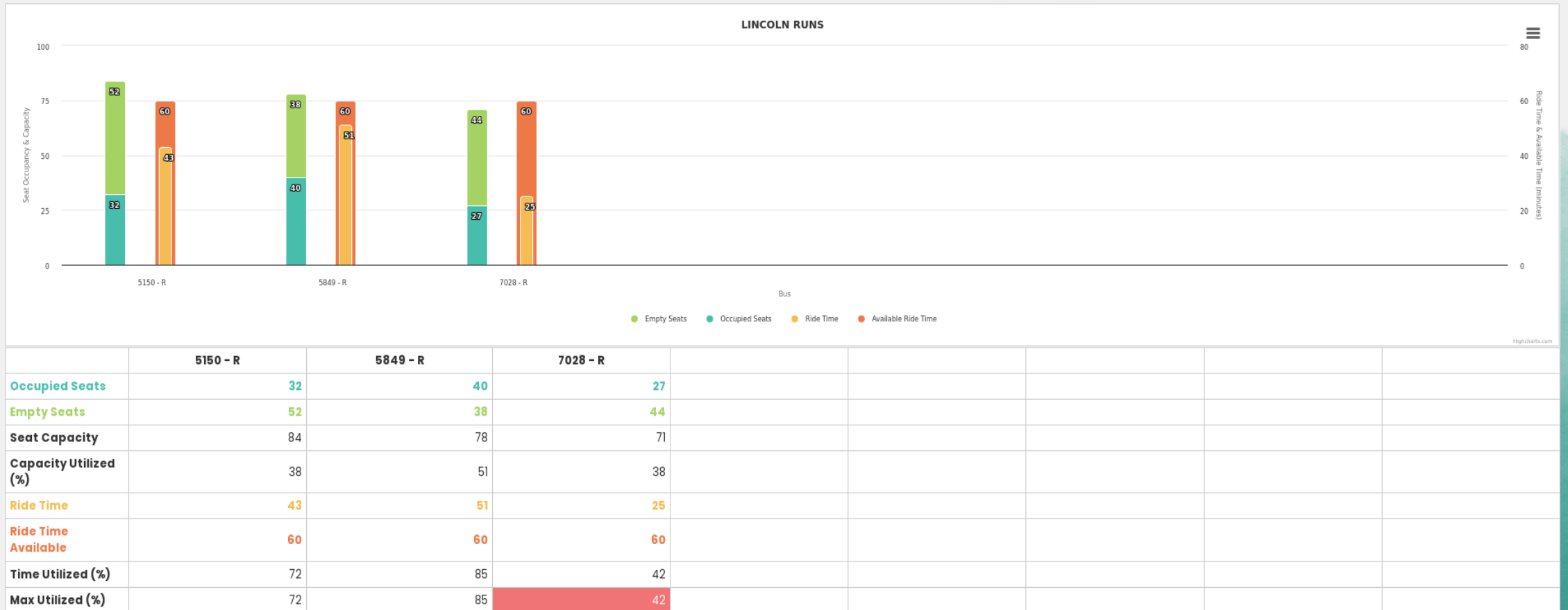
LEGACY HIGH RUNS



LIBERTY RUNS



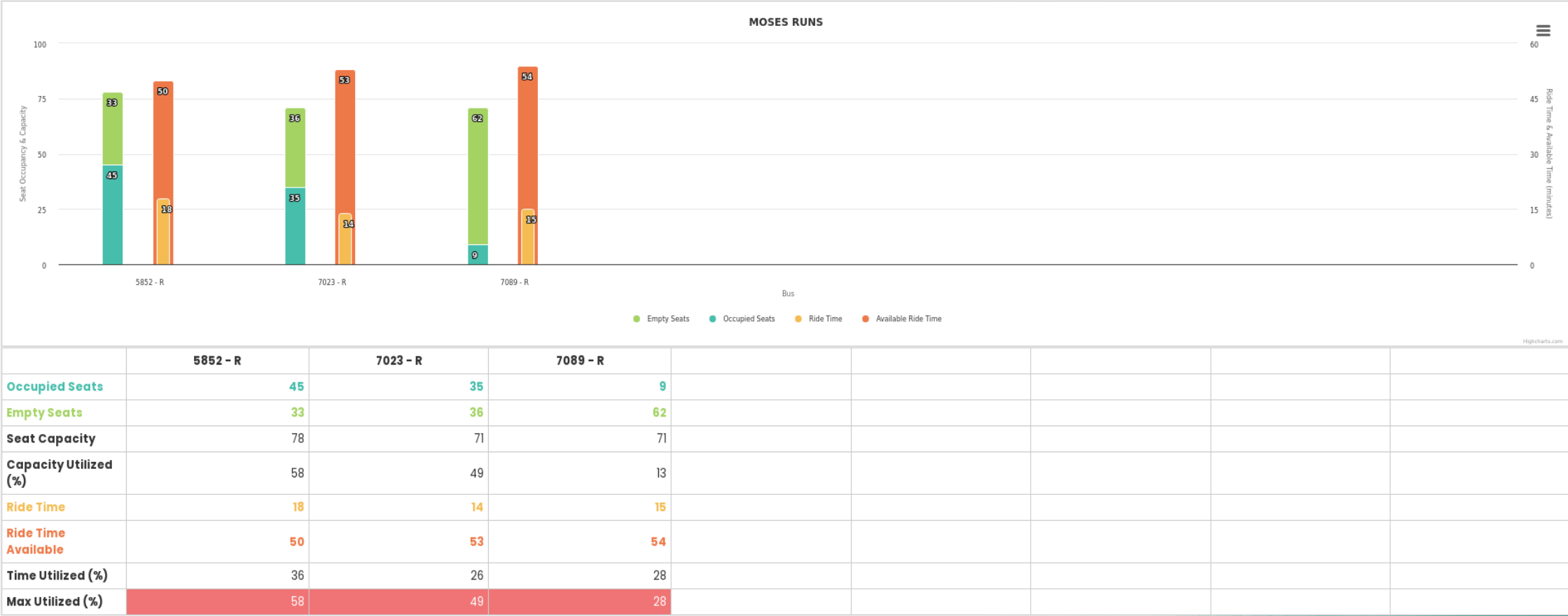
LINCOLN RUNS



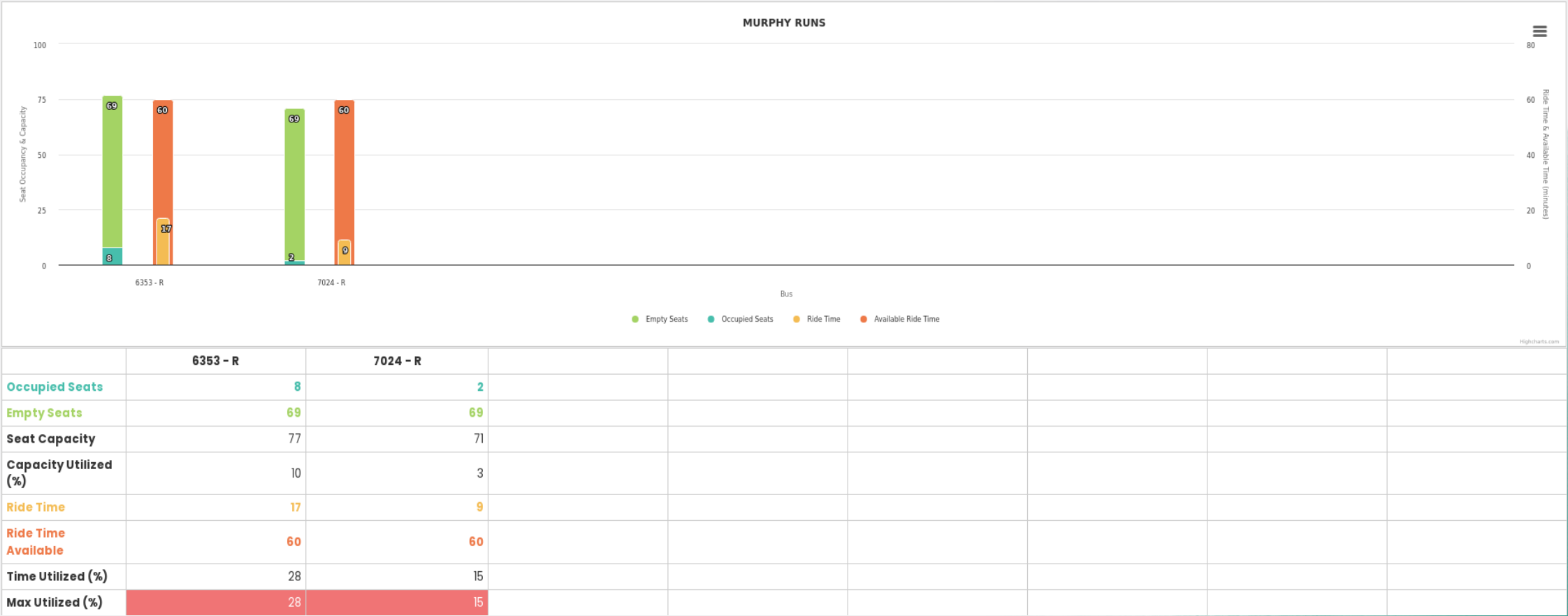
MILLER RUNS



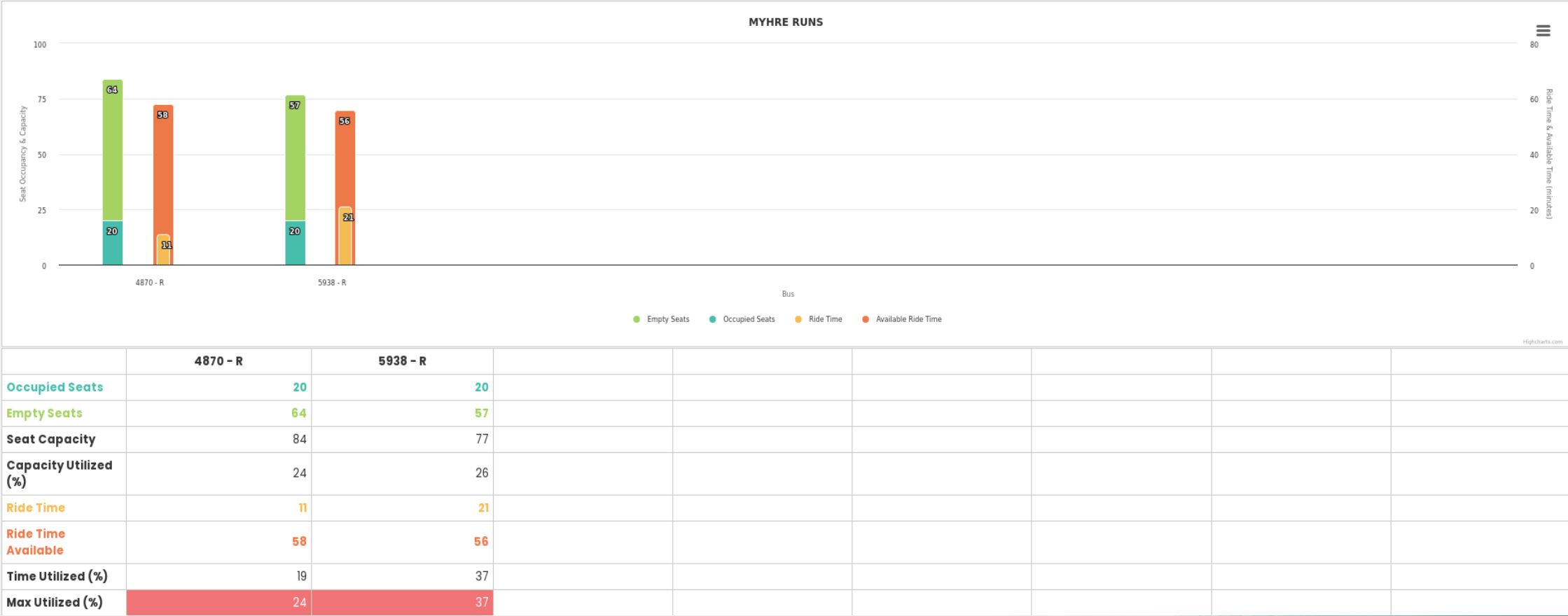
MOSES RUNS



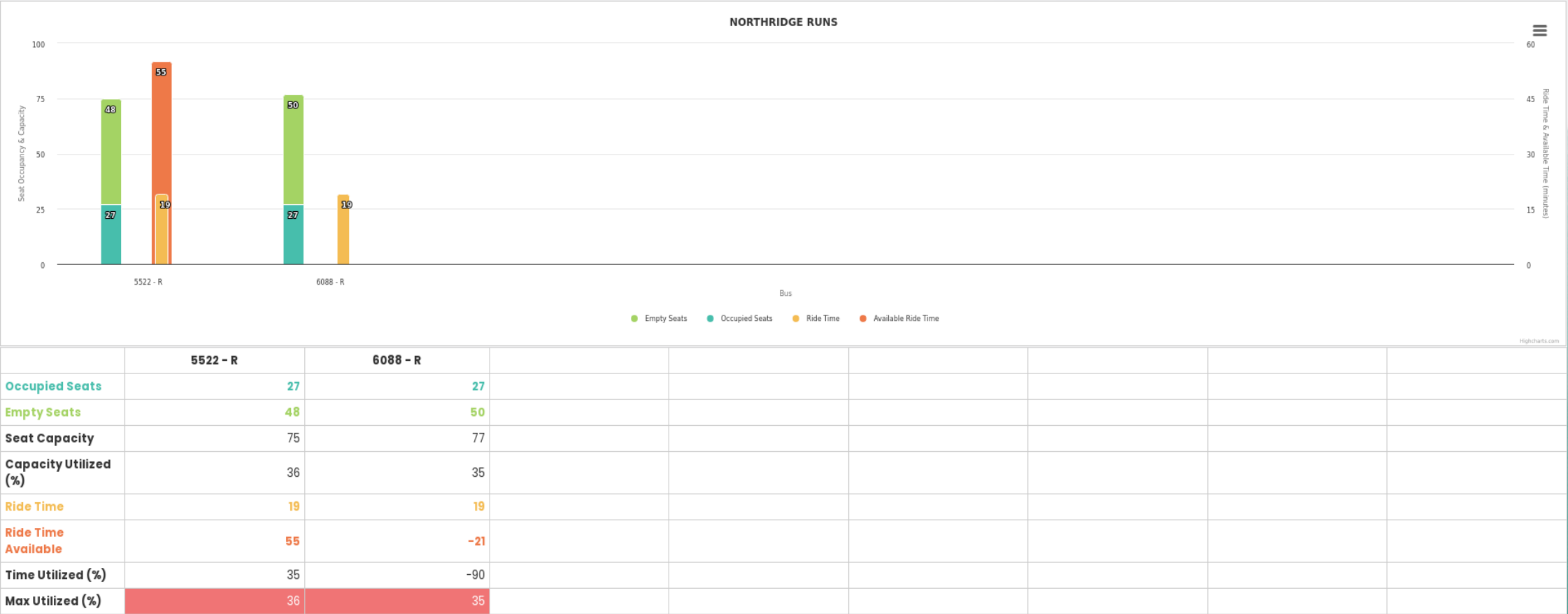
MURPHY RUNS



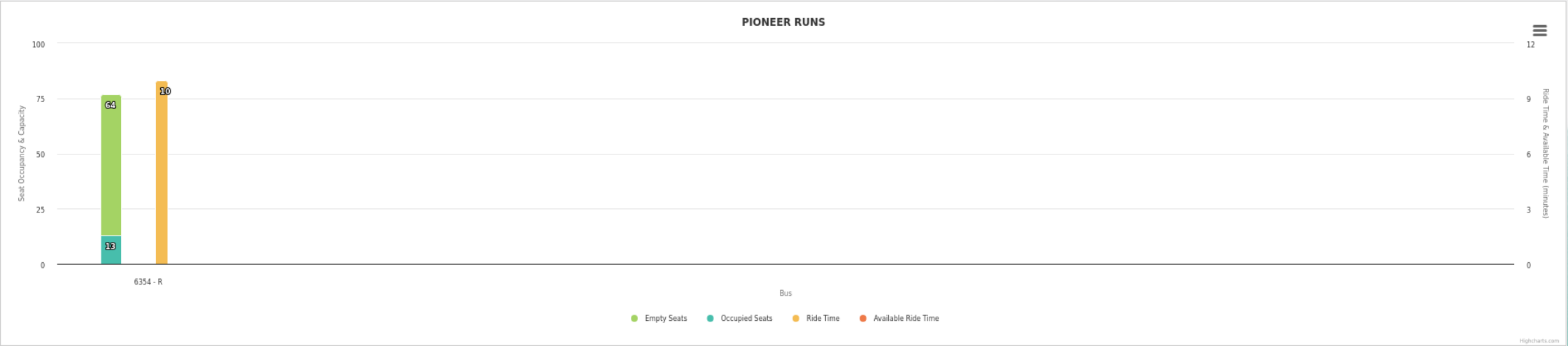
MYHRE RUNS



NORTHRIDGE RUNS

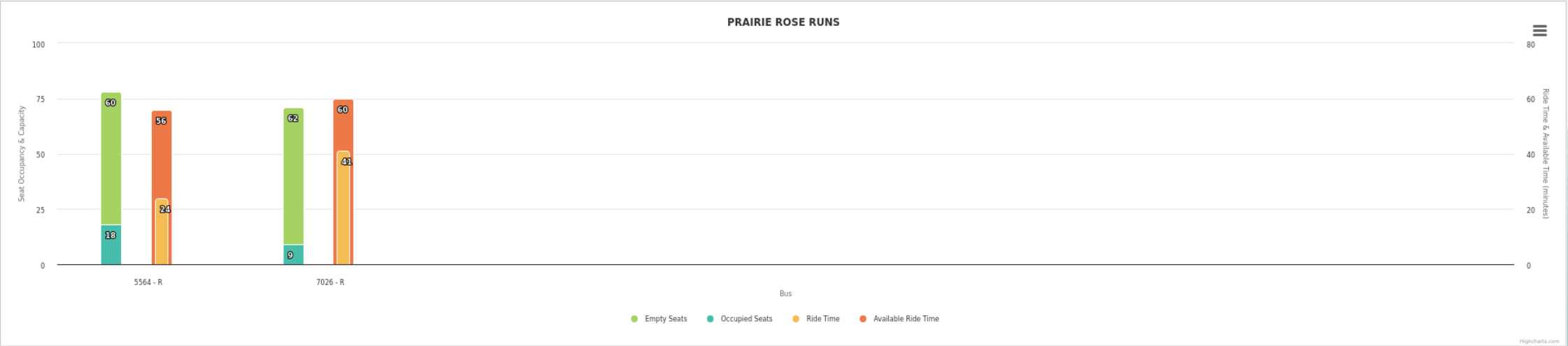


PIONEER RUNS



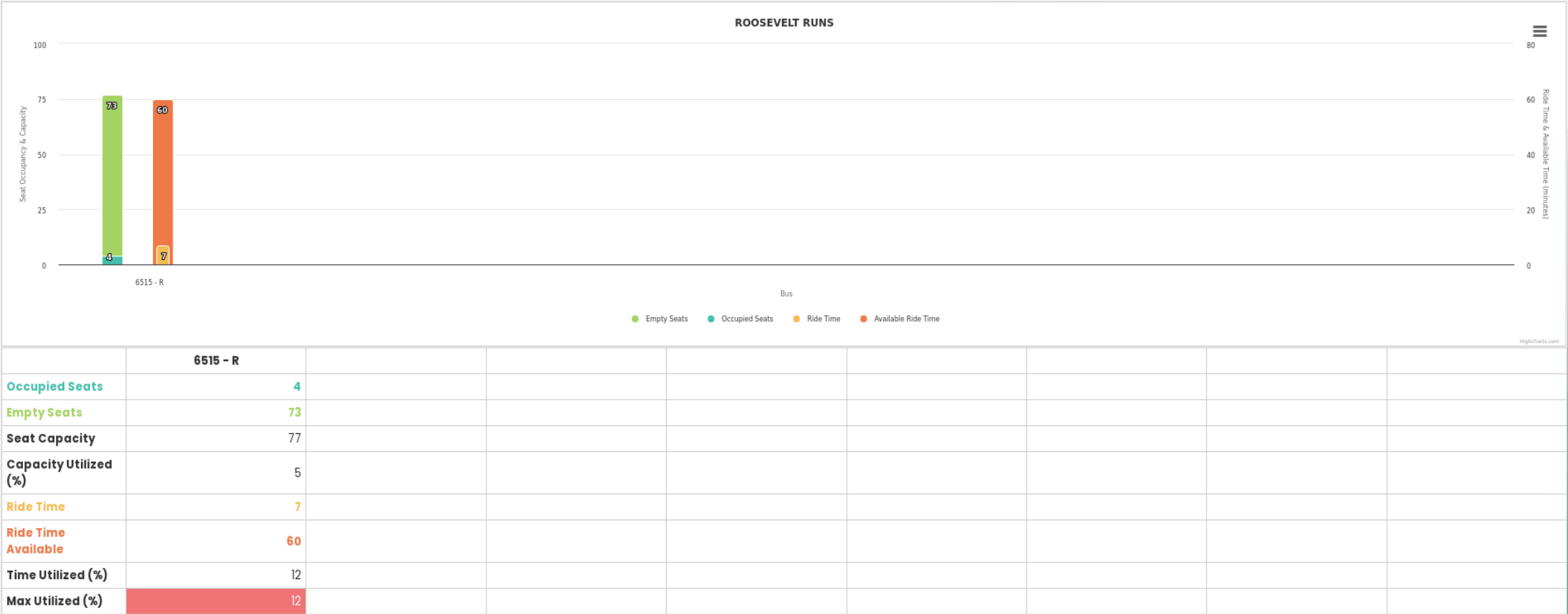
	6354 - R							
Occupied Seats	13							
Empty Seats	64							
Seat Capacity	77							
Capacity Utilized (%)	17							
Ride Time	10							
Ride Time Available	-15							
Time Utilized (%)	-67							
Max Utilized (%)	17							

PRAIRIE ROSE RUNS

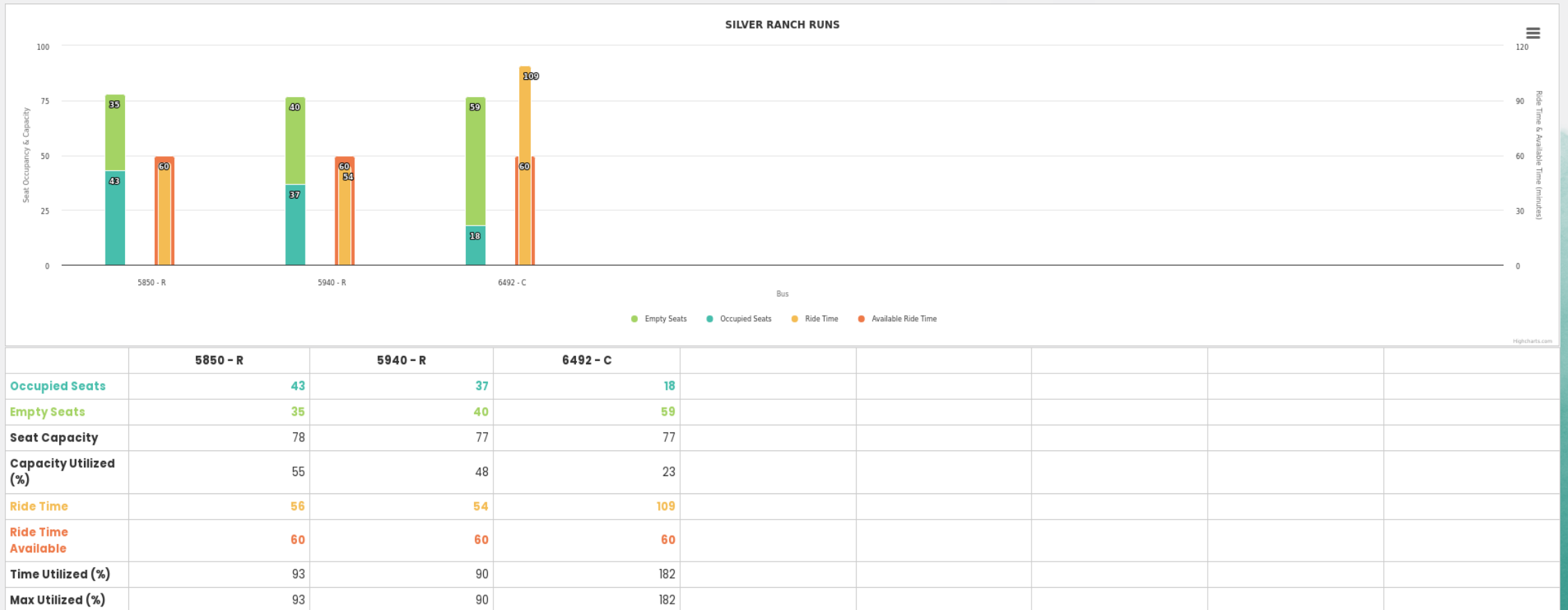


	5564 - R	7026 - R						
Occupied Seats	18	9						
Empty Seats	60	62						
Seat Capacity	78	71						
Capacity Utilized (%)	23	13						
Ride Time	24	41						
Ride Time Available	56	60						
Time Utilized (%)	43	68						
Max Utilized (%)	43	68						

ROOSEVELT RUNS



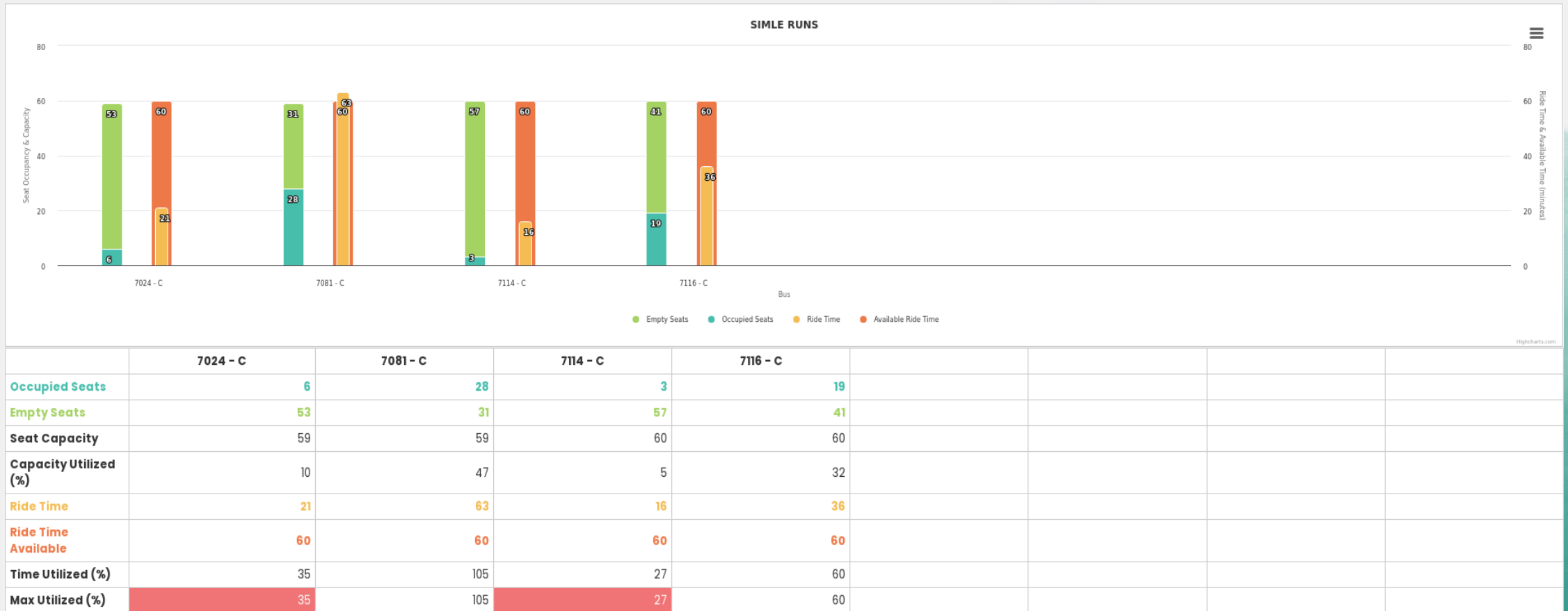
SILVER RANCH RUNS



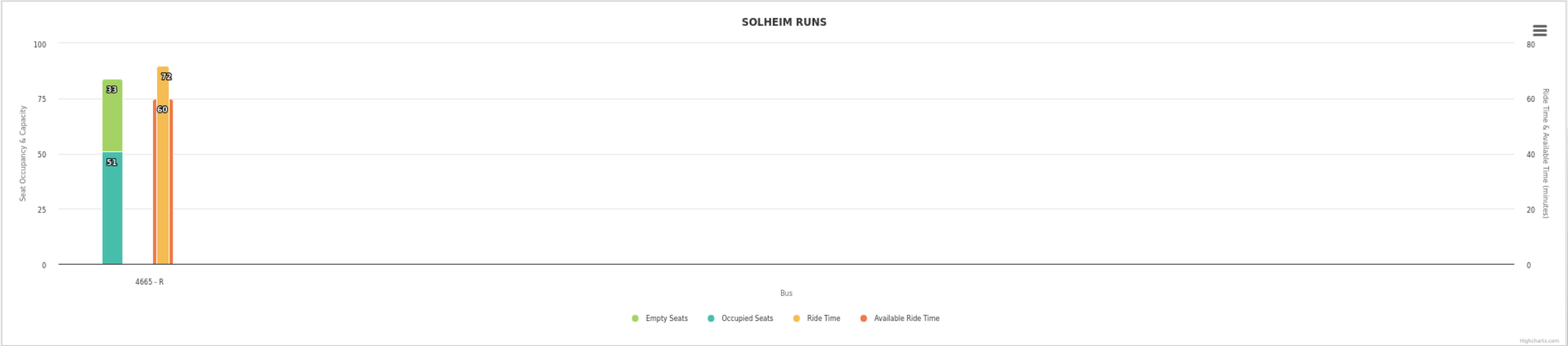
SIMLE RUNS



SIMLE RUNS

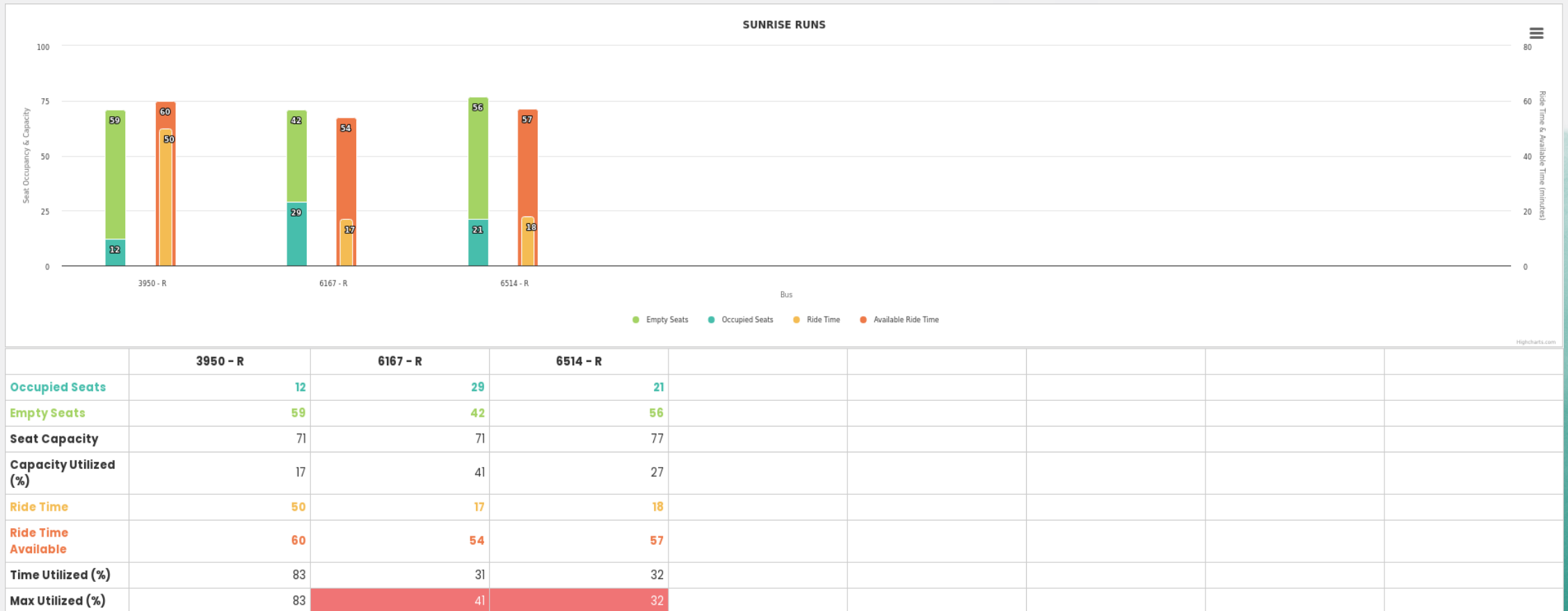


SOLHEIM RUNS



	4665 - R							
Occupied Seats	51							
Empty Seats	33							
Seat Capacity	84							
Capacity Utilized (%)	61							
Ride Time	72							
Ride Time Available	60							
Time Utilized (%)	120							
Max Utilized (%)	120							

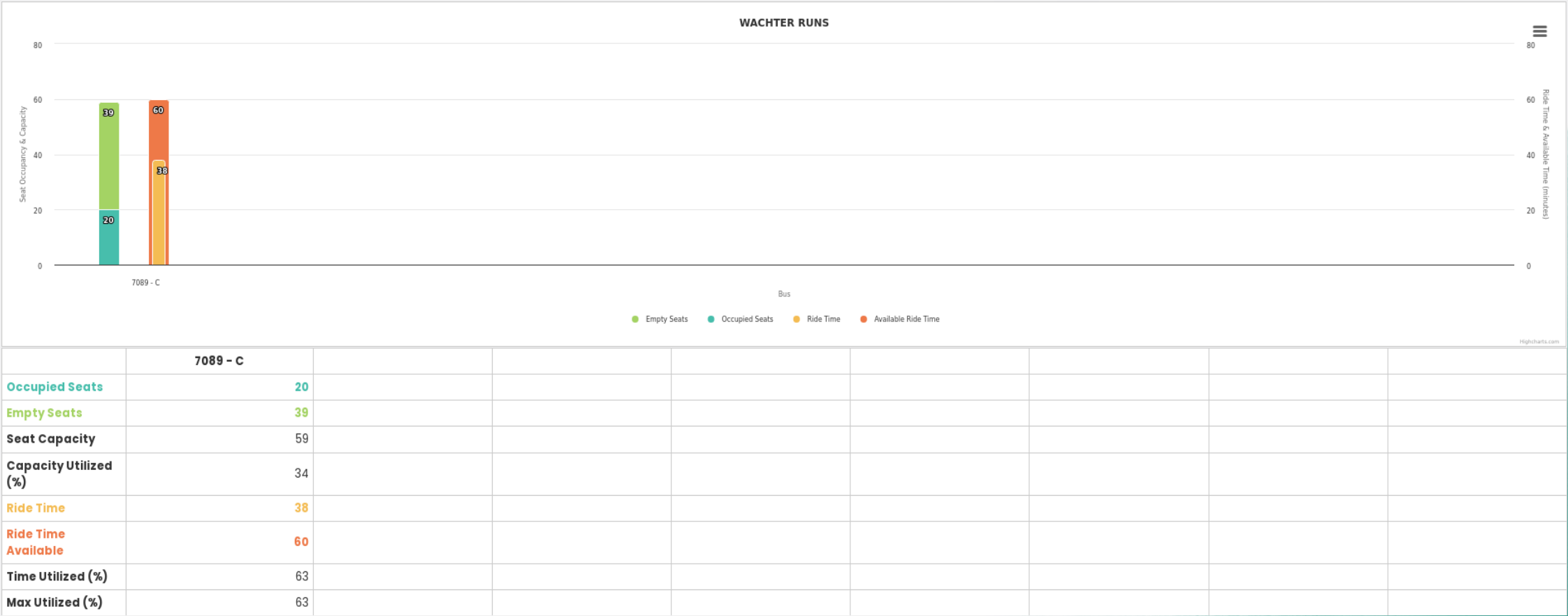
SUNRISE RUNS



WACHTER RUNS



WACHTER RUNS



WILL-MOORE RUNS



	5853 - R							
Occupied Seats	27							
Empty Seats	51							
Seat Capacity	78							
Capacity Utilized (%)	35							
Ride Time	19							
Ride Time Available	53							
Time Utilized (%)	36							
Max Utilized (%)	36							

PM Time And Capacity

BISMARCK HIGH RUNS

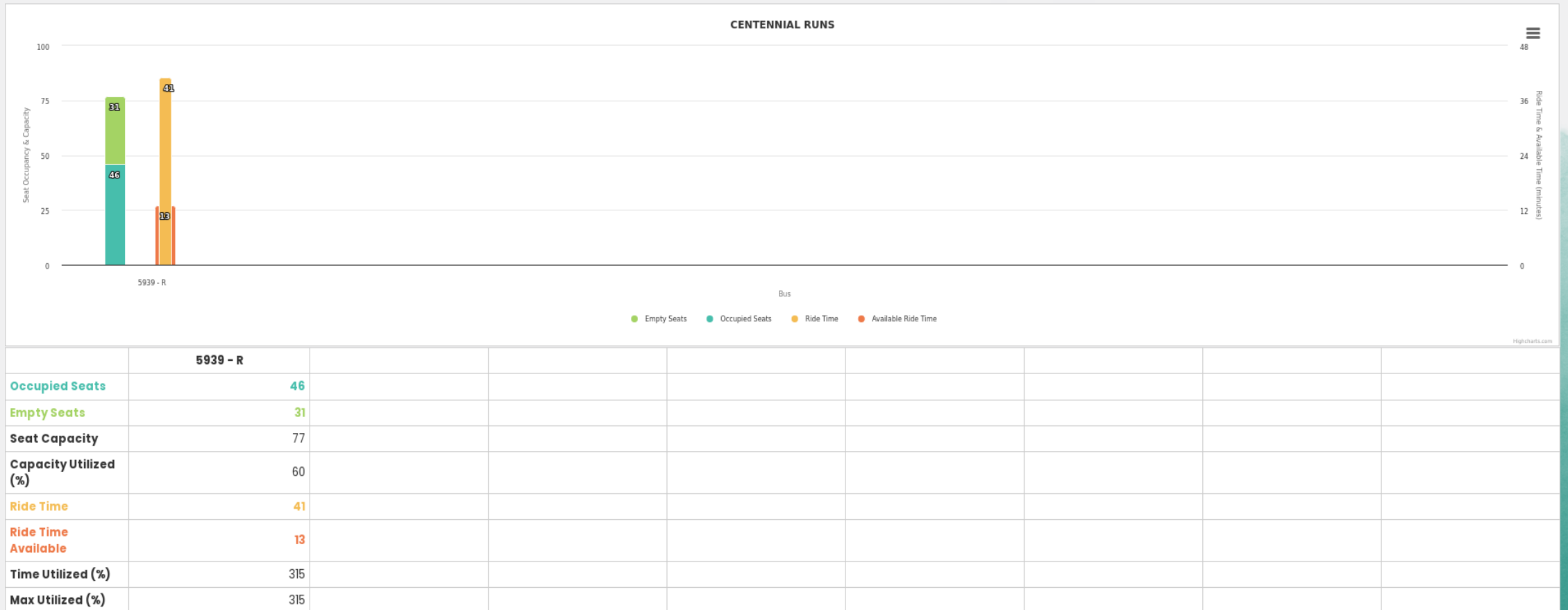


BISMARCK HIGH RUNS



	7082 - C	7089 - C						
Occupied Seats	8	13						
Empty Seats	39	34						
Seat Capacity	47	47						
Capacity Utilized (%)	17	27						
Ride Time	76	41						
Ride Time Available	60	60						
Time Utilized (%)	127	68						
Max Utilized (%)	127	68						

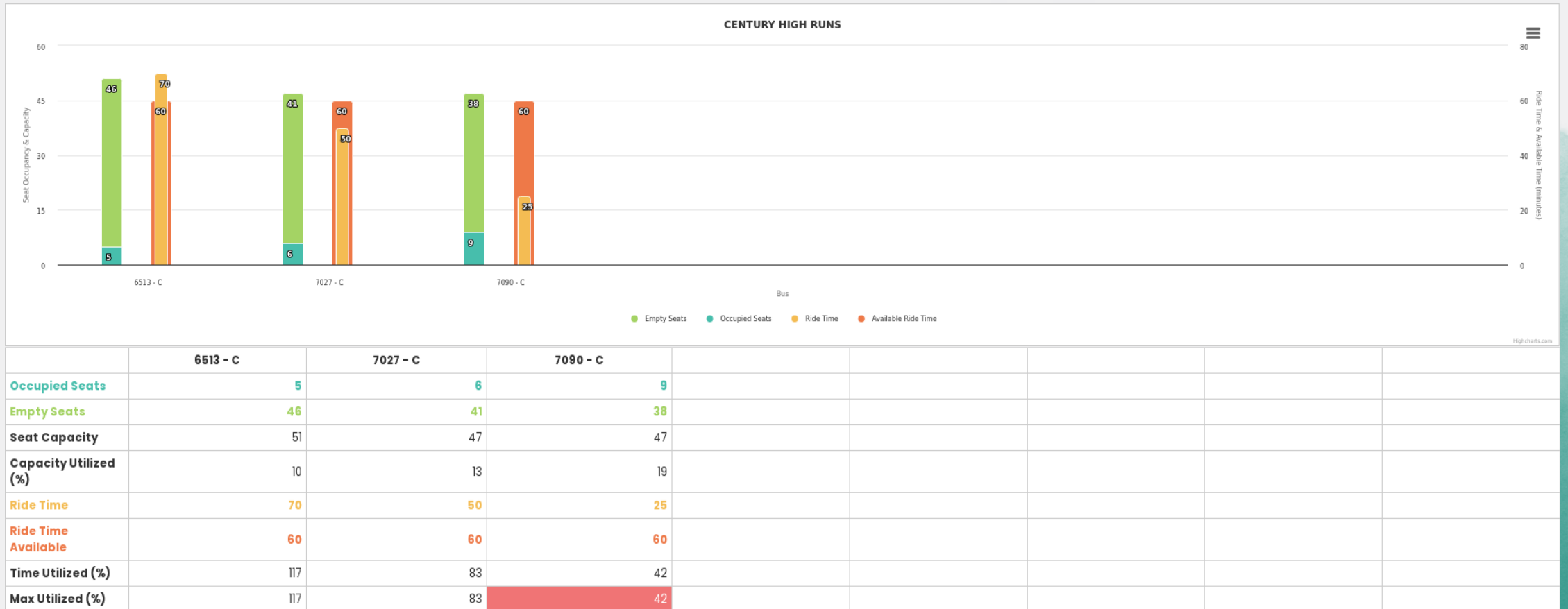
CENTENNIAL RUNS



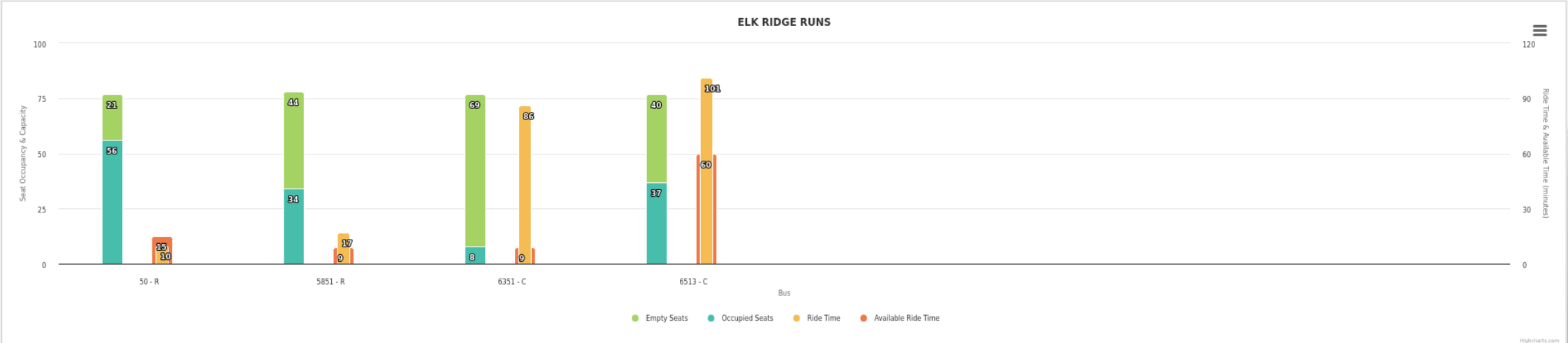
CENTURY HIGH RUNS



CENTURY HIGH RUNS



ELK RIDGE RUNS



	50 - R	5851 - R	6351 - C	6513 - C				
Occupied Seats	56	34	8	37				
Empty Seats	21	44	69	40				
Seat Capacity	77	78	77	77				
Capacity Utilized (%)	73	44	10	48				
Ride Time	10	17	86	101				
Ride Time Available	15	9	9	60				
Time Utilized (%)	67	189	956	168				
Max Utilized (%)	73	189	956	168				

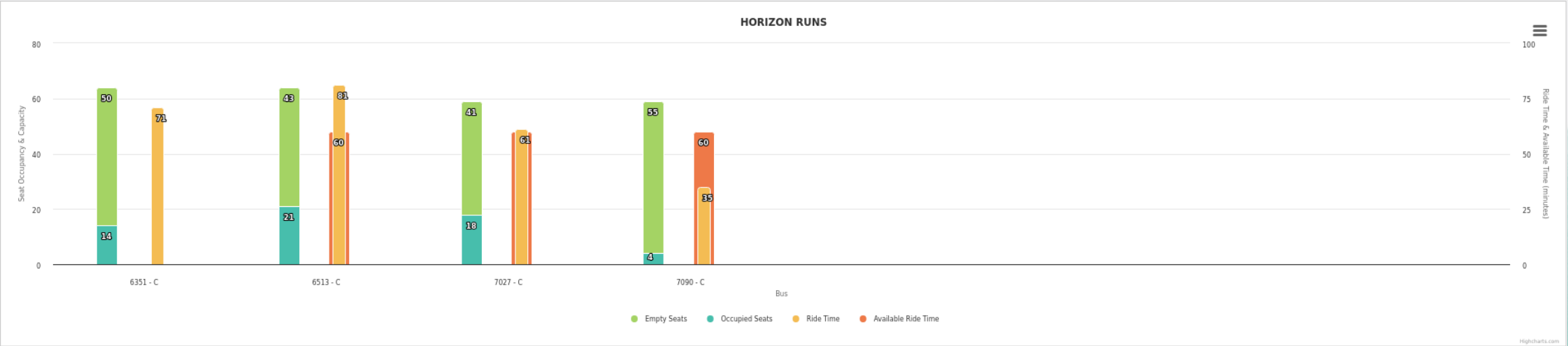
GRIMSRUD RUNS



HORIZON RUNS



HORIZON RUNS

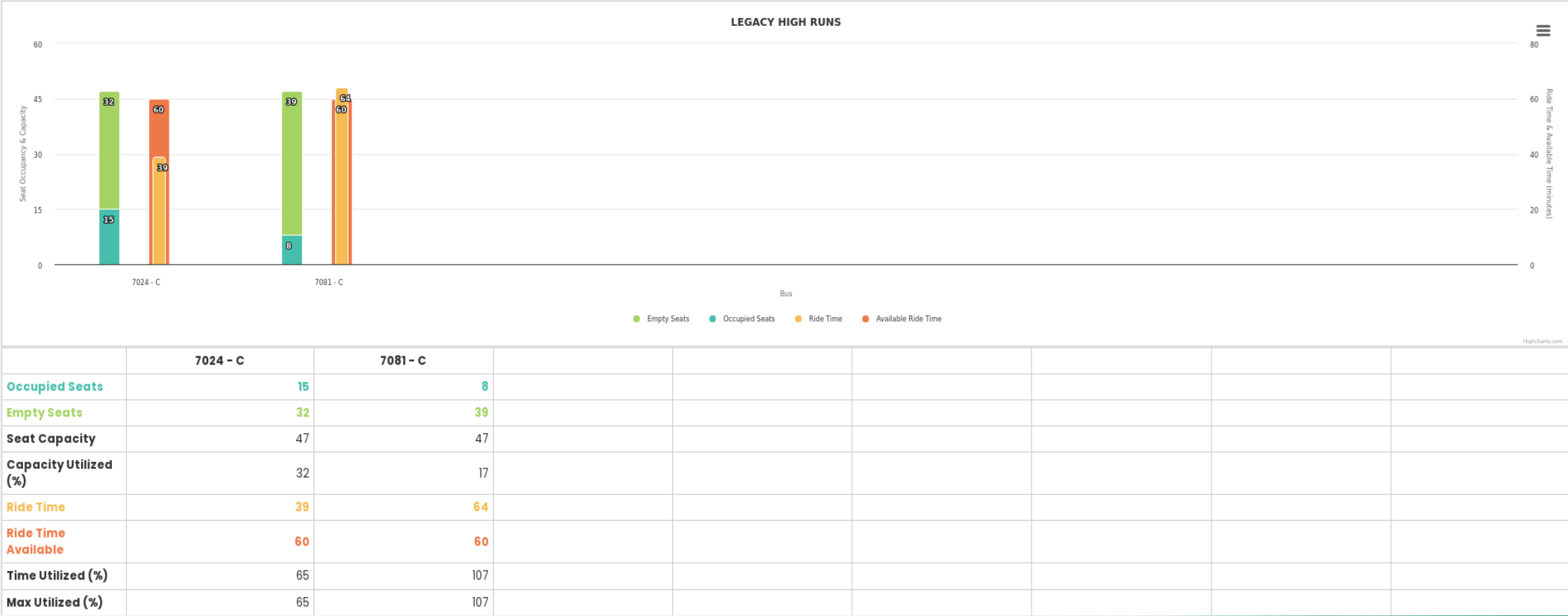


	6351 - C	6513 - C	7027 - C	7090 - C				
Occupied Seats	14	21	18	4				
Empty Seats	50	43	41	55				
Seat Capacity	64	64	59	59				
Capacity Utilized (%)	22	33	30	7				
Ride Time	71	81	61	35				
Ride Time Available	-6	60	60	60				
Time Utilized (%)	-1183	135	102	58				
Max Utilized (%)	22	135	102	58				

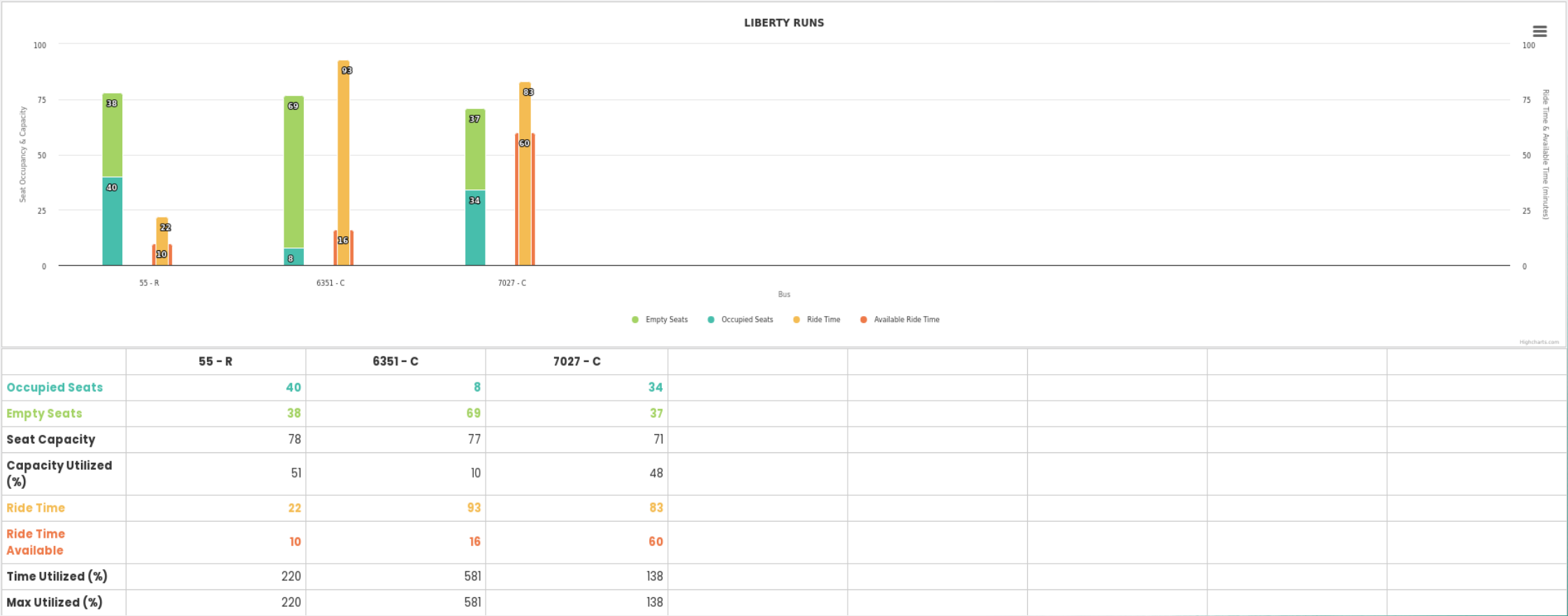
LEGACY HIGH RUNS



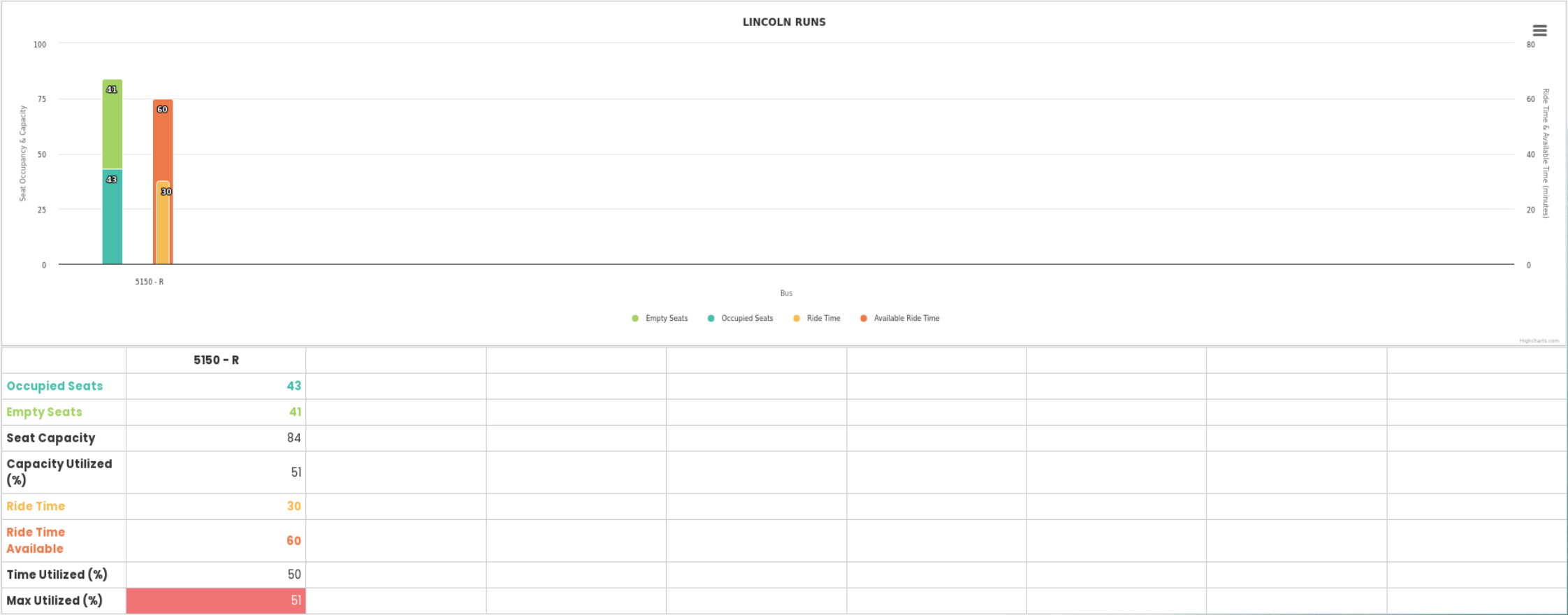
LEGACY HIGH RUNS



LIBERTY RUNS



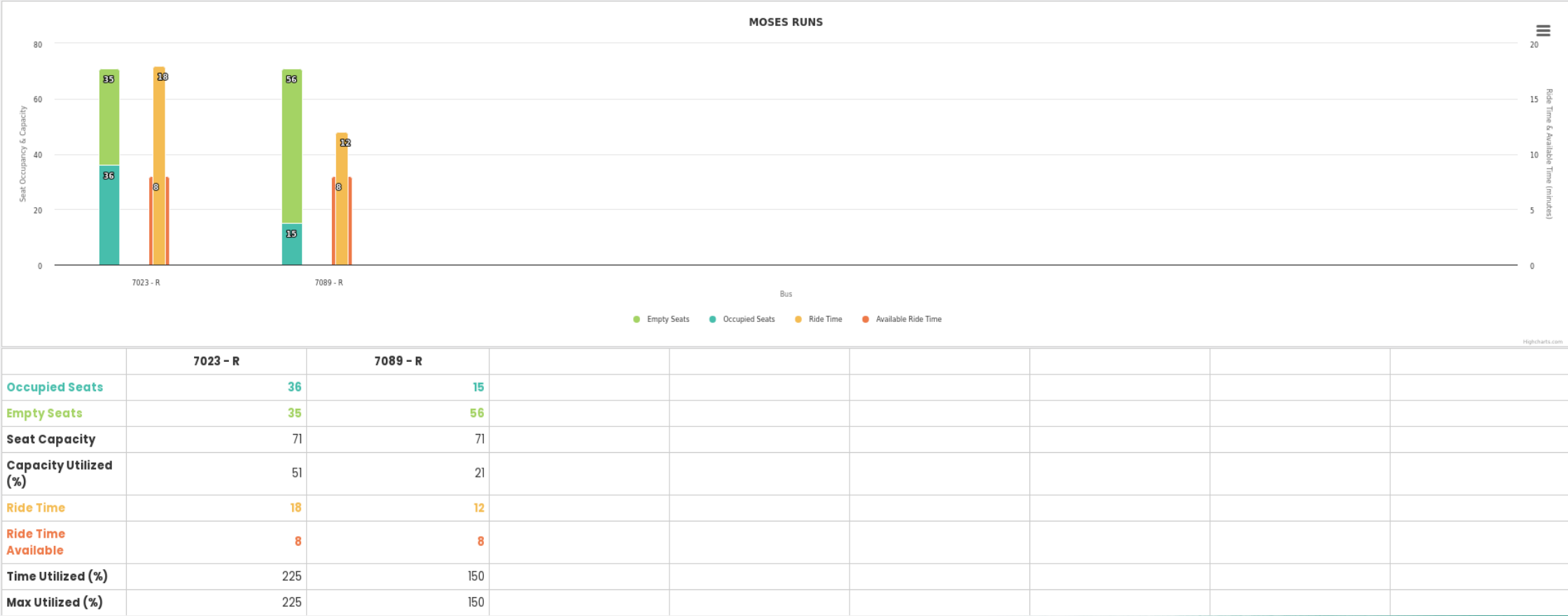
LINCOLN RUNS



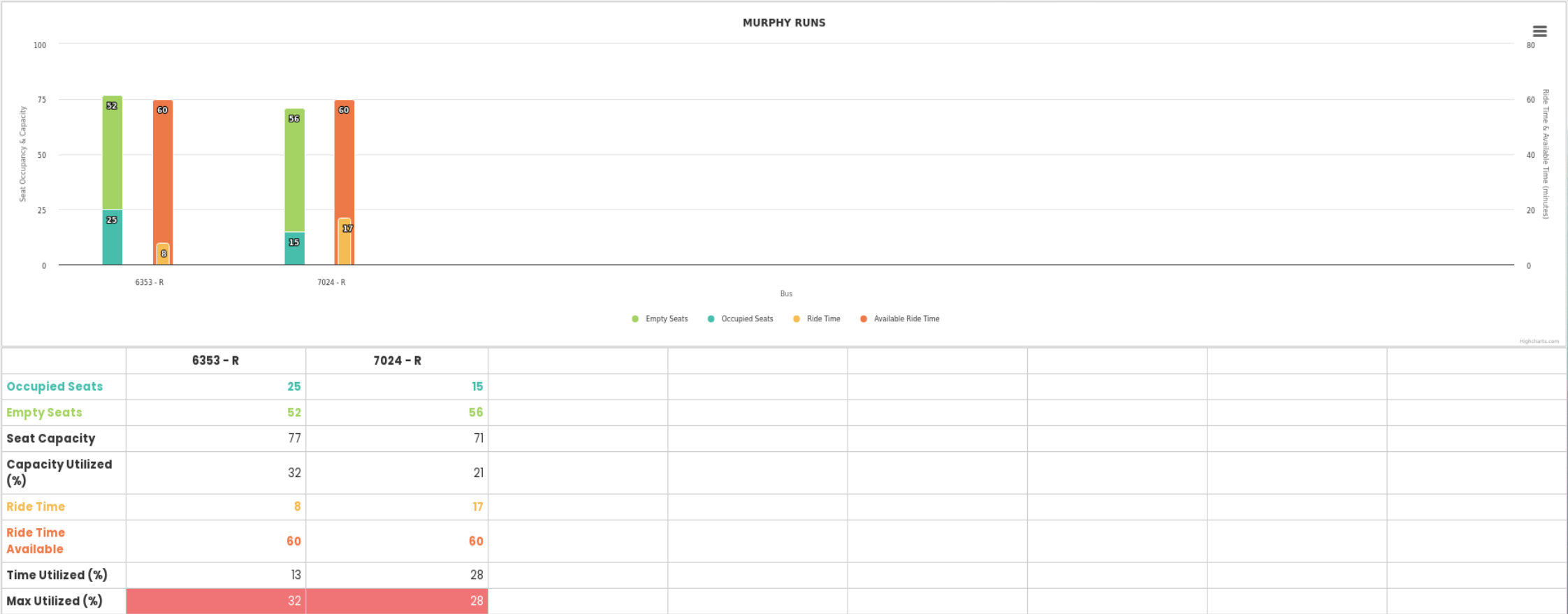
MILLER RUNS



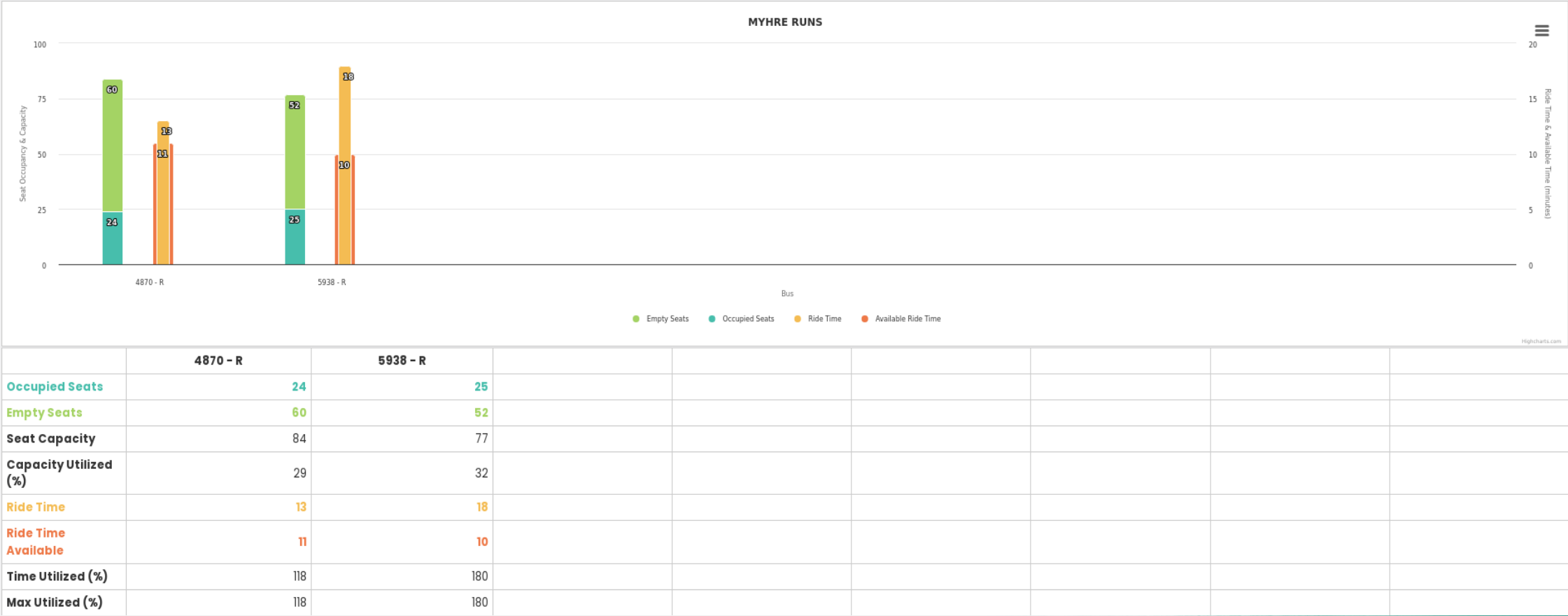
MOSES RUNS



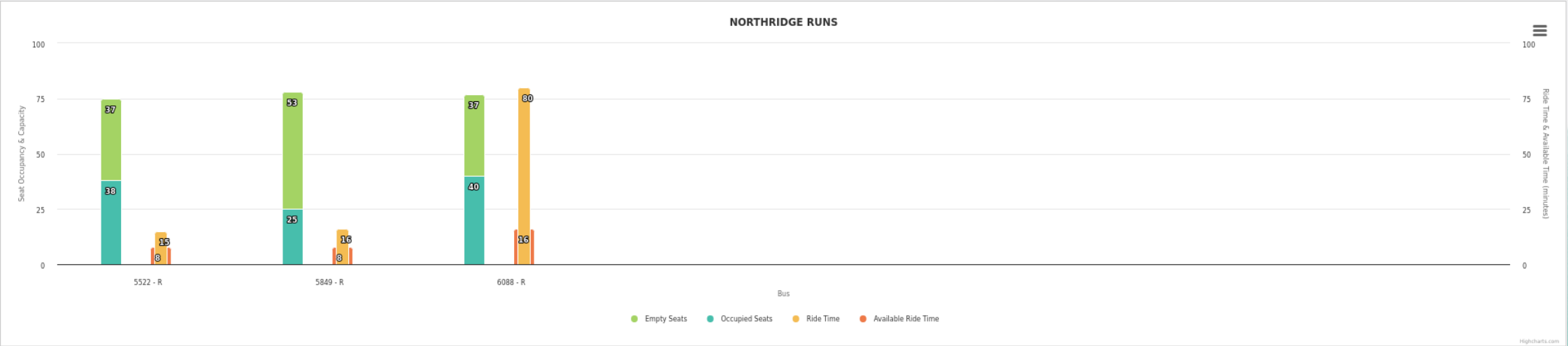
MURPHY RUNS



MYHRE RUNS



NORTHRIDGE RUNS

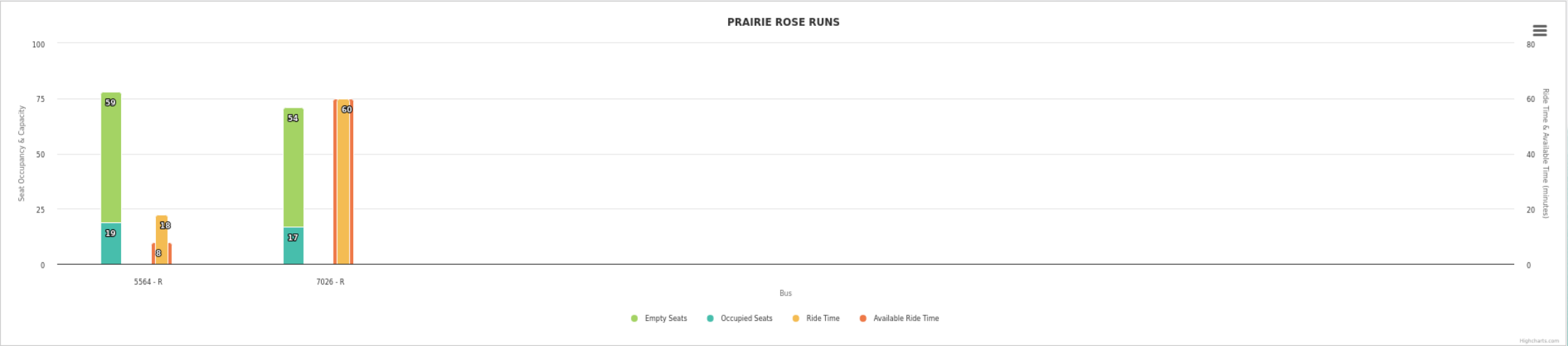


	5522 - R	5849 - R	6088 - R					
Occupied Seats	38	25	40					
Empty Seats	37	53	37					
Seat Capacity	75	78	77					
Capacity Utilized (%)	51	32	52					
Ride Time	15	16	80					
Ride Time Available	8	8	16					
Time Utilized (%)	187	200	500					
Max Utilized (%)	187	200	500					

PIONEER RUNS

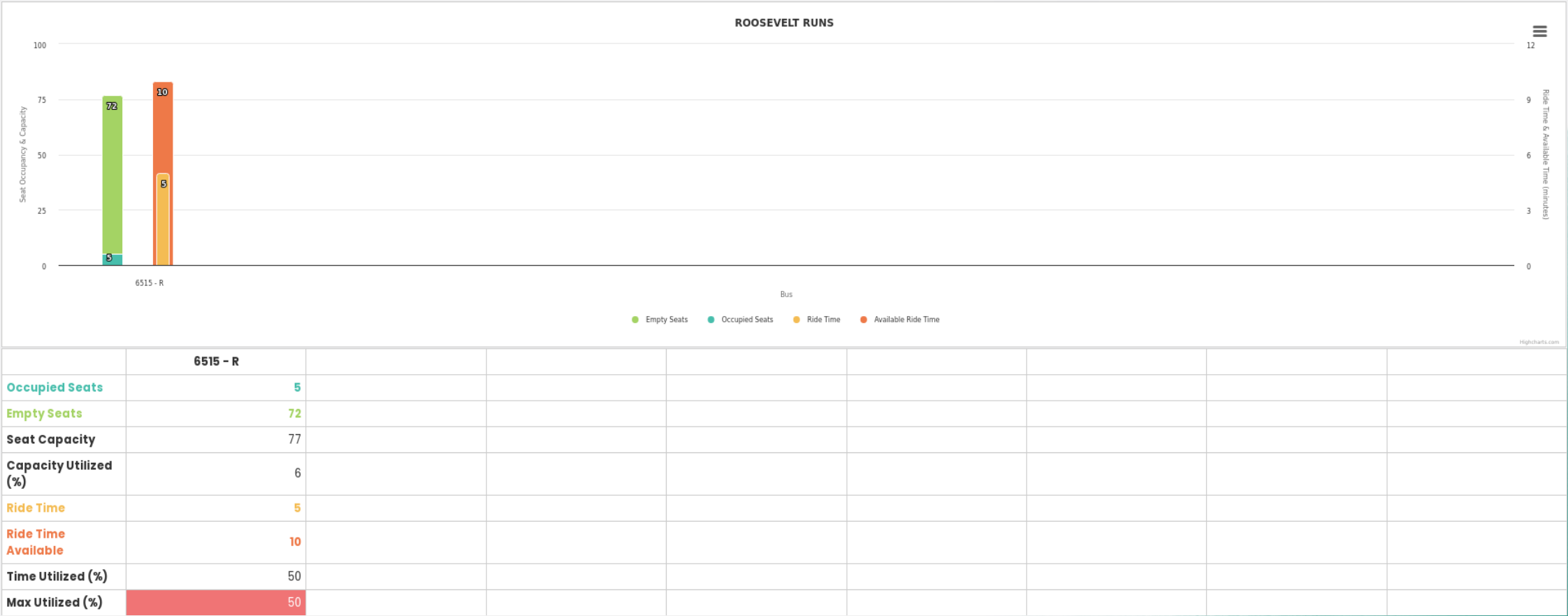


PRAIRIE ROSE RUNS

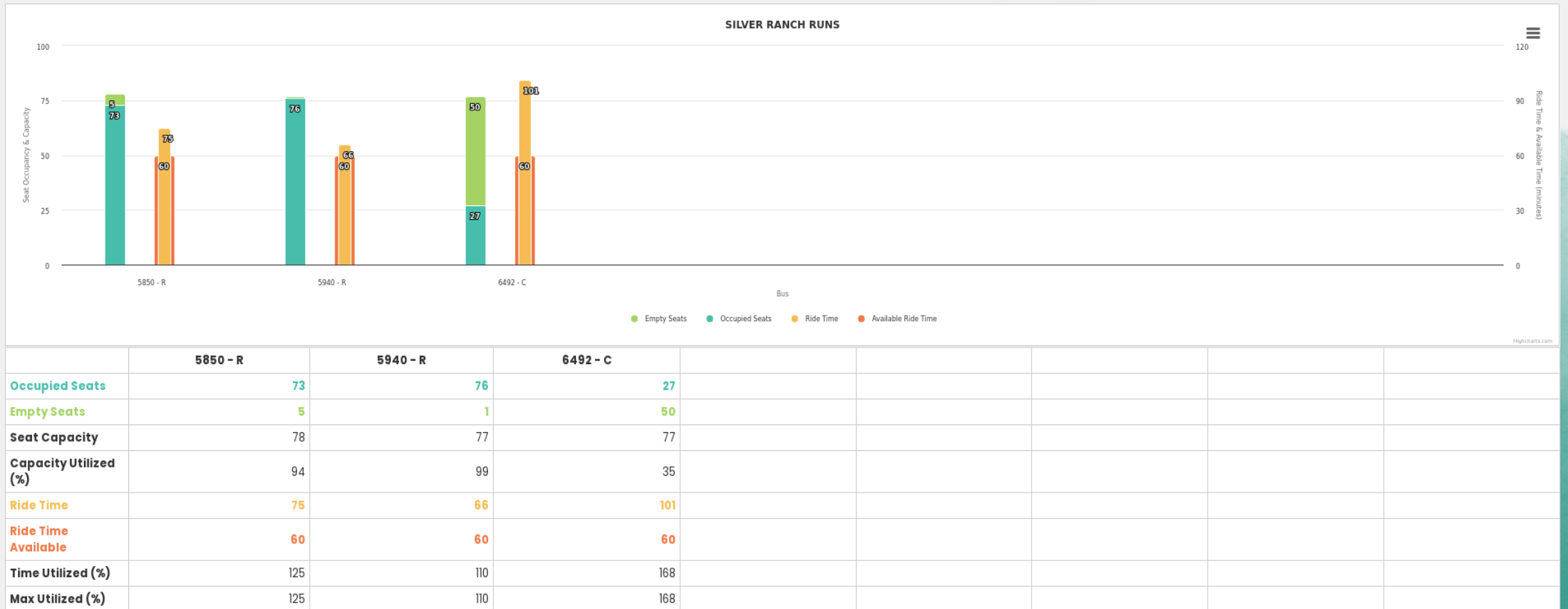


	5564 - R	7026 - R						
Occupied Seats	19	17						
Empty Seats	59	54						
Seat Capacity	78	71						
Capacity Utilized (%)	24	24						
Ride Time	18	60						
Ride Time Available	8	60						
Time Utilized (%)	225	100						
Max Utilized (%)	225	100						

ROOSEVELT RUNS



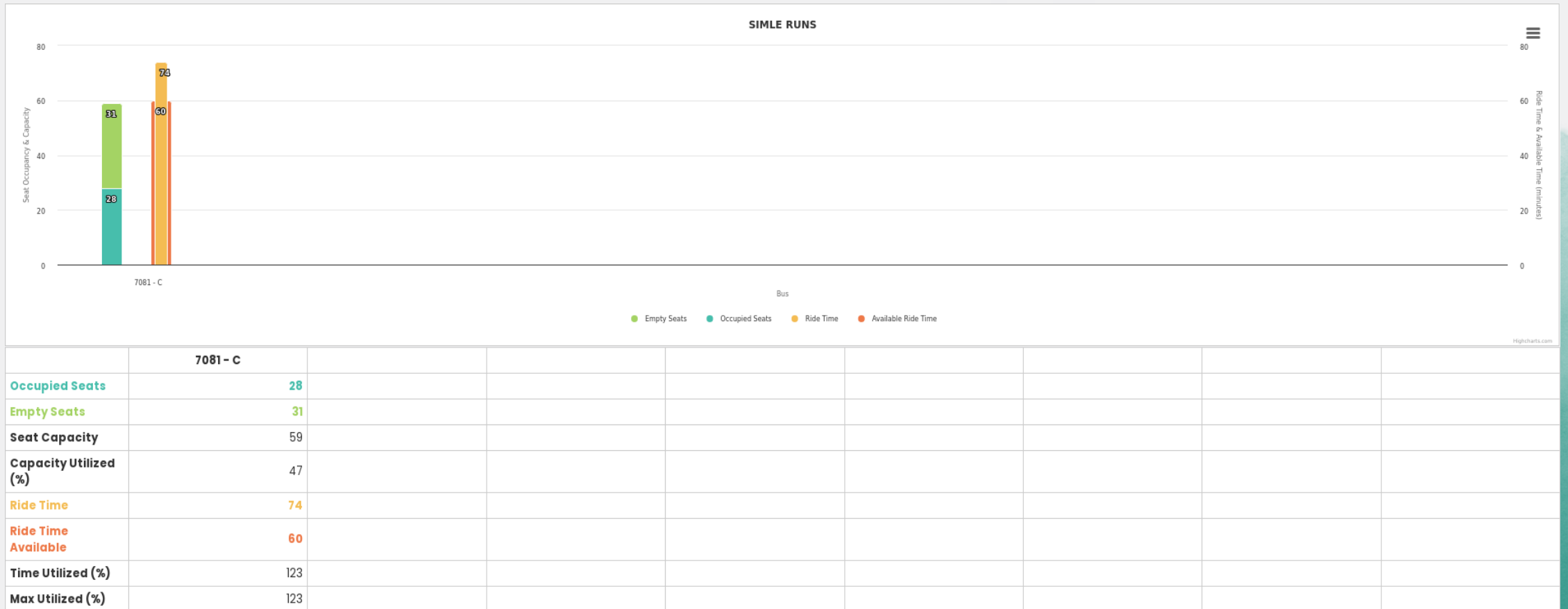
SILVER RANCH RUNS



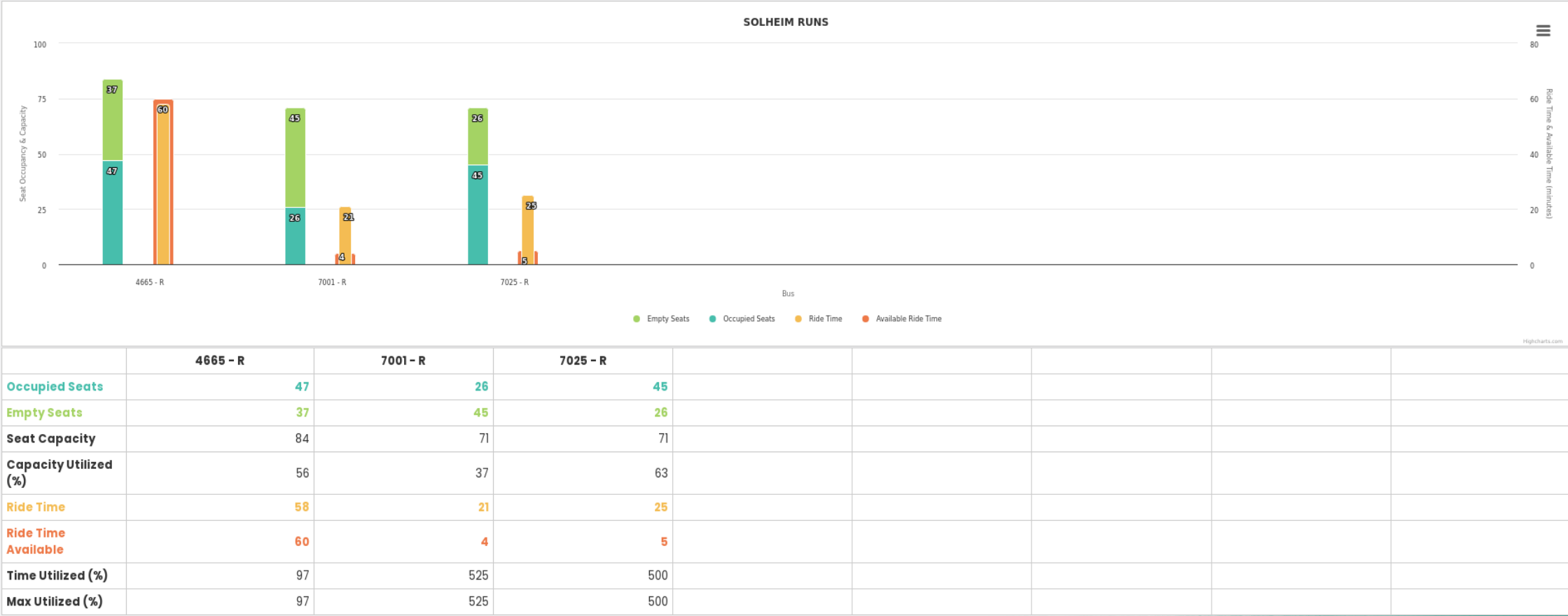
SIMLE RUNS



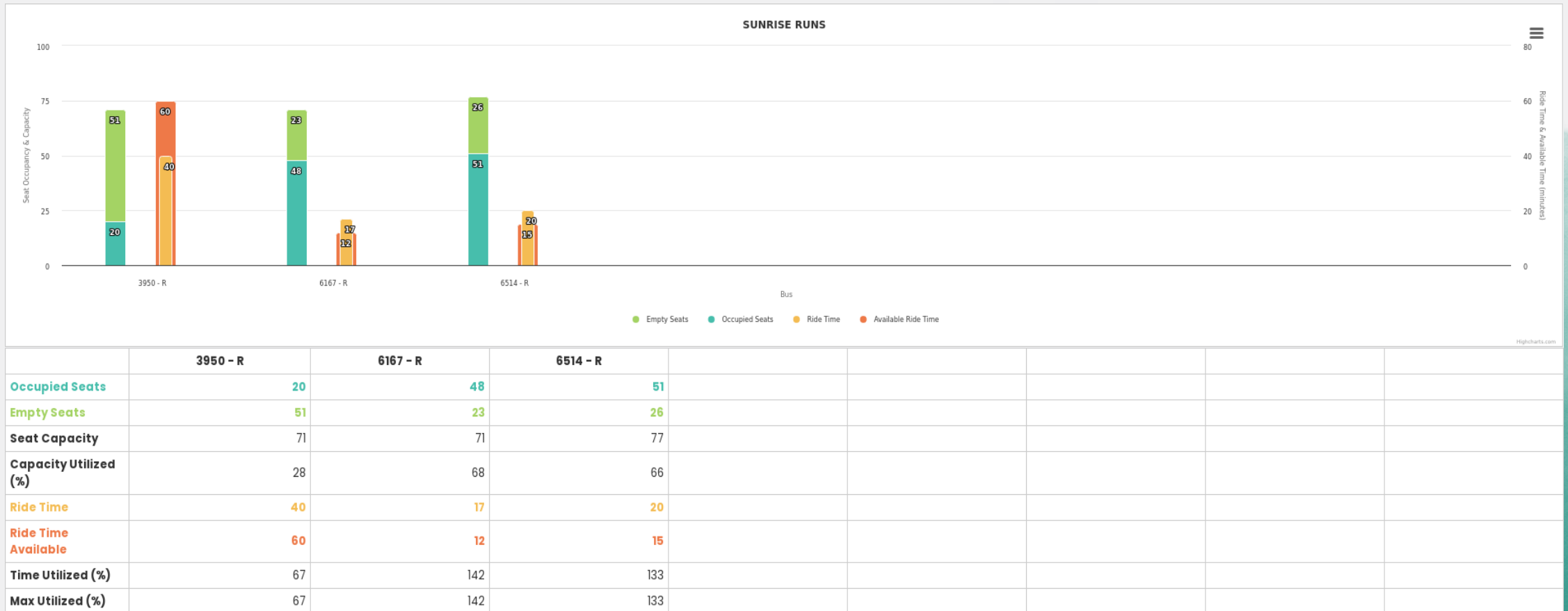
SIMLE RUNS



SOLHEIM RUNS



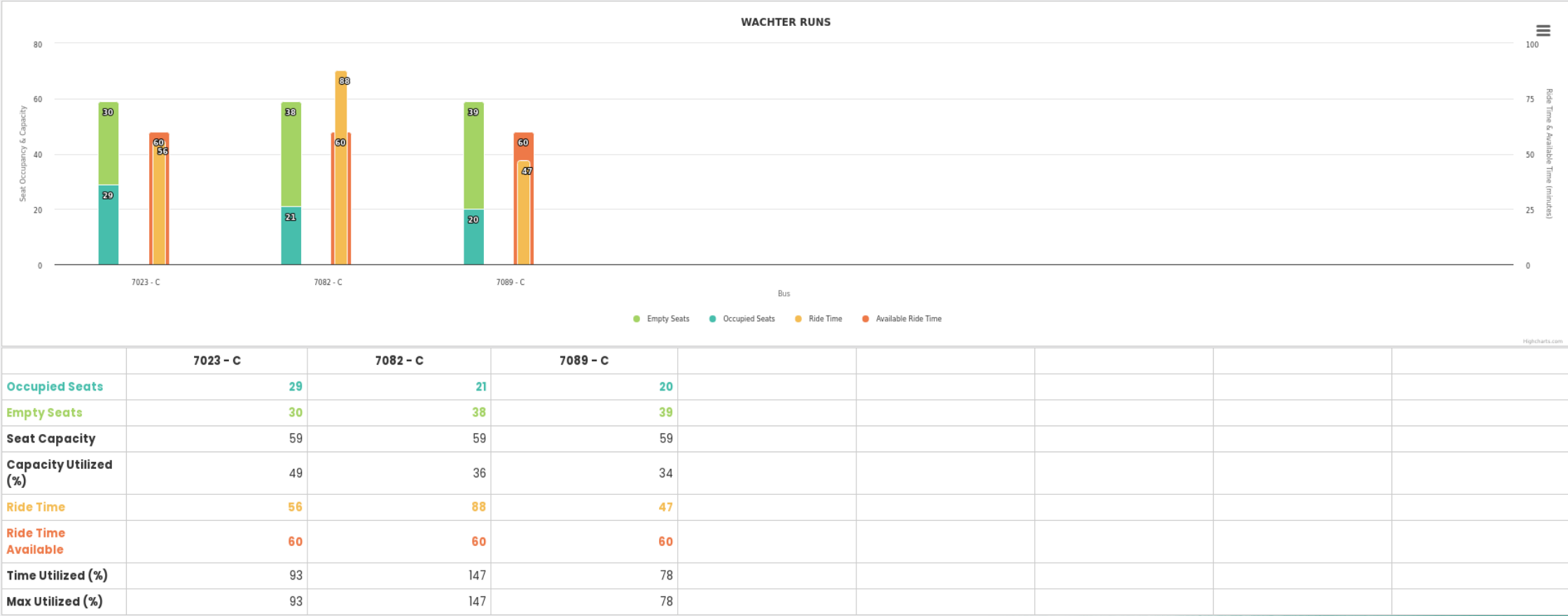
SUNRISE RUNS



WACHTER RUNS



WACHTER RUNS



WILL-MOORE RUNS



	5853 - R							
Occupied Seats	44							
Empty Seats	34							
Seat Capacity	78							
Capacity Utilized (%)	56							
Ride Time	22							
Ride Time Available	8							
Time Utilized (%)	275							
Max Utilized (%)	275							