DURHAM COMPREHENSIVE OPERATIONS ANALYSIS

Durham Transit Plan

Final Report V3

April 19, 2021

0. Executive Summary

The Comprehensive Operations Analysis (COA) of GoDurham's management and services provides insight into the efficiency and capacity of the organization. The COA recommendations will play an important role in preparing the City of Durham to effectively implement the additional service and capacity enhancements included in the updated Durham County Transit Plan.

The COA has been developed as a result of a coordinated effort that obtained a thorough understanding of GoDurham based upon:

- An extensive review and analysis of agency policies, procedures, contractual agreements, and service data;
- Analysis of best practices through a comparative evaluation of policies and performance metrics with industry peers; and
- Extensive interviews with management and staff representing each entity with a role in delivering GoDurham Bus and GoDurham Access services.

This COA is an internal component of developing the updated Durham County Transit Plan.

0.1 Peer Benchmarking

Seven peer agencies were identified as a best fit with GoDurham for the purposes of comparing policies, procedures, and performance metrics.

Key Peer Similarities: Several peers rely on contracted services and performance of COAs to prepare for changes in service capacity. Multiple peer agencies have developed strategic plans. Similar concerns among agencies include funding constraints, workforce retention and retirement, incident training, and absenteeism.

Key Peer Differences: GoDurham's organizational structure is unique and more complex than peer agencies, though peer agencies noted a duplication of effort in their management structures as well. Peer agencies noted that they have developed strategic plans and utilize those plans in guiding activities, whereas GoDurham's management does not have a consistent view of the City's goals. There also are some significant differences in training requirements and absentee rates. Most notably, GoDurham requires more hours of training though the use of professional certifications for promotion and raises is not documented and less clear than peers. While GoDurham noted that the current absenteeism program is sufficient, the average rate of about 20 percent for GoDurham Bus is much higher than peers' rates.

Decreasing absenteeism in bus operations should be a priority and should consider these potential solutions:

- Hiring more operators to achieve a more optimal distribution of hours worked per week in an effort to reduce workload stress that often leads to higher absenteeism.
- Revisit the attendance policy and disciplinary procedures.
- Establish a performance benchmark or goal to make it more obvious if action is needed to address absences such as 87 percent availability (13 percent absence rate).

Bus Performance Benchmarking

In all but one metric, Average Age of Fleet, GoDurham Bus performs better than its peers in terms of *effectiveness*. There is a notable difference in the performance metrics related to vehicle maintenance, where GoDurham Bus is much closer to the national median for number of vehicle system failures than its peers but is able to serve more revenue miles between vehicle failures than its peers or the national median. GoDurham Bus also serves more passenger trips per revenue hour, revenue mile, and per service area capita than its peers or the national median, likely as a result of providing more route miles and vehicle miles than would be expected for a service area of its size.

One major difference in *efficiency* between GoDurham Bus and its peers and the national median is its low average fare. Low fares result from a policy of low base fares and discounted fare programs to maintain the affordability of transit in Durham. However, GoDurham Bus may benefit from reassessing enforcement procedures as farebox recovery is lower than the target of 18 percent cost.

GoDurham Bus is serving more passengers and more revenue miles with fewer vehicles than its peers or the national median. ***Looking to the future, the vehicle fleet size and corresponding number of operators/maintenance staff will have to be reconsidered if more service is to be provided, as the current operations are likely to be maxed out in terms of efficiency.***

Access Performance Benchmarking

GoDurham's demand response services outperform its peers in many *effectiveness* metrics. GoDurham Access's passenger trips are longer than the national median, with a high number of vehicle miles per capita and revenue miles between failures. Despite having far more vehicle system failures than the national median service annually, the number of revenue miles between those failures is far higher.

The high number of revenue miles does not necessarily mean GoDurham Access is providing ineffective service. GoDurham Access is serving more demand response passengers per hour and per capita, even while providing more hours of service than its peers or the national median.

As with fixed route service, a major difference in *efficiency* between GoDurham Access, its peers and the national median for demand response service is a low average fare. Farebox recovery is also far lower than its peers and the national median.

Unlike fixed route service, GoDurham Access's higher number of passenger miles, trips and limited amount of vehicle failures per revenue mile does not result in greater efficiencies in the amount of maintenance expenses required to provide service.

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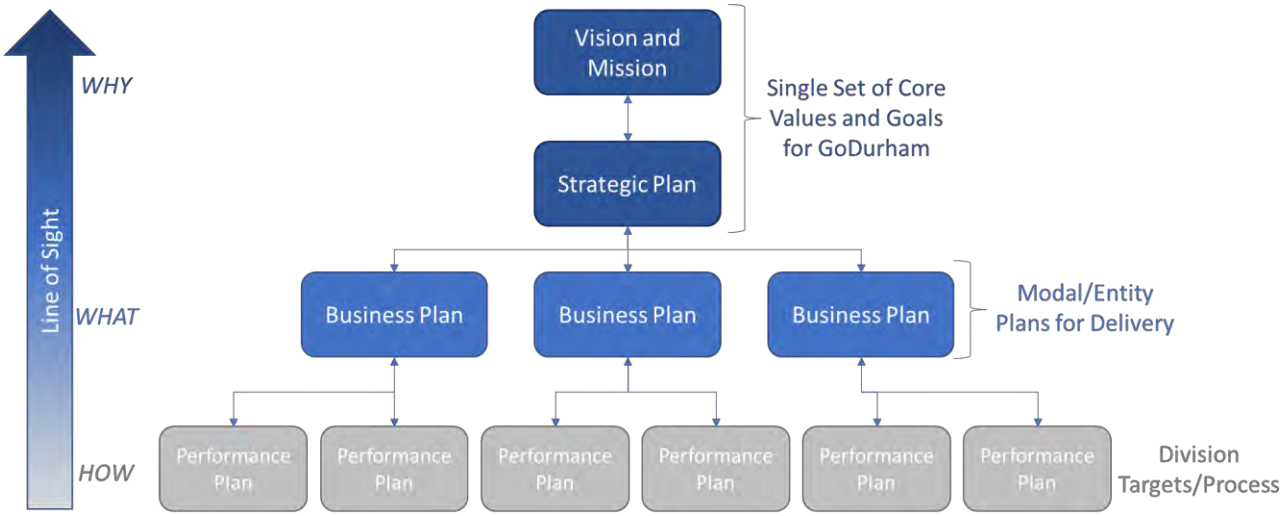
GoDurham Access is serving more passengers and more revenue miles with fewer vehicles compared to the national median. ***As with fixed route services, the size of the GoDurham Access vehicle fleet and corresponding number of operators/maintenance staff will have to be reconsidered if more service is to be provided, particularly as 17 percent of schedules are currently not picked by operators.***

0.2 Strategic Direction

GoDurham lacks well-communicated and consistently adopted organizational core values, a mission statement, and a vision that identifies the agency's priorities across all transit services. As a result, there is no "line of sight" between the strategic goals and objectives of the agency and department, division, and/or individual performance plans or performance measures.

A new, unifying vision and mission statement should be developed and communicated to staff at all levels, with a single strategic plan that reflects Durhams' goals and objectives of providing transit.



Best Practice Alignment of Strategic and Business Planning

0.3 Management Policies and Procedures

GoDurham's management staff exhibit a strong commitment to and sense of ownership over the transit services in the City. Individual staff are experienced and dedicated to the quality of GoDurham's services which represents a great strength across the entire organization.

Organizational Structure

Though there are clear policies documented under *GoDurham's Agency Standards*, the ability to measure success and develop improvement programs is hindered by GoDurham's complex and confusing organizational structure. ***The City and GoTriangle have the opportunity to clarify and simplify roles and responsibilities under the new contractual agreement.***

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Management Roles and Responsibilities

GoDurham has evolved to include some informal matrix management and duplication of administrative roles. This can result in conflicting direction and inefficiencies. Key areas of cross-over include oversight of service delivery contractors and grants development and management. ***The highest-priority recommendation regarding roles and responsibilities is to remove the on-site City staff from the operations and maintenance offices and to repurpose the role to provide compliance oversight and support.***

All staff interviews indicated that current staffing levels are sufficient to deliver the current level of operations and maintenance; however, any new capacity needs will be a stretch to meet without additional resources. ***To address the issues with public perceptions and the potential for managing greater capacity, a new management position should be created for GoDurham sitting within DCTC.***

Management Communications

A great deal of trust has been built up over time between the entities supporting GoDurham's services. That trust serves as the basis for informal communications across the organization. In addition, formal management meetings/calls are used to foster regular communication between all entities. However, communication protocols within GoDurham were noted as an issue across management staff. ***This provides an opportunity for GoDurham to realign communication protocols to be fit for purpose – biweekly performance meetings and quarterly strategic meetings – and restructure meetings to be more performance and action oriented.***

Agency Standards

Service plans and standards establish and communicate metrics for monitoring, measurement and evaluation of a system's performance. GoDurham has adopted service policies and standards for fixed-route services (GoDurham Bus) but no documented service standards were provided for paratransit (GoDurham Access). ***Service standards and targets should be documented and communicated for both modes, and all standards should be updated to be measurable.***

Performance Management

GoDurham has an opportunity to incorporate more data-driven decision making into its planning processes. The existing performance reporting includes many useful metrics directed at gauging overall performance of the agency, however they would be more appropriately used in the context of quarterly and annual reporting. ***An annual report that covers all modes should be reinstated, leveraging existing quarterly updates to these higher-level metrics.***

The City sees performance management as a significant opportunity for GoDurham to become a more proactive, data-driven organization. Performance metrics and data sources must fit into a broader performance management framework which defines the reporting processes, frequencies, and target-setting methods for GoDurham. ***To achieve a consistent performance management framework, which is aligned with the City's strategic plan, a Performance Management position should be created along with an actionable performance dashboard which is available to all management staff.***

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0.4 Training

Training program effectiveness was evaluated for both operators and maintenance staff. The major finding with regards to training is a lack of documentation of training requirements and a lack of memorialization of training for compliance and audit. ***GoDurham should document and memorialize onboarding and training, both required and optional, to support compliance audits and rewards for staff.***

Operator Training

GoDurham reported higher amounts of required training for newly hired operators than most of its peers. New GoDurham Access operators have a three-week training program. However, it is not clear if new operator training includes the opportunity to drive each GoDurham bus route. If new operators are not doing this, it would be considered a best practice to orient drivers—whether as part of behind the wheel training or through other means such as videos accessible to drivers.

In addition to new operator training, bus operators are provided eight hours of annual training. It is unclear if this is related to new services, refresher training, or customer service or if it is mandatory or optional. It is not clear if these training hours are documented through payroll in order to track attendance and completion. It is also unclear if GoDurham offers continual learning to existing Access operators.

GoDurham also provides incident related training for bus operators, approximately four to eight hours each time training is required. Per the collective bargaining agreement (CBA), an Accident Review Board comprised of management and bus operators determines whether an accident is preventable but does not determine discipline. It is unclear how incident related training relates to decision of the Review Board or subsequent disciplinary action.

If incident related training is determined by referral of the Accident Review Board, documentation of remedial training should be noted in an operator's personnel file. For both modes, periodic review of accident patterns, by operator, route, or other measures could help identify unsafe bus stops, route alignments, or shortcomings in other aspects of operator training and supervision.

Maintenance Staff

No documentation was provided of maintenance-specific training requirements to determine the success or efficacy of GoDurham's maintenance training program. For example, there is no *mandatory* maintenance-specific training provided in the documentation and the Director of Maintenance for DCTC noted a lack of safety training.

Though no documentation was provided for GoDurham on the topic of required certifications, the GoDurham Bus Maintenance Director confirmed that technicians who work on the air-conditioning units are Environmental Protection Agency (EPA) certified. While ASE is not required, there is one technician who is certified, and technicians are provided annual bonuses for maintaining their ASE certification.

No documentation was provided specific to training for GoDurham Access maintenance staff.

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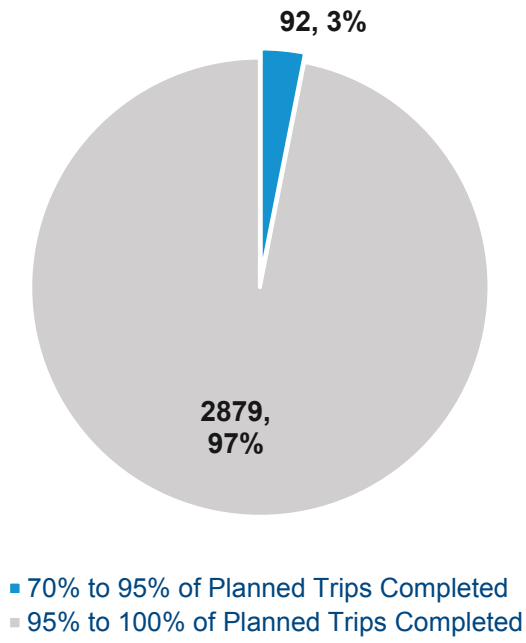
0.5 Transit Operations

GoDurham Bus



GoDurham's Bus services operate effectively in terms of not missing trips and operating without overcrowding. ***There are only two routes with load rates that may warrant relief vehicles in the PM peak, routes 9A and 9B.***

Overall on-time performance (OTP) by route ranges between 70 percent and 87 percent. The routes with lower averages, routes 5 and 15, would benefit from relief vehicles or consideration of stop spacing or other factors impacting OTP. ***Generally, a review of stop spacing was noted as necessary for understanding operations and efficient use of infrastructure in the field.***

OTP is particularly low in the PM peak and drops off across most routes. Relief vehicles may not be sufficient to address this issue so scheduling should be reviewed to determine what factors may be causing the drop.

While GoDurham does not miss many trips, it does have relatively high absenteeism. This means that there are many trips that are being fulfilled by operators working overtime resulting in GoDurham's relatively high unscheduled overtime rate. Scheduled overtime is very low, so the overtime to cover trips is unscheduled and could result in operator fatigue. ***In order to combat operator fatigue and maintain quality service, GoDurham should set benchmarks to reduce the total overtime hours and the number of hours worked by each operator.*** Meeting these benchmarks may require a combination of working with operators who seldom take overtime, adding more operator resources, and/or reducing absenteeism.

The pay-to-platform ratio is a measure of pay in relation to time spent driving revenue vehicles for GoDurham Bus and averages about 1.1 across all runs. GoDurham's scheduling practices perform well compared to industry best practice of maintaining a ratio under 1.1.

Given the issue with unscheduled overtime, ***fatigue management processes should be improved across GoDurham Bus. Recommendations include:***

- Adopting a benchmark for reducing actual spread time (for example to 13 hours or less) by reducing overtime.
- Scheduling shifts so that no shift has a scheduled rest time less than eight hours, ideally not less than ten hours.
- Improving schedules so that start times are more consistent.

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GoDurham Access

OTP for paratransit services averaged 82 percent for pick-ups and 91 percent for appointments in FY20. Compared to the targets for service, OTP for pick-ups was not met while OTP for appointments was exceeded.

The goals for processing calls to GoDurham Access are an average hold time of two and a half minutes and an average handle time of two minutes. In the months available for analysis in FY20, GoDurham has met the goal for hold times and only exceeded the handle time by one second.

GoDuham Access staff have relatively low overtime and absenteeism rates, which should be maintained. The only concern related to GoDurham Access staffing is the availability of staff, as only 83 percent of schedules are picked. ***GoDurham should consider adding Access operators and analyzing overtime to ensure it is evenly distributed across staff.***

0.6 Maintenance

Maintenance plans and procedures provided by GoDurham were in line with industry standards for vehicle and bus stop maintenance; however, very little information is available to illustrate compliance with these plans. For example, there is only evidence of tracking preventative maintenance (PM) on-time completion for the GoDurham Access fleet. Historical data on maintenance program on-time completion for fixed-route buses and annual audits of maintenance programs were not provided and appear to not be included in GoDurham's practices for improving maintenance processes.

High-performing agencies rely on analysis of PM on-time completion, the ratio of PM to corrective maintenance (CM), and annual audits of defects to understand if their maintenance program is performing. There is no evidence that GoDurham is utilizing these methods of analysis across all asset types, which may be due to a lack of a comprehensive, user-friendly work order software that can provide periodic compliance reports.

FASTER, the current system, was noted to be cumbersome and underutilized. A modern computerized maintenance management system (CMMS) can provide ease of reporting and transparency for cost and compliance. ***With input from staff and front-line technicians, implement an intuitive, web-based maintenance work order system capable of tracking all aspects of the workflow from beginning to end***. This system should then be utilized to report out on-time completion of PM work orders and PM to CM ratio to the performance dashboard.

An independent third-party audit should occur once every two years, at a minimum. These audits should assess the performance of the maintenance plan and defects to the fleet, with corrective actions provided. This audit should be conducted so there's adequate time to implement recommendations into the draft budget recommendations for the following budget cycle.

GoDurham Bus Maintenance

While GoDurham's bus fleet is performing well compared to peers with longer mean distance between failures (MDBF), there is little documentation of the requirements for maintenance staff to determine individual performance. Clearly defined positional roles and responsibilities should

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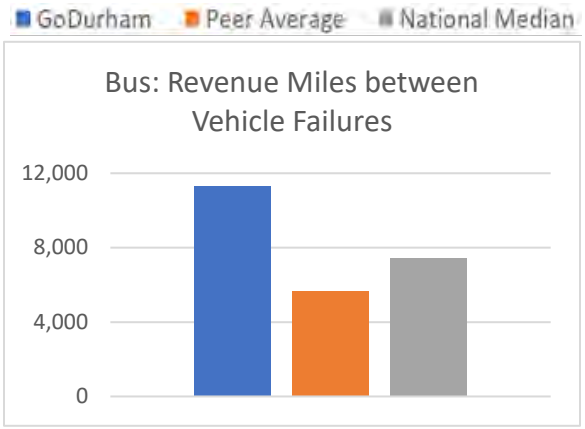
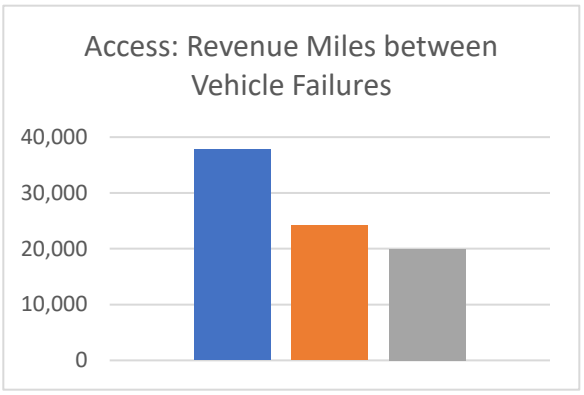
be drafted for each position, including any certifications, degrees, or specialized training required to fulfill the identified area of responsibility and role within the division.

There was no documentation of annual performance evaluations for maintenance staff. Evaluations should be conducted annually with input from individual staff and supervisory personnel. Additionally, it is critical that all employees to be evaluated are provided with the positional as well as professional expectations/goals for the upcoming year.





GoDurham Access Maintenance

Similar to the fixed route bus fleet, paratransit vehicles are performing better than peers in terms of MDBF. The Preventative Maintenance Inspection Methodology for National Express Transit (the third-party contractor providing paratransit service and maintenance) appears to be a standard document for the company and is not customized to GoDurham Access. The document is geared toward a heavy-duty coach instead of typical paratransit vehicles (e.g., cutaways and vans).

As part of the inspection criteria, it is only required that the vehicles are maintained to the minimum requirements set by National Express company-wide. However, it is best practice for maintenance departments to set customized benchmarks that account for the characteristics of the operation and region within which they function.

GoDurham Access should evaluate their maintenance benchmarks to determine if they are suitable for their services and fleet in Durham and provide customized documentation of maintenance requirements.

No documentation was provided to determine how Paratransit Maintenance staff are judged or rewarded for performance. ***Performance standards and results should be documented in personnel files for purposes of review and compliance***.

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Acronyms

ADA – Americans with Disabilities Act

APC – Automated Passenger Counter

ASE – Automotive Service Excellence

AVL – Automated Vehicle Location

CBA – Collective Bargaining Agreement

CDL – Commercial Driver License

CEO – Chief Executive Officer

CEU – Continuing Education Unit

CM – Corrective Maintenance

CMMS – Computerized Maintenance Management System

COA – Comprehensive Operations Analysis

DATA – Durham Area Transit Authority

DCTC – Durham City Transit Company

EPA – Environmental Protection Agency

FDOT – Florida Department of Transportation

FTA – Federal Transit Administration

FTE – Full Time Equivalent

GPS – Global Positioning System

GTFS – General Transit Feed Specification

HR – Human Resources

ITS – Intelligent Transportation System

KPI – Key Performance Indicator

MaaS – Mobility-as-a-Service

MDBF – Mean Distance Between Failures

MDOT– Maryland Department of Transportation

MPO – Metropolitan Planning Organization

MSDS – Material Safety Data Sheet

MTA – Maryland Transit Administration

NTD – National Transit Database

OTP – On-Time Performance

PM – Preventive Maintenance

PTASP – Public Transportation Agency Safety Plan

RACI – Responsible, Accountable, Consulted, and Informed

RTP – Research Triangle Park

SWOT – Strengths, Weaknesses, Opportunities, and Threats

TAM – Transit Asset Management

TOD – Transit Oriented Development

TTA – Triangle Transit Authority

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1. Introduction

This Comprehensive Operations Analysis (COA) is an internal component of developing the updated Durham County Transit Plan. The transit plan update will re-examine the contents of the 2017 Durham Transit Plan and other recent transportation planning efforts in the region to identify local transit service improvements and potential high-capacity investments (like bus rapid transit and/or commuter rail), while serving as a guide for the prioritization of funds for upcoming projects. This COA of GoDurham's management and services provides insight into the efficiency and capacity of the organization. The COA recommendations will play an important role in preparing the City to effectively implement the additional service and capacity enhancements included in the Durham Transit Plan.

Durham County is served by two transit agencies—GoDurham and GoTriangle. GoDurham operates locally within the City of Durham's limits and GoTriangle serves Durham with regional and express services to and from Research Triangle Park (RTP), the City of Raleigh, and Orange County. Routes operate seven days a week with the majority of service running every 30 minutes. High-frequency, 15-minute service serves major employment centers and destinations such as Duke University, Downtown Durham, Southpoint, Wellons Village, and

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other key destinations within Durham.

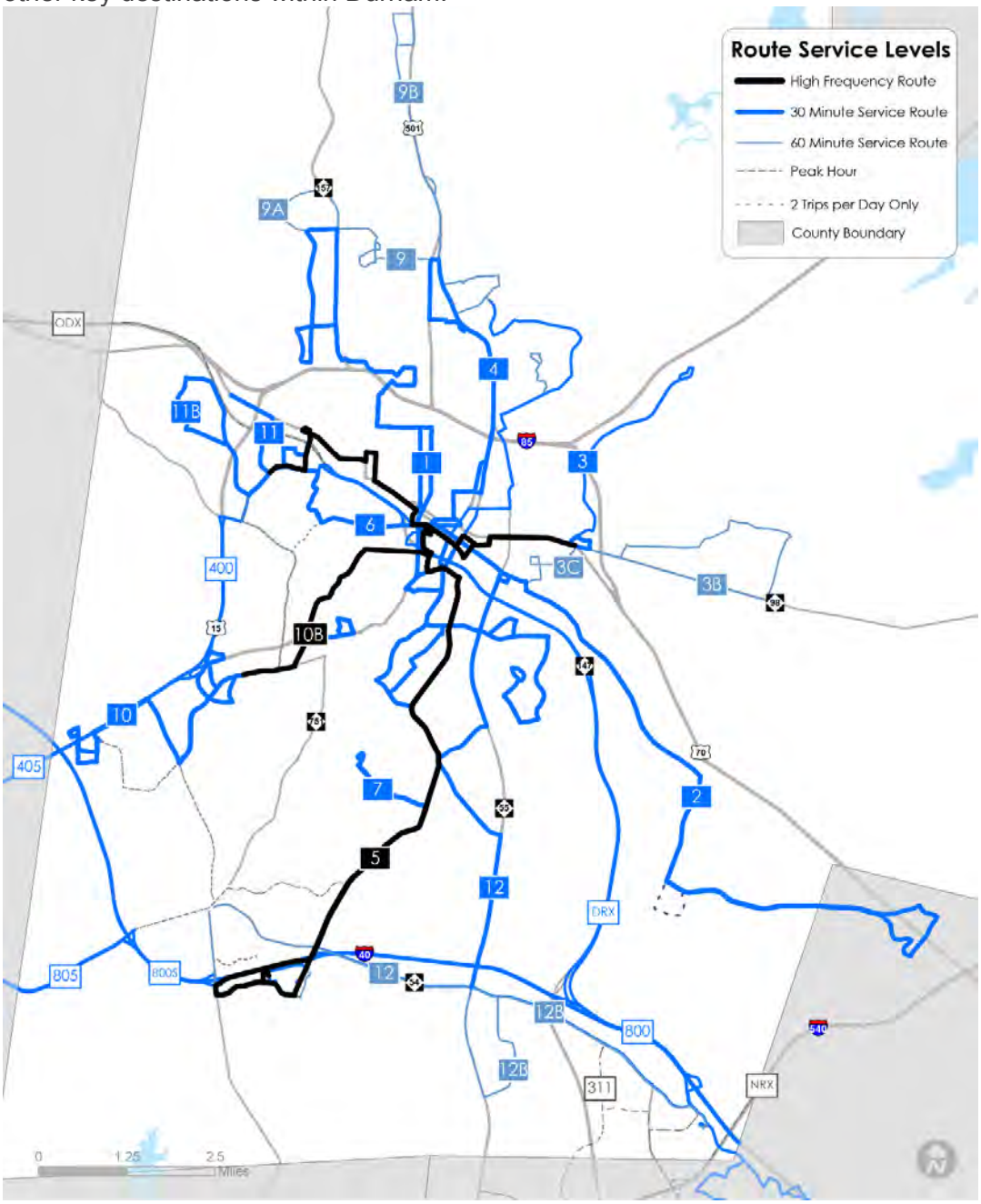

Figure 1 shows the current GoDurham and GoTriangle routes operating within Durham County, labeled by route number and categorized by service frequency.

In addition to the fixed bus routes shown below, GoDurham also provides paratransit services within the City and County of Durham branded as GoDurham Access. These services provide a critical mobility option to Durham's residents, connecting them to jobs, services, recreation, and education.

In 2019, GoDurham had a fleet of 53 demand-response vehicles and 56 fixed-route buses. The City of Durham therefore qualifies as a Tier II operator under Federal Transit Administration

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(FTA) rules for asset management and safety plans, meaning the agency can participate in group planning efforts with the State or metropolitan planning organization (MPO).

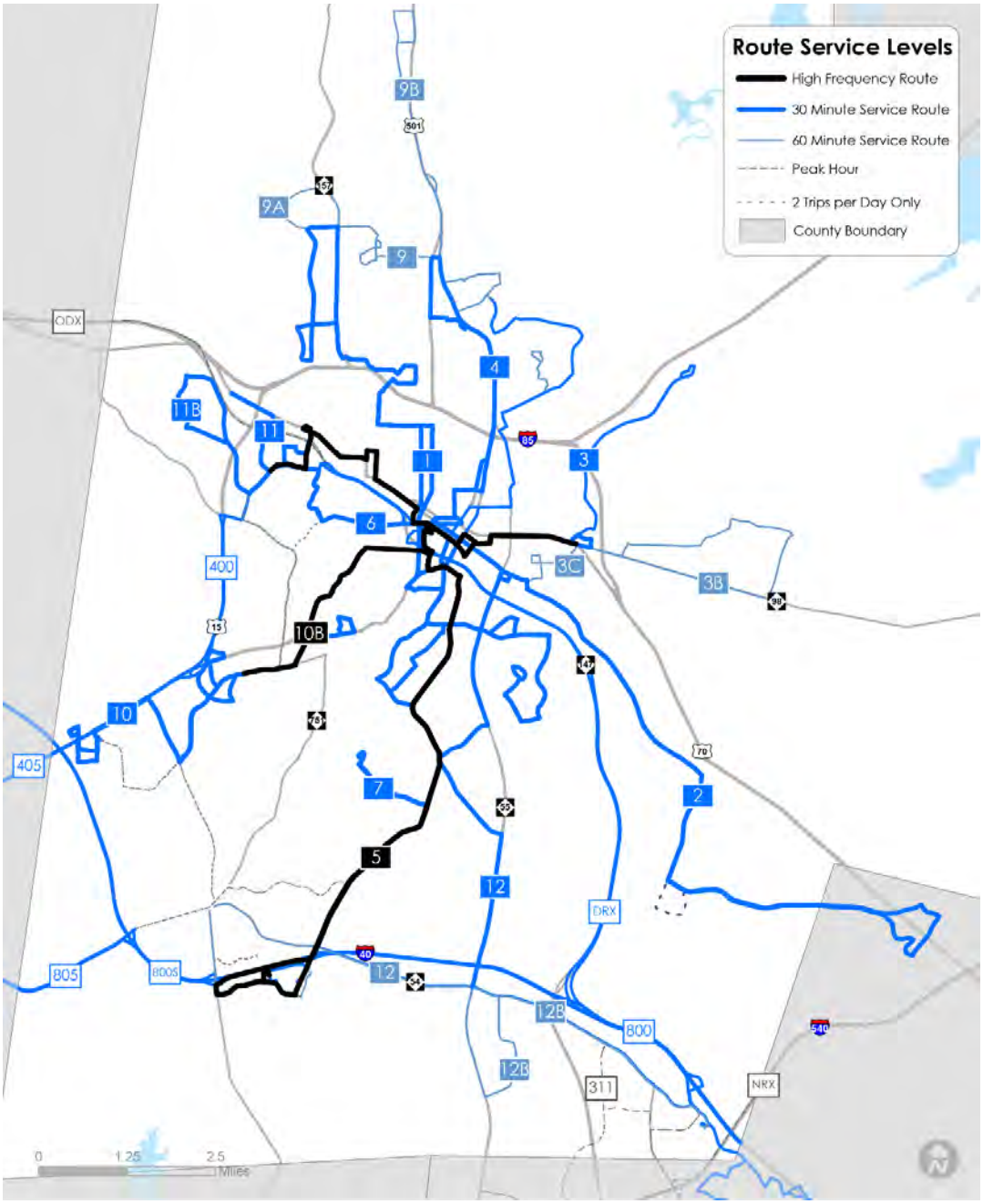

Figure 1: Current GoDurham and GoTriangle Routes

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Historically, the transit service within Durham was named and branded as DATA—the Durham Area Transit Authority. DATA was dissolved in 2010 when a new contract was created with GoTriangle (or Triangle Transit Authority [TTA]) for management, oversight, planning, and marketing.

GoDurham is the name and brand for transit services funded by the City of Durham and delivered by third-party contractors, currently First Transit for fixed-route services and National Express Transit for paratransit (demand response) services.

In addition to these parties, the City and TTA have agreed to utilize the Durham City Transit Company (DCTC) as the employment vehicle for all fixed-route transit service personnel (i.e., bus operators, mechanics, and management) and the funding vehicle for Durham's fixed-route service operations. Under the 2013 Amendment, it was agreed that DCTC would be incorporated as a subsidiary to First Transit.

GoTriangle is the party that holds the contracts with First Transit and National Express Transit. At this time, there is no contractual relationship between the City and the operating and maintenance providers. **Figure 2** to the right illustrates the funding and contractual relationships between the various legal entities involved with delivering GoDurham transit services.

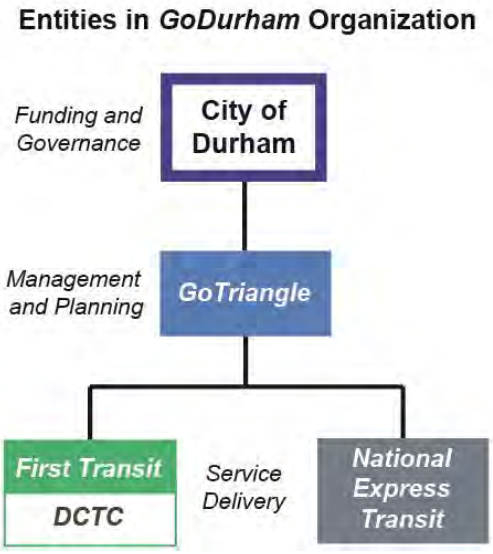

Figure 2: Funding and Contractual Relationships Among Legal Entities in GoDurham Organization

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2. Methodology

The recommendations contained within this COA are based on five different methods of investigation into GoDurham's current operations. These methods are described in the following section and have resulted in mutually reinforcing conclusions regarding GoDurham's current operations.

2.1 Desktop Review and Analysis

The project team requested documentation of GoDurham's policies, procedures, plans, contractual agreements, training manuals, and service standards for review. Those documents were reviewed and compared to understand the goals and objectives of the organization and the methods used by the City to determine successful delivery of transit service. In addition, the roles and responsibilities of each entity were clarified with staff after reviewing the contractual documents and a request for an updated organizational chart. The titles of all documents reviewed for this study are included in **Appendix A**.

A data request also was made for a variety of measures on service delivery and maintenance efficiency. The data provided was analyzed against industry standards, where possible.

Some requested documents and data were not available for analysis, which is noted in the sections that follow. The recommendations in the following sections also address the implications of these missing items.

2.2 Peer Comparisons

Best practices were identified through a survey and review of peer agency data. Through an analysis of agencies using National Transit Database (NTD) information, transit agencies in these cities were determined to be the best fit as a peer group to GoDurham:

- Greensboro, NC
- Little Rock, AR
- Winston-Salem, NC
- Baton Rouge, LA
- Knoxville, TN
- Raleigh, NC
- Columbia, SC

These agencies were selected from a pool of 25 potential peer agencies, using two sets of analysis that determined similarity of NTD-reported performance metrics. The first set of analysis assessed similarity based on area population, ridership, and vehicles operating in maximum service. The second set of analysis used the full range of available performance

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metrics from the Florida Department of Transportation's iNTD tool.[1] This wider range of performance metrics included general indicators (e.g., service area size, vehicle hours, revenue hours, revenue miles, passenger trips, and passenger miles), effectiveness indicators (e.g., average speeds, vehicle failures, and headways), and efficiency indicators (e.g., operating expenses per passenger trip, farebox recovery percentages, vehicle miles per gallon, and average fare).

Lists of most-similar agencies were produced based on the average similarity score for both the initial set of performance metrics and the wider set of available performance metrics and compared to select the group of peers. The top similarity scores for each set of metrics are provided below. The closer an agency's similarity score was to zero, the more similarity to GoDurham it was found to have. The five agencies that were identified by both analyses as being most similar to GoDurham are highlighted in grey in **Table 1**.

Table 1: Summary of Similarity Score of Peer Agencies

Based on Initial Performance Metrics		Based on Full Range of Available Performance Metrics	
Agency City	**Similarity Score**	**Agency City**	**Similarity Score**
Savannah	0.2198	Greensboro	0.2992
Greensboro	0.2337	Little Rock	0.3265
Peoria	0.2418	Winston-Salem	0.3348
Lexington	0.2675	Baton Rouge	0.3544
Columbia	0.2832	Knoxville	0.3562
Ann Arbor	0.3272	Raleigh	0.3624
Winston-Salem	0.3398	Columbia	0.3717
Knoxville	0.3498	Sarasota	0.3823
Little Rock	0.3562	Tulsa	0.3858
Kalamazoo	0.3616	Colorado Springs	0.3882

These five agencies were identified as being important to include as peer agencies. Additionally, since they were initially identified as potential peer agencies and were found to have a high degree of similarity through the full range of available performance metrics (highlighted in blue above), Baton Rouge, LA, and Raleigh, NC, were included in the final list of peer agencies.

The survey was sent to all seven peers, with responses from the North Carolina cities of Columbia, Greensboro, and Raleigh as well as Little Rock, AR. This external peer analysis addressed key topics of management and strategy, general operations, and operators and staff.

NTD data also was used to compare peer agencies and GoDurham services across a variety of effectiveness and efficiency measures.

[1] https://ftis.org/urban_iNTD.aspx

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2.3 Management Interviews

The project team conducted 10 hour-long interviews with staff representing each of the entities with a role in delivering GoDurham service. These staff are in management positions with varying levels of experience within their respective organizations (from less than a year to more than 10 years). The staff interviewed are listed in the table below.

Table 2: Management Interview Participants

Organization	Staff Member	Role
City of Durham	Sean Egan	Director of Transportation
City of Durham	Rochelle Parent	Assistant Director Mobility Services
City of Durham	Pierre Osei-Owusu	Transit Administrator
GoTriangle	Brian Fahey	GoDurham Transit Administrator
GoTriangle	Laurie Barrett	Director of Regional Partnerships
GoTriangle	Vinson Hines	Assistant Director of Transit Operations
DCTC/First Transit	Doug Middleton	General Manager, DCTC
DCTC/First Transit	Bob Losiniecki	Maintenance Director, DCTC
National Express Transit	Tara Caldwell	General Manager, GoDurham Access

A questionnaire (shown on the following page) was provided prior to each interview to allow participants to prepare their responses. These questions were kept intentionally high-level and broad to allow the project team to probe different topics as they arose in conversation.

The responses for each participant are detailed in **Appendix B**.

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1. In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?
2. What are the current goals/objectives of GoDurham?
3. What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?
4. Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?
5. Does the organization have or provide sufficient resources to:
    a. (Asked to City staff only) Be able to manage the organization and the contractors?
    b. (Asked to all) Be able to cover all necessary operations for the transit service desired by the City of Durham?
6. What are the communications/coordination protocols between organizations and how effective are they?
    a. Between the City and GoTriangle
    b. Between the City and the third party contractors
    c. Between GoTriangle and the third party contractors
7. If you could choose one thing or area to improve in the organization what will it be and why?

2.4 Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

In addition to one-on-one calls, the project team hosted a workshop on October 30, 2020, to facilitate a SWOT analysis of management practices at GoDurham. The workshop was attended by City of Durham, GoTriangle, and DCTC staff. Participants included:

Table 3: SWOT Workshop Participants

Organization	Staff Member	Role
City of Durham	Rochelle Parent	Assistant Director Mobility Services
City of Durham	Bill Judge	Assistant Director of Transportation
City of Durham	Keith Chadwell	Deputy City Manager
GoTriangle	Brian Fahey	GoDurham Transit Administrator
GoTriangle	Margaret Scully	Manager of Planning TOD
DCTC/First Transit	Bob Losiniecki	Maintenance Director DCTC

A technical memorandum was provided summarizing the results of the SWOT analysis, which can be found in **Appendix C**.

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3. Peer Benchmarking

3.1 Peer Surveys

The City of Durham's Director of Transportation contacted the identified peer agencies to participate in a survey regarding the management and performance of their transit services. The survey addressed the key topics of management and strategy, general operations, and operators and staff. A summary of the survey results is presented in the following section; full results of the survey are documented in **Appendix D**.

3.2 Key Peer Similarities

Based on the survey responses received, GoDurham has similar approaches to several of its peers in relying on contracted services and performance of COAs to prepare for changes in service capacity. Though multiple peer agencies have developed strategic plans, GoDurham's strategic planning experience is slightly different in how the plan is being communicated and used. Finally, many agencies have similar concerns regarding funding, workforce retention, training following an incident, and absenteeism. The key comparisons are detailed below.

3.2.1 Performance of a COA

Raleigh, NC, and COMET in Columbia, SC, are currently developing their respective COA's. Rock Region Metro in Little Rock, AK, recently completed its COA aimed at demonstrating the agency's efficiency prior to soliciting additional funding for service expansion. The most important lessons learned from this study were to not be overly prescriptive in the procurement process, to establish a Stakeholder Advisory Committee, and to have board members be more engaged with local stakeholder groups.

3.2.2 Development of a strategic plan

GoDurham's fixed-route service has a recently developed strategic plan, socialized with GoTriangle but not with the City of Durham. Other agencies that have strategic plans include the City of Raleigh, which covers transportation and transit, and COMET. The City of Raleigh reviews GoRaleigh's progress at meeting the objectives and initiatives in its strategic plan with executive management and the agency semi-annually. The City of Raleigh does link the objectives and initiatives to its capital investments. COMET has set goals throughout their agency, but like GoDurham, feels that there is room for improvement in terms of communicating those goals more effectively to their employees and across departments. Despite this challenge in communication, COMET is tracking its progress toward its defined goals through performance metrics, which are linked to capital investments. It is unclear how GoDurham's performance metrics or investment priorities are linked to the City's strategic plan for transit or the fixed-route strategic plan developed by DCTC.

3.2.3 Use of contracted services

All GoDurham's peers are using contracted services to some degree. Rock Region Metro uses the least amount of contracted services (only for paratransit and planning services). On the

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other end of the spectrum, Greensboro, NC, uses contracted services for operations, maintenance, safety oversight (including drug and alcohol testing), training, customer service, and data collection and reporting compliance, while City staff handle planning, marketing, and general oversight. This oversight includes a weekly meeting between City staff and contracted management staff to discuss service-related issues. While Raleigh and Rock Region Metro did not identify any issues with their contracted services, COMET had been experiencing a range of issues, which were highlighted in an audit that led to the reprocurement of contracted services. As part of the current contract renegotiation with GoTriangle, the City of Durham could similarly address any misalignment of goals and expectations through consideration of issues highlighted within this COA.

3.2.4 Concerns with securing funding

Greensboro, Rock Region Metro, and COMET all identified securing stable funding as their largest challenge. GoDurham faces a similar challenge, amid regional competition for funding resources. Rock Region Metro indicated that their hope was to establish a dedicated source of regional funding.

3.2.5 Issues with workforce retainment

Raleigh and COMET have problems recruiting and retaining operators, much like GoDurham. However, GoDurham's efforts to address staffing shortages involves a coordinated marketing effort with GoTriangle, the Office of Economic and Workforce Development, and community organizers for recruitment. The peer agencies either relied on their contracted service provider to address the issue or performed traditional forms of recruitment, such as hosting job fairs.

3.2.6 Training requirements for operator incidents

All the peer agencies require mandatory training as a result of an accident review or for disciplinary measures like GoDurham, although training requirements vary. Greensboro and Raleigh have defined a number of hours required for this refresher training, whereas Rock Region Metro and COMET do not.

3.2.7 Absentee control programs

Like GoDurham, Greensboro and COMET both handle their absentee control program through their contracted services. Whereas COMET, like GoDurham, feels this has been effective at controlling absentee rates, Greensboro is currently reviewing its policies due to high rates of absenteeism, particularly related to the COVID-19 pandemic. Alternatively, Rock Region Metro and Raleigh address their absentee policy through union contracts with varying degrees of success.

3.3 Key Peer Differences

Peer agencies have differing experiences related to the management of transit through their organizational structures, roles and responsibilities, and use of strategic plans. There also are some significant differences in training requirements and absentee rates. These variances are described in more detail in the following section.

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3.3.1 General organizational structure

Each peer agency had a unique structure of management. Like GoDurham, Raleigh and Greensboro included members of the City Manager's office and management of the Transportation Department in their organizational structure. GoDurham and Greensboro identified a variety of roles directing the management of the Transportation Department, including roles specifically related to the administration of transit service, whereas Raleigh identified only the management of the Transportation Department as responsible for transit administration.

Rock Region Metro and COMET have more specific roles identified, with a CEO or executive director responsible for leading their agencies, with directors or chiefs of operations and finance reporting to them. Other additional directors/chiefs varied between the two, with Rock Region Metro including a chief of staff and a chief of safety, and COMET including a director with oversight of regulatory compliance and civil rights.

3.3.2 Duplication of responsibilities within the organization

Whereas GoDurham reported some overlap in responsibilities between roles, the peer agencies all felt their roles were clearly defined with minimal overlap. GoDurham noted that some duplication resulted from the recent creation of the Business Services team and delineation between the operations and mobility services assistant director roles. In addition, multiple staff noted duplication in roles between the City's staff and GoTriangle staff in oversight of third-party contractor services. Greensboro, Rock Region Metro, and Raleigh did report that some responsibilities were shared or redundant, but that this was deliberate and necessary. Greensboro specifically pointed to the necessary redundancy in responsibilities related to the oversight of contracted transportation and legal compliance.

3.3.3 Implementation/communication of strategic plans

GoDurham follows the County's transit plan for fixed-route service and is party to the regional transit plan. While these plans do feature goals and objectives, GoDurham does face the challenge of implementing and communicating the goals and objectives of the County's plan within the City's Transportation Department and with cross-functional departments, such as Finance, Legal, and Safety. The peer agencies have had varying degrees of success with their strategic plans. Greensboro and Rock Region Metro do not presently have strategic plans but intend to establish them in the near future. COMET has implemented a strategic plan that is linked to capital investment and performance monitoring but feels their plan's goals could be better communicated to agency's employees. Raleigh's strategic plan has been tied directly to capital investment. Performance toward goals and objectives is reviewed regularly with city executive leadership and new protocols and procedures have been developed as a result of identified issues.

3.3.4 Training requirements for new-hire operators

GoDurham reported higher amounts of required training for newly hired operators than most of its peers. For new staff, GoDurham requires 60 hours of in-classroom training and 140 hours of behind-the wheel training. The next closest peer was Rock Region Metro, which requires 60 hours of in-classroom training, 80 hours of behind-the-wheel training, and 160 hours of supervised in-service operations for bus operators. Greensboro, Raleigh, and COMET have

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similar requirements for new operators, with 40 hours of in-classroom training, 40-60 hours of behind-the-wheel training, and 30-40 hours of supervised in-service operations.

3.3.5 Annual training requirements for operators

GoDurham operators are required to complete 160 hours of annual training in courses related to new services, safety, customer service, and other special training and refresher training courses. The peer agencies require far less. Greensboro requires 18-24 hours of annual training, whereas Raleigh and COMET require eight hours of refresher or customer service-related training annually. Rock Region Metro has no minimum annual training requirements but is currently developing a program that will set annual training standards.

3.3.6 Maintenance services training and certification requirements

While GoDurham's maintenance training is handled by its contractor and no specific requirements are defined for training or certifications, most of its peer agencies do have formal requirements. Greensboro and Raleigh each have designated hour requirements for their new maintenance hires. Certification courses are required for specific job classifications at Rock Region Metro, Greensboro, and Raleigh and are tied to career advancement. Only Greensboro specifically mentioned requiring Automotive Service Excellence (ASE) certifications.

Though no documentation was provided for GoDurham on the topic of required certifications, the GoDurham Bus Maintenance Director confirmed that technicians who work on the air-conditioning units are Environmental Protection Agency (EPA) certified. While ASE is not required, there is one technician who is certified, and technicians are provided annual bonuses for maintaining their ASE certification.

3.3.7 Absentee rates

Despite reporting that GoDurham's absentee control program is seen as effective, its rates of absenteeism and long-term absences are higher than its peers. Raleigh and COMET reported operator absentee rates of 11 percent and 10 percent, respectively, compared to GoDurham's reported 20 percent absentee rate. The survey-reported rate of 20 percent is prior to COVID impacting services and is supported by analysis in Section 7 that shows an average daily rate of 21 percent. Greensboro and Rock Region Metro did report similar absentee rates for operators as GoDurham but indicated that these were unusually high and directly attributable to the COVID-19 pandemic. Long-term absences also were lower at peer agencies, with 3 percent of all Raleigh operators absent for the long-term and 2 percent of all COMET operators, compared to more than 5 percent of GoDurham's operators.

3.4 Peer Performance Assessment

GoDurham's performance was assessed using NTD-reported data from 2019. Using metrics that determine the levels of effectiveness and efficiency, as formally defined by Florida Department of Transportation (FDOT), GoDurham's performance was compared to an average of their peer agencies, as well as the national median, for each metric to identify areas where GoDurham may have opportunities for improvement. Overall, GoDurham's operating performance is typical, if not better in some respects, than that found in its peers and across the

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nation; however, some elements of operations would need to be improved to match or exceed the performance of peer agencies.

3.4.1 Bus Assessment

3.4.1.1 Effectiveness

The FDOT Effectiveness metrics focus on service supply, service consumption, quality of service, availability, and asset management. **Table 4** shows the effectiveness metrics for GoDurham Bus, an average of its peers, and the national median based on 2019 report year data. Areas where GoDurham Bus outperforms the peer average or national median are highlighted in **green** and areas where the peer average or national median outperforms GoDurham Bus are highlighted in **orange**.

In all but one metric, Average Age of Fleet, GoDurham Bus performs better than its peers in terms of effectiveness. There is a notable difference in the performance metrics related to vehicle maintenance, where GoDurham Bus is much closer to the national median for number of vehicle system failures than its peers but is able to serve more revenue miles between vehicle failures than its peers or the national median. GoDurham Bus also serves more passenger trips per revenue hour, revenue mile, and per service area capita than its peers or the national median, likely as a result of providing more route miles and vehicle miles than would be expected for a service area of its size.

Table 4: Comparison of Effectiveness Metrics for Fixed Route Bus Service (2019)

	GoDurham Bus	Peer Average	National Median
Average Age of Fleet (in years)	8.94	7.32	6.83
Average Headway (in minutes)	30.91	35.41	31.85
Average Speed (RM/RH)	13.50	13.20	13.28
Number of Vehicle System Failures	239.00	533.86	201.50
Passenger Trips Per Revenue Hour	32.82	15.58	12.90
Passenger Trips Per Revenue Mile	2.43	1.19	0.96
Passenger Trips Per Service Area Capita	24.51	10.76	4.51
Revenue Miles Between Failures	11,294.00	5,661.57	7,453.00
Revenue Miles Per Route Mile	8,624.00	6,906.14	5,891.50
Route Miles Per Square Mile of Service Area	3.37	2.62	2.32
Vehicle Miles Per Service Area Capita	10.80	10.05	7.49
Weekday Span of Service (in hours)	19.00	18.70	17.50

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3.4.1.2 Efficiency

The FDOT Efficiency metrics focus on cost efficiency, operating ratios, vehicle utilization, energy utilization, and passenger fares. **Table 5** presents the efficiency metrics for GoDurham Bus, an average of its peers, and the national media based on 2019 report year data. Areas where GoDurham Bus outperforms its comparison are highlighted in **green** and areas where the peer average or national median outperforms GoDurham Bus highlighted in **orange**.

One major difference in efficiency between GoDurham Bus and its peers and the national median is its low average fare. Based on input from the City of Durham, this results from a policy of low base fares and discounted fare programs to maintain the affordability of transit, in which case the metric indicates obvious success. However, GoDurham Bus may benefit from reassessing its fare policy and enforcement procedures given the target of 18 percent cost recovery in the service standards.

Table 5: Comparison of Efficiency Metrics for Fixed Route Bus Service (2019)

	GoDurham Bus	Peer Average	National Median
Average Fare	$0.34	$0.67	$0.74
Farebox Recovery (%)	10.78	10.99	9.91
Maintenance Expense Per Operating Expense (%)	17.25	21.62	20.02
Maintenance Expense Per Revenue Mile	$1.34	$1.58	$0.93
Operating Expense Per Passenger Mile	$1.03	$2.01	$1.54
Operating Expense Per Passenger Trip	$3.20	$6.33	$7.01
Operating Expense Per Peak Vehicle	$446,157.00	$379.443.71	$254,444.00
Operating Expense Per Revenue Hour	$104.88	$97.10	$88.35
Operating Expense Per Revenue Mile	$7.77	$7.40	$6.57
Operating Expense Per Service Area Capita	$78.32	$69.02	$31.65
Revenue Hours Per Total Vehicle	3,570.00	3,052.71	2,359.50
Revenue Miles Per Total Vehicle	48,199.00	40,217.57	31,170.00
Revenue Miles Per Vehicle Mile	0.93	0.94	0.93
Vehicle Hours Per Peak Vehicle	4,412.00	4,109.71	3,338.50
Vehicle Miles Per Gallon	3.99	4.14	4.59
Vehicle Miles Per Peak Vehicle	61,521.00	55,273.71	44,907.00

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Due to its higher number of passenger miles and trips and limited amount of vehicle failures (as described under effectiveness metrics), GoDurham Bus is more efficient at limiting the amount of maintenance expenses required to provide service on a per-revenue-mile basis when compared to its peers and operating expenses on a per-passenger-mile basis when compared to peers and the national median. While GoDurham Bus service is shown to be effective at serving more passenger trips per revenue mile and efficient at serving more revenue miles and hours per vehicle, its operating expenses per peak vehicle, per revenue mile, per revenue hour, and per service area capita are comparatively higher than its peers or the national median.

In addition to its higher revenue miles and hours per total vehicle and high operating expenses per peak vehicle, GoDurham Bus is serving more passengers and more revenue miles with fewer vehicles than its peers or the national median would. Providing additional service, particularly with shorter, more direct routes may be one strategy that could bring its efficiency indicators to a level more in line with its peers and the national median, without sacrificing much of its advantages in terms of passenger trips and miles. ***Looking to the future, the vehicle fleet size and corresponding number of operators/maintenance staff will have to be reconsidered if more service is to be provided, as the current operations are likely to be maxed out in terms of efficiency.***

3.4.2 Paratransit Assessment

3.4.2.1 Effectiveness

Durham's demand response services, GoDurham Access, were evaluated for their effectiveness using the same FDOT Effectiveness metrics as fixed route services, with exception of those related to headways and route miles.

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Table 6 on the following page shows the effectiveness metrics for GoDurham Access, an average of its peers, and the national median, with areas where GoDurham Access outperforms this comparison highlighted in **green** and areas where the peer average or national median outperforms GoDurham Access highlighted in **orange**.

GoDurham's demand response services outperform its peers in many metrics. Similar to its fixed route services, the average age of its demand response fleet is higher than its peers or the national median. GoDurham Access is also serving fewer passenger trips per revenue mile than the national median, which indicates that the passenger trips being served are likely longer.

The indication that GoDurham Access's passenger trips are longer than the national median is supported by its high number of vehicle miles per capita and revenue miles between failures. Despite having far more vehicle system failures of the national median service annually, the number of revenue miles between those failures is far higher.

The high number of revenue miles does not necessarily mean GoDurham Access is providing ineffective service. GoDurham Access is serving more demand response passengers per hour and per capita, even while providing more hours of service than its peers or the national median.

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Table 6: Comparison of Effectiveness Metrics for Demand Response Service (2019)

	GoDurham Access	Peer Average	National Median
Average Age of Fleet (in years)	6.41	4.00	4.50
Average Speed (RM/RH)	16.66	16.91	13.59
Number of Vehicle System Failures	42.00	58.00	27.00
Passenger Trips Per Revenue Hour	2.12	2.10	2.11
Passenger Trips Per Revenue Mile	0.13	0.13	0.16
Passenger Trips Per Service Area Capita	0.76	0.49	0.30
Revenue Miles Between Failures	37,809.00	24,131.00	19,950.50
Vehicle Miles Per Service Area Capita	6.63	4.05	2.82
Weekday Span of Service (in hours)	19.00	17.58	16.65

3.4.2.2 Efficiency

The efficiency of GoDurham Access was evaluated using the same set of FDOT metrics used to evaluate the efficiency of fixed route services. **Table 7** and **Table 8** below shows the efficiency metrics for GoDurham Access, an average of its peers, and the national media, with areas where GoDurham Access outperforms its comparison highlighted in **green** and areas where the peer average or national median outperforms GoDurham Access highlighted in **orange**.

As with fixed route service, a major difference in efficiency between GoDurham Access, its peers and the national median for demand response service is a low average fare. However, unlike fixed route service, the farebox recovery of GoDurham Access is far lower than its peers and the national median as well. This is the result of a policy of low base fares and discounted fare programs to maintain affordability for the service, in which case the metric indicates obvious success.

Table 7: Comparison of Efficiency Metrics for Demand Response Service (2019)

	GoDurham Access	Peer Average	National Median
Average Fare	$0.91	$2.17	$1.95
Farebox Recovery (%)	3.14	7.24	5.54
Maintenance Expense Per Operating Expense (%)	18.54	13.93	13.85
Maintenance Expense Per Revenue Mile	$0.69	$0.57	$0.30

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Table 8: Comparison of Efficiency Metrics for Demand Response Service (2019) (Continued)

	GoDurham Access	Peer Average	National Median
Operating Expense Per Passenger Mile	$3.26	$3.12	$4.51
Operating Expense Per Passenger Trip	$29.07	$24.97	$32.88
Operating Expense Per Peak Vehicle	$133,793.00	$144,813.71	$119,336.00
Operating Expense Per Revenue Hour	$61.75	$65.80	$70.91
Operating Expense Per Revenue Mile	$3.71	$3.92	$5.27
Operating Expense Per Service Area Capita	$21.99	$14.33	$10.08
Revenue Hours Per Total Vehicle	1,799.00	1,837.86	1,377.50
Revenue Miles Per Total Vehicle	29,962.00	30,803.14	19,301.50
Revenue Miles Per Vehicle Mile	0.89	0.90	0.87
Vehicle Hours Per Peak Vehicle	2,442.00	2,507.00	2,092.00
Vehicle Miles Per Gallon	7.33	7.07	7.19
Vehicle Miles Per Peak Vehicle	40,346.00	41,211.86	29,032.50

Unlike fixed route service, GoDurham Access's higher number of passenger miles, trips and limited amount of vehicle failures per revenue mile does not result in greater efficiencies in the amount of maintenance expenses required to provide service on a per-revenue-mile basis and operating expenses on a per-passenger-mile basis. However, the effectiveness of GoDurham Access at serving more passenger trips per revenue mile and revenue hour does not result in more operating expenses per revenue mile and hour than its peers and the national median, due to these passengers taking longer trips.

With higher operating expenses per peak vehicle than the national median, this indicates that GoDurham Access is serving more passengers and more revenue miles with fewer vehicles, placing it under similar circumstances as its peers. Providing additional service to serve any demand for shorter trips that are not currently being served may be one strategy that could bring its efficiency indicators to a level more in line with its peers and the national median, without sacrificing much of its advantages in terms of passenger trips and miles. ***As with fixed route services, the size of the GoDurham Access vehicle fleet and corresponding number of operators/maintenance staff will have to be reconsidered if more service is to be provided, as the current operations are likely to be maxed out in terms of efficiency.***

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4. Strategic Direction

From interviews with management staff, it is apparent that GoDurham lacks well-communicated and consistently adopted organizational core values or strategic direction. Different departments and divisions of the GoDurham organization are operating under their own assumptions in terms of organizational objectives and priorities (i.e., certain divisions have their own strategic plan). While the different entities involved have similar views on their purpose, the lack of a cohesive strategic vision allows for differences in interpretation and priorities across GoDurham.

4.1 Organizational Core Values

Currently, GoDurham lacks documented and well-communicated organizational core values in the form of a clear vision and/or mission statement. The closest element to a GoDurham vision and mission statement is a plaque containing the vision, purpose, and mission of DATA, which is an entity that no longer operates or exists.

The former DATA vision, purpose, and mission were:

- **Vision**: To be the public's choice for transportation in the Triangle region.
- **Purpose**: To provide the community with transportation that improves mobility and the quality of life for all.
- **Mission**: To provide safe, reliable, convenient, and accessible transportation for the citizens and visitors of the Triangle region. We are committed to meeting the diverse needs of the community while exceeding customer expectations in a cost-effective and responsible manner. The DATA team is professional, knowledgeable, and proud to server our customers.

Furthermore, the interviews of key management staff throughout the organization reinforced the lack of a consistent communication and understanding of organizational core values. Interviewed staff revealed slightly different goals, based on the needs and constraints set by the functions of their division or department. For example, the different responses include:

- Provide frequent and reliable transportation services that are essential for the Durham community
- Provide safe, reliable, convenient, and accessible transportation to the City
- Provide reliable, convenient (seamless), and attractive transportation services
- Safety, reliability, and customer service (courtesy)
- Improve safety, on-time performance, and customer service
- Provide equitable and efficient transportation services across age and racial lines
- Provide transportation service under the budget provided while maintaining high customer service

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Given that the GoDurham organization consists of five different entities, with multiple departments within each entity, the lack of consistent core values or strategic direction allows for differing priorities.

Recommendation: A new, unifying vision and mission statement should be developed with all entities' buy-in. The vision and mission should then be communicated broadly across the entire organization and made visible to staff at all levels.

4.2 Strategic Goals and Objectives

Similar to the status on the organization's core values, currently GoDurham does not have a documented or communicated strategic plan that outlines the values and priorities of the agency across all transit services. A strategic plan should drive the capital and operational activities of the organization by aligning strategic goals and objectives with activities and investments.

During the interviews of key management staff, the lack of strategic goals and objectives was brought up frequently and some departments or divisions had developed their own strategic or guiding plans that were used to direct the activities within their respective organization. As noted earlier, DCTC has a strategic plan for GoDurham's fixed-route services, though that plan has not been socialized with the City. As the City is responsible for capital and operating investment decisions, the priorities in that plan may not align with the decision-making criteria of the City. Excerpts from the DCTC strategic plan include the following:

- **Vision**: To be the shared mobility service of choice ensuring a safe, reliable, and efficient mobility experience.
- **Mission Statement**: It is our goal to be the trusted source of transportation to move residents and visitors of Durham to the important places in their lives. We will accomplish this by delivering exceptional customer service: building relationships with our customers, providing safe and reliable mobility service to destinations timely and having affordable rates.
- **Goals:**
    - **Goal 1:** Better collaboration and communication among stakeholders
    - **Goal 2:** Have a viable workforce with the ability to ensure delivery of exceptional quality service
    - **Goal 3:** Foster an inclusive work environment that maximizes staff ability to be successful in their role

As different managers represented different core values, the priorities within their plans may also differ from those of the overarching organization. The lack of a strategic plan across all services also means that initiatives targeted at improving the balance of the modes (e.g., moving demand-response trips onto fixed-route services) or improved planning and coordination may be falling through the cracks.

With key elements missing that should provide guidance and focus throughout the organization, there is lack of a "line of sight" between the strategic goals and objectives of the agency to the department, division, and/or individual performance plans. This "line of sight" can inform prioritization criteria during capital programming and budgeting discussions and planning activities for future expansion, as well as supporting development of the right set of performance

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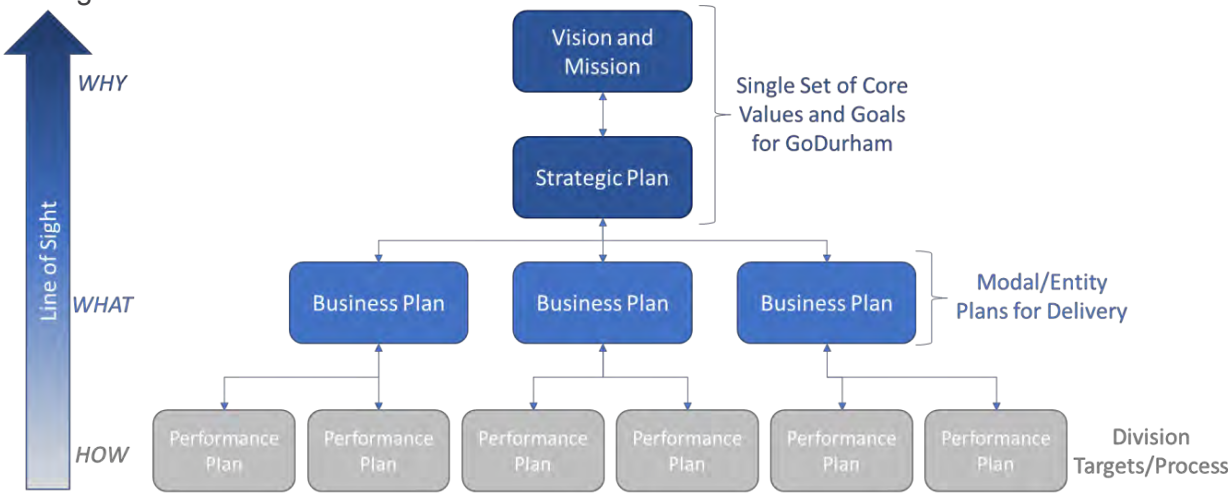
measures for understanding success. **Figure 3** illustrates best practices for the development of strategic and business



plans, with a "line of sight" to provide alignment of all agency activities.

Figure 3: Best Practice Alignment of Strategic and Business Planning

Recommendation: A single strategic plan encompassing all of GoDurham's services and activities should be developed by the City to reflect the goals and objectives of providing transit. This strategic plan should reflect the City's funding priorities and align specific initiatives and key performance indicators with the City's goals. This plan also should provide the basis for a more robust performance management program, which is discussed in more detail in the following section. Individual entities or departments should then produce individual business plans that align with delivering the strategic goals.

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5. Management Policies and Procedures

As noted in the Peer Benchmarking section, GoDurham's organizational structure is unique and more complex than other agencies with similar services. This structure provides challenges in terms of management. Though there are clear policies documented under GoDurham's *Agency Standards*, the ability to measure success and develop improvement programs is hindered by the current structure.

5.1 Organizational Structure

GoDurham is an organization that is operated as a partnership between the City of Durham and TTA (also known as GoTriangle), who manages the third-party contractors. This partnership began in June 21, 2010, when a Contract for Operation for Durham Transit Services was approved between the City of Durham and TTA.

In general, the June 21, 2010, agreement outlines GoTriangle's role and responsibilities to provide the management and operations of day-to-day activities required to deliver the GoDurham services in a reasonably efficient and effective manner, within the budget approved by the City Council. Only two amendments have been documented to the original 2010 contract, which has been extended repeatedly through 2020. The first amendment went into effect on October 1, 2010 and it revised the contract language on indemnification. The second amendment went into effect April 30, 2013 and it included few changes most notably the reorganization of DCTC as a subsidiary under First Transit.

Durham County is also a funding partner to the City of Durham in the provision of GoDurham Access services, and both parties are currently working on finalizing an Interlocal Agreement for GoDurham Access.

The City and TTA are currently negotiating a new agreement to replace the original 2010 contract.

The City's responsibility is to provide oversight and represent the City and public's interests in the provision of transportation services. This generally includes managing the provision and approval of the annual budget, provision of vehicles and facilities, and development and approval of policies and approvals associated with major changes in transit services.

In addition to the City of Durham and GoTriangle representatives, GoDurham is operated and maintained by two third-party contractors who are contracted by GoTriangle. The fixed-route third-party contractor also has a management subsidiary for transit services called DCTC, which exists to allow for labor negotiations with unionized labor and management positions that report directly to GoTriangle.

Though DCTC management staff report to GoTriangle, they are employed by First Transit. Staff interviews confirmed that if a different third-party contractor is selected to provide operations and maintenance for fixed-route services, the ownership of DCTC would change hands to that new entity; however, no legal documentation could be found to document that agreement with

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First Transit and City staff were not fully aware of DCTC's legal status and use of budget for labor negotiations.

The SWOT analysis with staff from multiple GoDurham entities reinforced that a key organizational weakness is the complex and confusing structure. The City of Durham could remove a layer of complexity by taking management and planning for the services in-house, effectively dissolving the partnership with GoTriangle and contracting directly with the service providers. However, the City does not have the desire nor the capacity to do so. The relationship with GoTriangle is beneficial for both entities and should remain in place, with some modifications to simplify and clarify the structure.

Recommendation: The new agreement between the City and GoTriangle should clearly document the consensus organizational structure. Attachments should include an updated organizational chart, roles and responsibilities, and clarification of the role, legal status, and budget of DCTC. In negotiating the new agreement, the City and GoTriangle should consider the following and create buy-in with third-party contractors on the resulting structure:

- The City's role is comparable to a Board of Directors, providing strategic direction, funding/finance, advocacy, community relations, and major project development.
- GoTriangle's role is executive management, providing contract management, planning, oversight, marketing, and project implementation.
- The third-party contractors' roles should be simplified to providing operations and maintenance roles, including safety, training, staffing, and service delivery. Business planning at this level should focus on delivery the initiatives and key performance indicators (KPIs) laid out in the City's strategic plan (see **Figure 3**).

Recommendation: Given the missing amendments to the original contract, which contributes to some of the confusion for new staff, the City and GoTriangle should ensure that digital copies of all legal agreements are retained in a document management system until such time as a future contract replaces it. This period of retention should go beyond the compliance requirements for document retention given the length of extensions to the original contract.

5.2 Management Roles and Responsibilities

An overview of the GoDurham's organization is provided to identify the various leadership roles and responsibilities. Sean Egan is the Director of Transportation heading and representing the interests and responsibilities of the City of Durham for GoDurham and reports directly to the Deputy City Manager. Rochelle Parent is the Assistant Director for Mobility Services and Pierre Osei-Owusu is the Transit Administrator representing the City's interests and both report to the Director of Transportation. Pierre's role is currently on-site with the operations and maintenance staff. Tom Devlin, City of Durham's Business Services Administrator, is the point-of-contact for all concerns that Durham County may have relevant to GoDurham Access.

Laurie Barrett is the Director of Regional Partnerships and Brian Fahey is the GoDurham Transit Administrator representing the interests and responsibilities of GoTriangle.

Doug Middleton is the General Manager of DCTC, overseeing fixed-route services. DCTC also has the traditional roles for management of transit services, including Safety Officer, Maintenance Director, Finance Director, Transit Service Director, and Human Resources (HR) Director. However, DCTC does not have a management role for Customer Service and/or

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Communications. It was noted during the SWOT workshop that GoDurham could be more customer-centric in transit service planning and operations, which this role could support.

Tara Caldwell is the General Manager for National Express Transit's demand-response service.

Figure 4 illustrates the current organizational chart for GoDurham's management.

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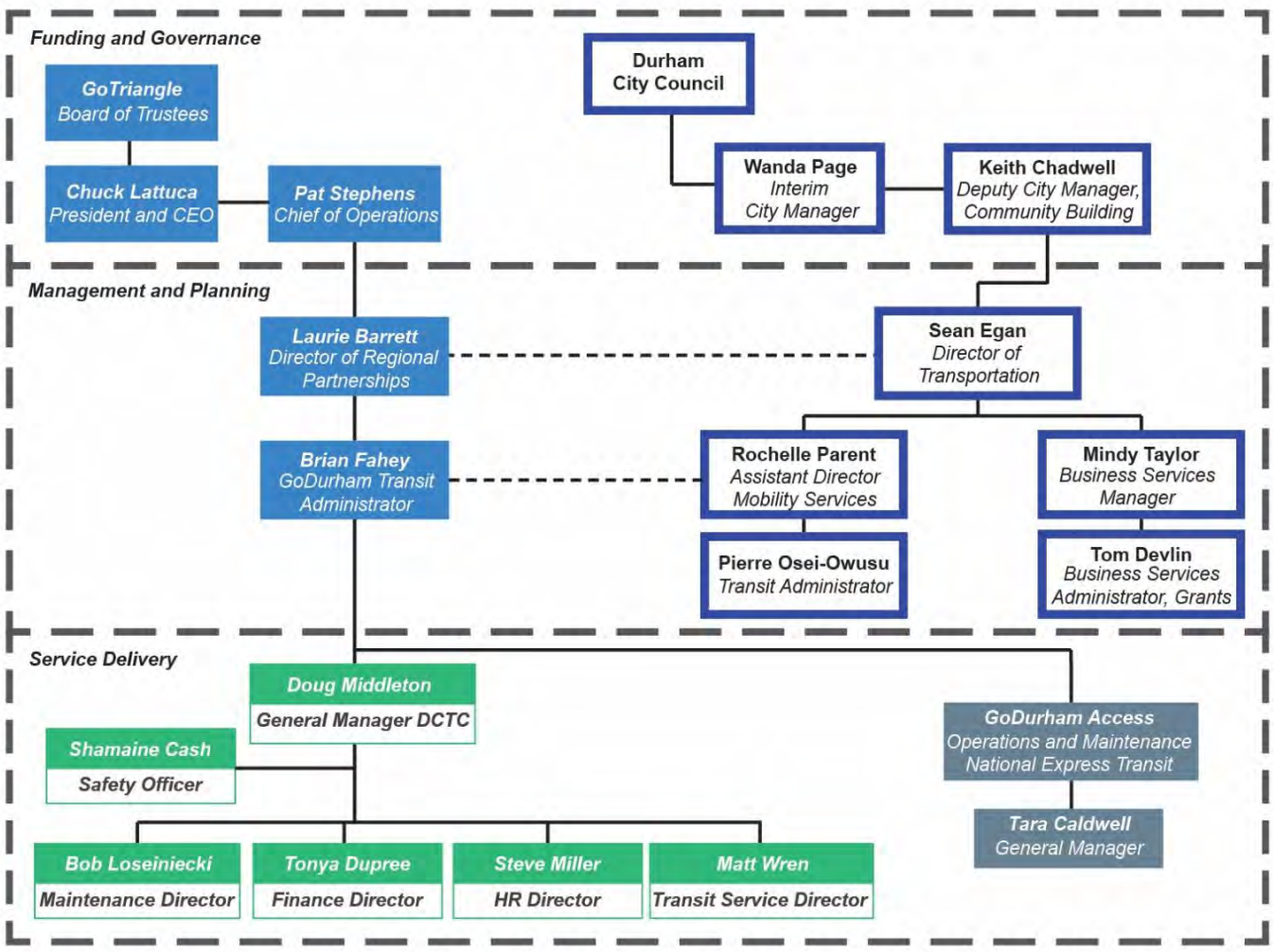

Figure 4: GoDurham Organizational Chart

Legend: Light Blue indicates GoTriangle staff, White indicates City of Durham staff, Green indicates DCTC/First Transit staff providing Fixed-Route services, and Dark Grey indicates National Transit Express staff providing Paratransit services.

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From staff interviews and the SWOT analysis, it is apparent that there is a strong commitment to and sense of ownership over the transit service across all partners. Individual staff are experienced and dedicated to the quality of GoDurham's services. This is a great strength across the organization.

However, there also is evidence of duplication of efforts and an informal matrix organization. In a matrix management system, a staff member reports to a primary boss while also working for one or more managers. This system of management is difficult to implement effectively within a single organization; it is nearly impossible to implement effectively across different entities with different contractual relationships and is a contributing factor to the duplication of roles.

As an example, multiple staff indicated that the City's on-site Transit Administrator provided direction to and requested reporting from third-party contractor staff. There is no formal reporting structure to support this direct communication with City staff, and it often causes confusion with GoTriangle's role as the contract manager.

In addition, there may also be duplication in administration roles within the City's organization with the recent creation of the Business Services role. This is where grant applications and projects will be developed for transit, though those roles were historically done by the Transit Administrator. Duplication of roles can lead to a lack of accountability across roles and across entities.

Recommendation: Informal matrix management should be eliminated in the current organization. This is best done by developing a responsible, accountable, consulted, and informed (RACI) matrix as part of the proposed strategic planning effort. The RACI matrix should be developed to specifically eliminate any perception of matrix reporting across GoDurham's key activities.

Recommendation: The highest-priority recommendation regarding roles and responsibilities is to remove the on-site City staff from the operations and maintenance offices and to repurpose the role of the City's Transit Administrator. This role currently creates duplication of effort with GoTriangle and other City staff (in terms of legacy grant development activities) and is the main genesis of matrix reporting requests. To dovetail with the City's role as a "Board of Directors," the City organization needs to focus on compliance for GoDurham, creating a position to ensure that it meets the myriad of federal, state, and local requirements. This new role should have a new title—Compliance Officer—to clarify its purpose and would encompass at least:

- Americans with Disabilities Act (ADA)
- Title VI
- Grant reporting/monitoring—though grant development should remain within the Business Service Managers role
- FTA triennial audits
- FTA transit asset management (TAM) requirements, including participation in group TAM plan development, reporting performance measures to the MPO, and coordination on performance targets with MPO
- FTA public transportation agency safety plan (PTASP) requirements
- FTA NTD reporting requirements

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This position needs to be “at arms’ length” from day-to-day operations and instead focus on meeting compliance requirements on time and simplifying/streamlining compliance processes to alleviate the burden on contractors (who should be focused on day-to-day operations).

All staff interviews indicated that current staffing levels are sufficient to deliver the current level of operations and maintenance; however, similar to the fleet being at maximum efficiency, any new capacity needs will be a stretch to meet without additional resources. For operations and maintenance staff, this will require an evaluation of the new fleet size, routes, and service requirements to determine appropriate upsizing.[2]

It is unclear if added efficiency in the organization, through more clearly defined roles and responsibilities noted above, will alleviate the concerns about future capacity at the management level. The efficiency of management positions should be re-evaluated following the implementation of these changes to determine if further action is needed.

In the meantime, most peer agencies have a management position focused on customer service and communications. DCTC’s strategic plan highlights the need for more-effective stakeholder engagement, which also was noted as an issue during the SWOT workshop. There is a negative public perception related to safety and security, as well as a perception of a lack of transparency in decision-making that may affect underserved communities. The need for better public-facing marketing, communications, and public relations efforts also is seen as a weakness.

Recommendation: To address the issues with public perceptions and the potential for managing greater capacity, a new management position should be created for GoDurham sitting within DCTC. This new role should support the General Manager with external communications and customer relations and should be focused on improved customer service, customer satisfaction surveys, branding, customer information, and stakeholder engagement.

5.3 Management Communications

A great deal of trust has been built up over time between the entities supporting GoDurham’s services. That trust serves as the basis for informal communications across the organization. Based on the feedback received through the interviews of staff, the following formal management meetings/calls are used to foster regular communication between entities—though the specific agendas of each meeting were unclear:

- Monthly progress meetings between the City, GoTriangle, and third-party contractors for bus and paratransit during which performance metrics are discussed
- Biweekly meetings between the City and GoTriangle
- Weekly meetings between GoTriangle and third-party contractors

Communication protocols within GoDurham were noted as an issue during the SWOT workshop and also by individual managers during interviews. Compared to its peers, the City meets with the third-party contractors less frequently to discuss tactical service issues. There also is no standing

[2] It was noted during the SWOT that the current maintenance facility lacks space for additional fleet, which GoTriangle is addressing through a separate facility planning study.

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forum for strategic discussions that would allow for coordination on major initiatives. GoDurham has an opportunity to realign communication protocols to be more performance and action oriented.

Recommendation: Move to biweekly progress meetings to discuss operational performance and tactical plans – Ops Stats. The current list of participants is appropriate; however, the meeting agenda and approach should be restructured to be action oriented. Begin each agenda with a review of previous action items and end each meeting with a summary of action items. Action items must be assigned to a person, with a due date, and kept in a running table with a status (i.e., Open, Ongoing, Resolved).

Recommendation: Add a quarterly management meeting to provide higher-level updates on performance and a forum for more strategic discussions. This meeting should only include management staff from the City and GoTriangle and the General Managers of DCTC and GoDurham Access. The agendas for these meetings should be developed well in advance by City and GoTriangle staff (Rochelle and Brian) to allow for the preparation of materials. The focus of these meetings should be key threats or opportunities, major projects or programs, strategic plans, ongoing issues with performance, etc.

5.4 Agency Standards

GoDurham's service policies and standards for fixed-route services are documented across multiple *GoDurham Service* Standards reports, however, only one set of these standards (developed in 2017) was provided for review for this COA. Efforts to review all service standards to identify gaps and inconsistencies, and to make recommendations should be performed as a future study. The purpose of this document is to guide to staff in decision making and act as a managerial tool aimed at assisting in the monitoring, measurement, and evaluation of the fixed-route system's performance.

No documentation was provided for GoDurham paratransit service standards. ***If service standards are not documented for GoDurham Access they should be incorporated into a similar document to the fixed-route standards and targets should be communicated.***

5.4.1 Fixed-Route Service Standards

Service Area Coverage Standards: Theses standards evaluate the basic fixed-route structure and design of GoDurham's Bus route network, including factors such as:

- Route Coverage and Accessibility
- Access to Private Property
- Speed Humps and Bumps
- Bus Stop Spacing
- Route Deviation
- Route Length
- Route Structure
- Distribution of Amenities

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Service Quality Standards: These standards asses the system's attractiveness (e.g., passenger comfort, convenience, and safety) and confidence in the fixed-route services. It evaluates factors such as:

- Vehicle Loads
- Vehicle Headways
- Schedule Adherence
- Passenger Transfers
- Missed Trips
- Span of Service
- Passenger Complaints
- Passenger Safety/Accident
- Transit Security

The related targets for these standards are detailed below, most of which are measurable for the purposes of performance management.

Table 9: Summary of Service Quality Standards

Service Quality Element	Standard
Vehicle Loads	Maintain a vehicle load factor of no more than 150 percent for any vehicle type currently used by GoDurham
Vehicle Headways	The maximum headways during the off-peak period and on the weekends where demand is relatively lower should be 60 minutes. The maximum peak- period headway standard during weekdays and on productive routes should be 15 minutes.
Schedule Adherence	GoDurham establishes a minimum of 95 percent on-time schedule adherence for every trip system-wide per each cycle or review period.
Passenger Transfers	All routes are designed such that no passenger transfers more than twice in order to complete a transit trip.
Missed Trips	Missed trip level of no more than one (1) missed trip per each operating day.
Span of Service	Weekday A.M. service would start no later than 5:30 a.m. and end no later than 12:30 a.m. Saturday, Sunday, and Holiday services would, based on productivity considerations, beginning at 6 a.m. or later. Sunday and Holiday service should end at 7:30 p.m. However, Saturday service should end no later than 12:30 a.m.
Passenger Complaints	Reduce genuine and verifiable complaint to no more than 2 per 100,000 passengers served.
Passenger Safety	Have no more than one (1) preventable auto accidents per 100,000 operating miles and also no more than five (5) passenger incidents per 100,000 operating miles.

Service Productivity Standards: These standards assess the efficiency of the service supplied compared to the service consumed and the associated cost. The factors used to evaluate fixed-route service productivity standards include:

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- Passengers per Vehicle Hour
- Passengers per Vehicle Mile
- Cost Recovery
- Passengers per Trip
- Cost per Passenger

The only one of the targets related to service productivity standards seems to be measurable for the purposes of performance management. That standard is the cost recovery standard which is currently set at 18 percent per month. The other targets are for new routes achieving certain service productivity benchmarks by 6, 12, 18, and 24 month thresholds. However, it is unclear what the percentage benchmarks for new routes is based on. ***GoDurham should consider a more concise approach to setting service productivity targets, such that a measure of success can be easily understood.***

The specific policies associated with each of these standards, and the methods for planning service changes, are included in **Appendix E**.

5.4.2 Performance Management

GoDurham has an opportunity, particularly with the creation of the Business Services unit, to incorporate more data-driven decision making into its planning processes.

The existing performance report for GoDurham is presented at the monthly management meetings and includes many useful metrics, examples of which are included as **Figure 5** and **Figure 6**; however, these metrics are more useful for gauging the overall performance of the agency without inferring more actionable steps in the short term to improve performance. The existing metrics tend to be the results of many different departments and efforts across the agencies working toward a common goal. Therefore, they are more appropriately used in the context of quarterly and annual reporting against the service standards described above.

Recommendation: It was noted by staff that an annual performance report used to exist for GoDurham but is no longer in use. However, there is documentation of a GoDurham Access annual report for FY2020. An annual report that covers *all modes* should be reinstated, leveraging existing quarterly updates to these higher-level metrics. Targets for each applicable measure should be included in the reporting (some performance measures targets or goals are already included in the Access monthly reports, see **Figure 6**), along with graphs to illustrate trends. Currently, GoTriangle includes a brief overview on GoDurham as part of their annual report. However, in future, the GoDurham annual performance report should be owned by the City and be available on the GoDurham website.

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OCTOBER 2020 PERFORMANCE REPORT	GO Durham		
USAGE	**Oct-20**	**1-Month Change**	**Change from Oct. 2019**
Total Ridership	397,262	6.7%	-34.5%
Revenue Hours	18,287	8.0%	2.8%
Revenue Miles	241,148	8.7%	0.0%
Passengers per Revenue Hour	21.72	-1.2%	-36.3%
Avg. Ridership (Weekday)	14,082	2.9%	-36.1%
Avg. Ridership (Saturday)	12,073	1.2%	-27.1%
Avg. Ridership (Sunday)	6,773	-8.4%	-19.3%
E Durham Connect Trips	88	6.0%	N/A
CUSTOMER SATISFACTION & RELIABILITY			
Verified Complaints per 100K Passengers	3.52	-6.3%	33.5%
Commendations	1	0.0%	0.0%
Missed Trips	1	-98.3%	-99.5%
% of Budgeted Revenue Hours Operated	100.0%	0.2%	0.5%
On-Time Performance (All Time Points)	82%	-0.4%	6.9%
On-Time Performance at Durham Station	96%	0.0%	0.0%
SAFETY			
Accidents per 100K Miles	0.77	-4.3%	-29.6%
Preventable Accidents	2	0.0%	-33.3%
Non-Preventable Accidents	11	120.0%	83.3%
Durham Station Incidents	1	-50.0%	-50.0%
MAINTENANCE			
Major Mechanical Failures	19	11.8%	280.0%
Fleet Availability	96%	1.1%	4.3%
PM's Completed On Time	100%	0.0%	0.0%
Miles per Major Mechanical Failure	13,709	-6.5%	-75.0%
FINANCIAL			
Cost per Revenue Hour	$86.65	-17.8%	-4.9%
Farebox Recovery	0.0%	0.0%	-100.0%
Cost per Boarding	$3.99	-16.8%	49.4%
Fare per Boarding	$0.00	0.0%	-100.0%

Figure 5: GoDurham Bus Fixed-Route October 2020 Performance Report

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JUNE 2020 PERFORMANCE REPORT	GO Durham				
USAGE (ADA TOTALS)	**GOAL**	**Jun-20**	**Jun-19**	**Change from Previous Year**	**% of Goal Achieved**
Total ADA Passengers		6,620	11,826	-44%	
ADA Revenue Miles		56,955	92,329	-38%	
ADA Platform Miles		64,659	102,839	-37%	
ADA Revenue Hours		3,663	5,542	-34%	
ADA Platform Hours		4,155	6,256	-34%	
ADA Passengers per Hour	**2.10**	1.81	2.13	-15%	86%
ADA Trips Outside 3/4-Mile		770	2,149	-64%	
Total ADA Clients		3,564	3,324	7%	
New & Re-Certified ADA Clients		19	28	-32%	
USAGE (SYSTEM TOTALS)					
Total System Passengers		9,196	16,685	-45%	
Total Revenue Miles		80,004	131,627	-39%	
Total Platform Miles		90,721	146,639	-38%	
Total Revenue Hours		5,089	7,819	-35%	
Total Platform Hours		5,829	8,882	-34%	
System Passengers per Hour		1.81	2.13	-15%	
Peak Vehicles (Weekday)		28	41	-32%	
Peak Vehicles (Saturday)		15	21	-29%	
Peak Vehicles (Sunday)		6	13	-54%	
CUSTOMER SATISFACTION					
No Shows	**230**	365	352	4%	63%
Trip Denials	**0**	0	0	0%	100%
Complaints	**2**	0	3	-100%	100%
Commendations	**1**	0	0	0%	0%
On-Time Performance (Pick Up)	**85%**	90%	80%	13%	100%
On-Time Performance (Appointment)	**90%**	98%	90%	9%	100%
Total Phone Calls Answered		N/A	4,770		
Average Hold Time	**0:02:30**	N/A	0:01:06		
Average Handle Time	**0:02:00**	N/A	0:01:59		
% Answered (All Incoming Calls)	**95%**	N/A	95%		
% of Calls Answered w/in 1 Min	**85%**	N/A	95%		
Average Trip Time (min)	**30**	26	32	-19%	100%
% of Trips Completed in 30 Min or Less	**70%**	82%	67%	22%	100%
SAFETY					
Total Revenue Accidents	**1**	0	1	-100%	100%
Preventable Accidents	**0**	0	0	0%	100%
Non-Preventable Accidents	**1**	0	1	-100%	100%
MAINTENANCE					
Road Calls	**2**	0	0	0%	100%
Fleet Availability	**100%**	0%	100%	-100%	0%
PM's Completed On Time	**100%**	0%	100%	-100%	0%
FINANCIAL					
Revenue (Actual)		$475.00	$17,604.55	-97%	
Expenses (Actual)		$234,017.00	$286,513.62	-18%	
Cost per Passenger Trip		$35.35	$24.23	46%	
Cost for Trips Outside 3/4-Mile		$27,219.50	$51,468.55	-47%	

Figure 6: GoDurham Access June 2020 Performance Report

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During the SWOT workshop, a lack of data analysis and aggregation for decision making was a noted weakness of the current organization. There may be a significant amount of data available within the silos of the organization, but the ability to analyze that data and convert it into useful information for proactive decision making at the organizational level is what is lacking (see **Section 8** for maintenance-specific examples).

The City sees performance management as a significant opportunity for GoDurham to become a more proactive, data-driven organization. The City has already engaged in a research project to determine the current status of data and provide recommendations regarding aggregation and dashboarding. The more frequent management meetings proposed previously provide an opportunity to consider those more-targeted metrics that can lead to short-term actions.

However, these metrics must fit into a broader performance management framework implemented by the organization. In addition to metrics and data sources, this framework must define the reporting processes, frequencies, and target-setting methods for GoDurham. Preferably, this performance management framework would include a customer-facing scorecard that addresses some of the historical transparency issues that were raised during the SWOT workshop.

Recommendation: Within the City 's organization, a Performance Management position should be created to develop and implement the framework described previously. This position should sit within the City of Durham, as the performance framework should eventually include mobility services in a broader context—including piloting mobility-as-a-service (MAAS) platforms and mobility services that go beyond transit. That being said, this role should work closely and collaboratively to support GoTriangle in improving performance monitoring and not in a conflicting or oversight role. The position cannot sit within DCTC, as that will create too narrow a focus on fixed-route service delivery and a potential conflict of interest in using performance data to inform City decisions regarding the performance of services.

Recommendation: A performance dashboard, utilizing a data warehouse to aggregate data, should be made available to City, GoTriangle, and contractor leadership to (1) create a common understanding of KPIs, (2) avoid ad hoc analysis requests, and (3) allow all parties to prepare for performance discussions. Consider the example metrics provided below as part of the KPIs for biweekly performance meetings.

The Maryland Department of Transportation, Maryland Transit Administration (MDOT MTA) Office of Performance Management provided the dashboard examples included on the following pages, which they utilize as part of their biweekly bus performance management meetings. These meetings highlight short-term, tactical solutions and provide a forum for transparency and action planning. The metrics are framed and carefully selected in such a manner as to support collaborative discussion with department heads and executive management. These examples are not the entirety of what is possible with dashboards and other data analysis; they are a sample of what MDOT MTA has been particularly interested in the recent past.

Creation of the dashboards for MDOT MTA has been a somewhat recent development; previously, several meetings between analysts would occur for every biweekly meeting to determine who was going to update which analysis. Now, updating the biweekly analysis consists of hitting a button to refresh the database connections and all analyses are updated to the most current data. This has freed up the analysts to continue to develop additional dashboards for other purposes and continue to refine analyses to make sure they are as useful as possible. The following screenshots are some samples of the dashboards MDOT MTA is currently employing.

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Earlies Percentage – It is the overarching opinion that earlies are something that can be managed by policy and personnel management—as opposed to chronic lateness, which is typically a reflection of schedule issues. This chart is used to track the earlies over time. There is a date range slicer in the top right corner, so the data can be reframed at any time.

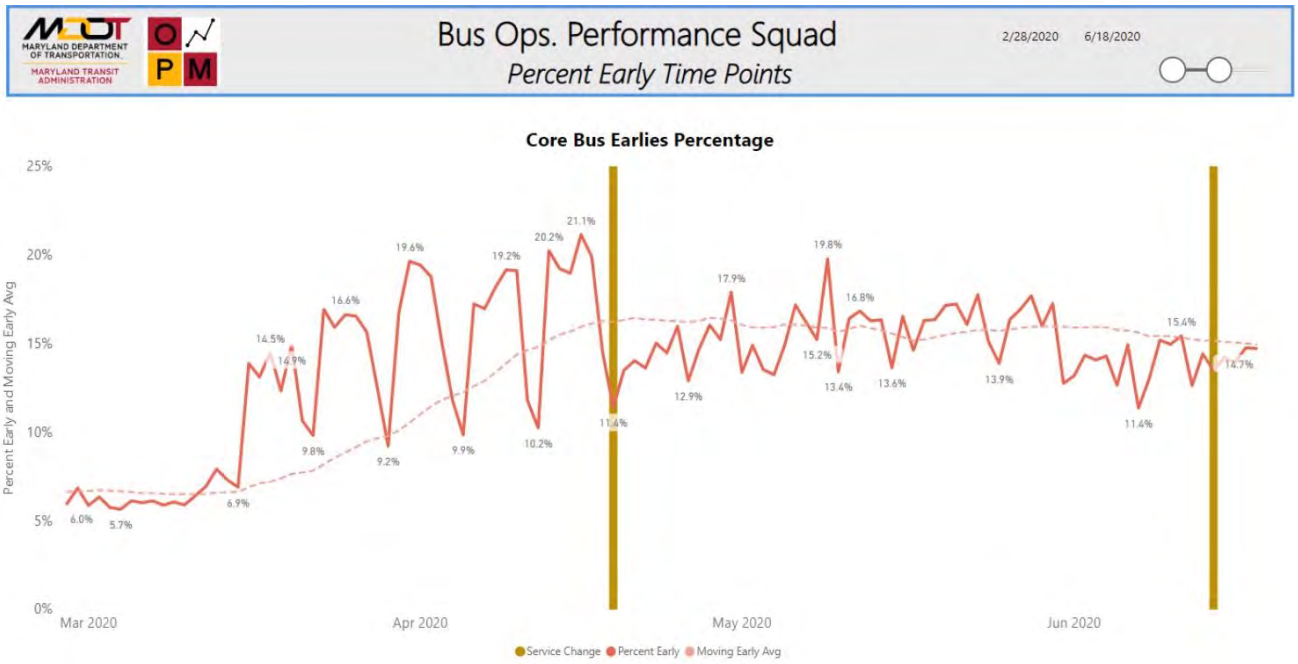

Figure 7: Example – MDOT MTA Bus Performance Dashboard – Percent Early Time Points

Absenteeism by Division – Personnel management is a consistent issue for MDOT MTA—they are constantly trying to evaluate absenteeism and ways to combat it. This dashboard is split by division, as each division (or bus depot) has its own management and ways to investigate the issues. Like the above dashboard, you also can use the date slicer to refine the analysis on the fly.

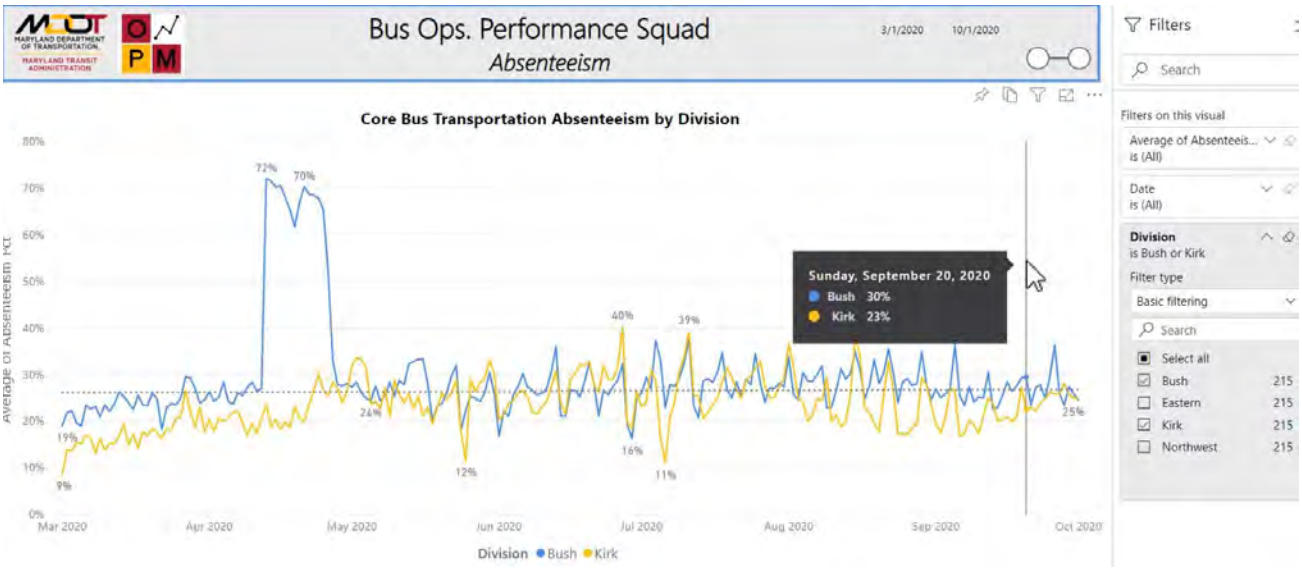

Figure 8: Example – MDOT MTA Bus Performance Dashboard – Absenteeism

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Cut Percentage by Type – Cut service is perhaps the chief concern of the bus performance team, as it is something that is entirely under the control of the operations staff, but still is a consistent issue. This chart shows the various cut reasons over time. This chart can be filtered by specific cut reason; it also includes the date slicer, as in all the other dashboards.

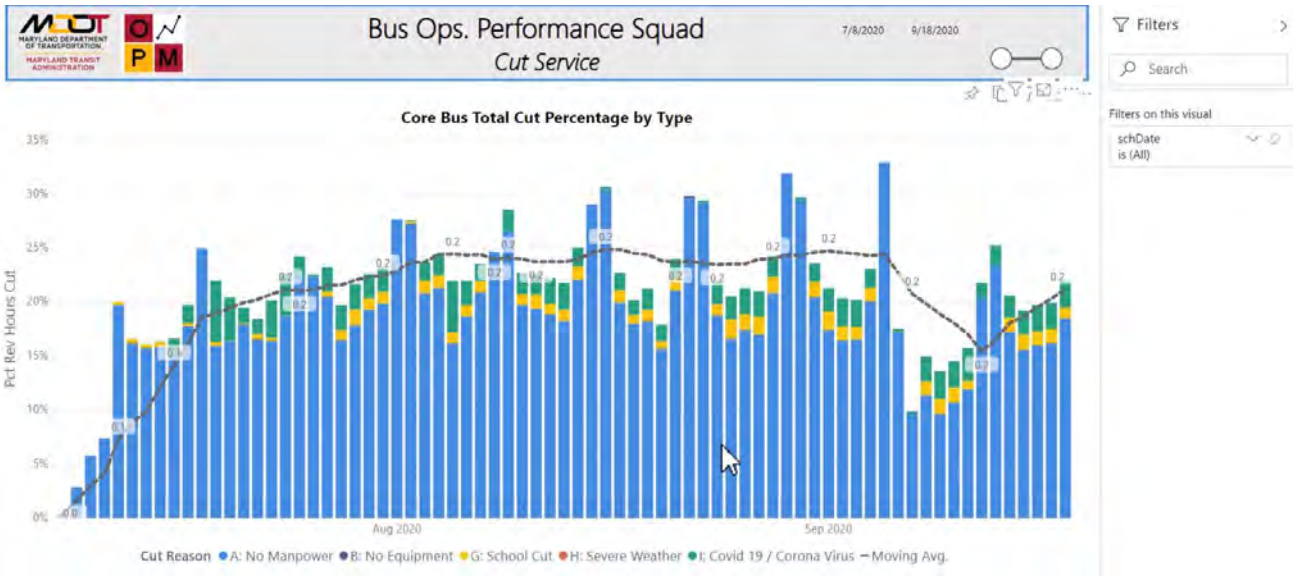

Figure 9: Example – MDOT MTA Bus Performance Dashboard – Cut Service

Unassigned Blocks – This chart is an internal meta-analysis to help determine how well the bus dispatchers are entering data into the trapeze system. For the real-time platform (and, therefore, all the automated vehicle location [AVL] data) to operate at a high level, the dispatchers are required to enter the block-coach assignments manually as the buses leave the division. This example is primarily showing that some analyses can be very agency-specific but support many other functions.

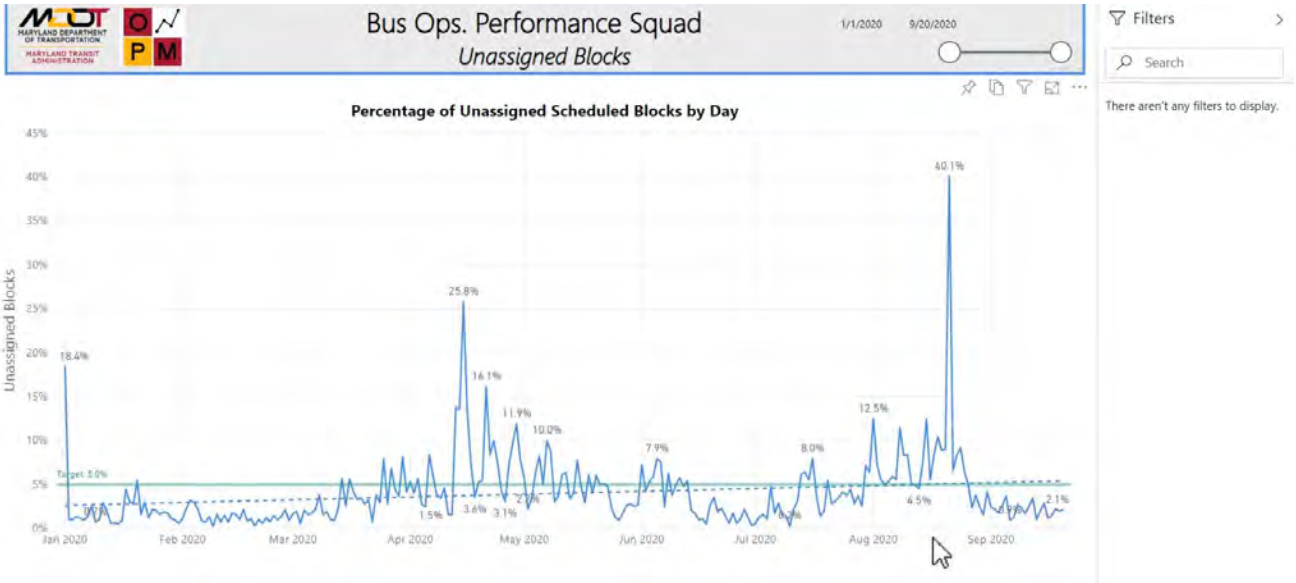

Figure 10: Example – MDOT MTA Bus Performance Dashboard – Unassigned Blocks

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Daily Percent of Blocks Late to First Stop – This chart is another example of something that bus operations can manage more directly. MDOT MTA was very interested in "start strong, stay strong," emphasizing the importance of leaving the division on time and starting their first trip on time as well. Like the previous charts, this can be instantly sliced by any timeframe of interest, and it could be modified further to distinguish between different bus divisions.

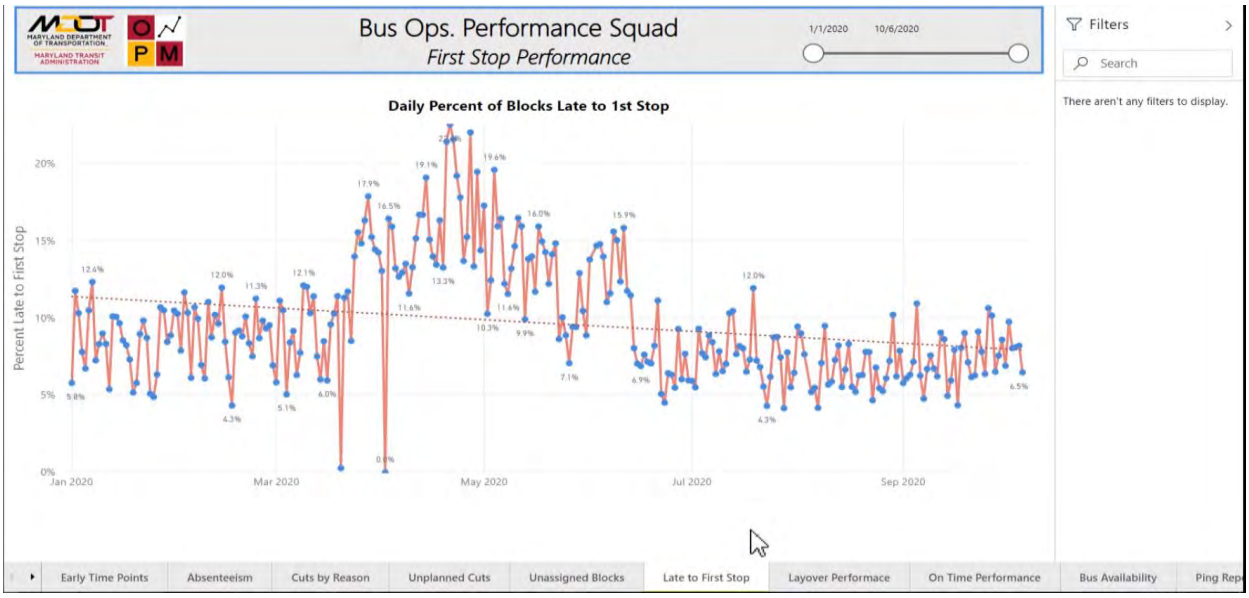

Figure 11: Example – MDOT MTA Bus Performance Dashboard – First Stop Performance

Layover Performance – This data set is pre-scrubbed to only include cases where the operator arrived at the layover with sufficient time to start their next trip on time—so this is a pure calculation of what operators choose to do at the layover, either leaving late or early (on-time departures aren't shown, but are the remainder of the data set). This data could be shown by route, layover location, or by division in addition to the existing parameters.

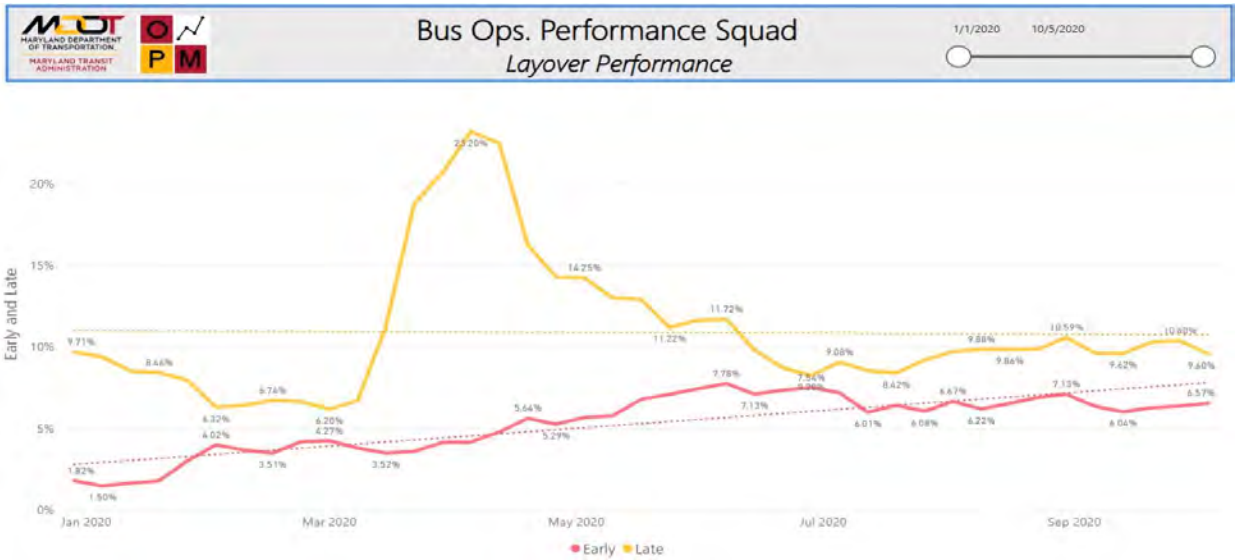

Figure 12: Example – MDOT MTA Bus Performance Dashboard – Layover Performance

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On-Time Performance (OTP) – The following two dashboards are examples of general on-time performance data. The first shows the on-time performance over time with demarcations for service changes, to more easily see the effect of the changes. The second dashboard shows a variety of different ways of looking at on-time performance data, with one of the more powerful ways of utilizing dashboards possible in this view. For example, if the user were particularly interested in AM Peak performance, the user could click on the bottom left of the dashboard, then all other views would then automatically refresh to only show data from the AM Peak.

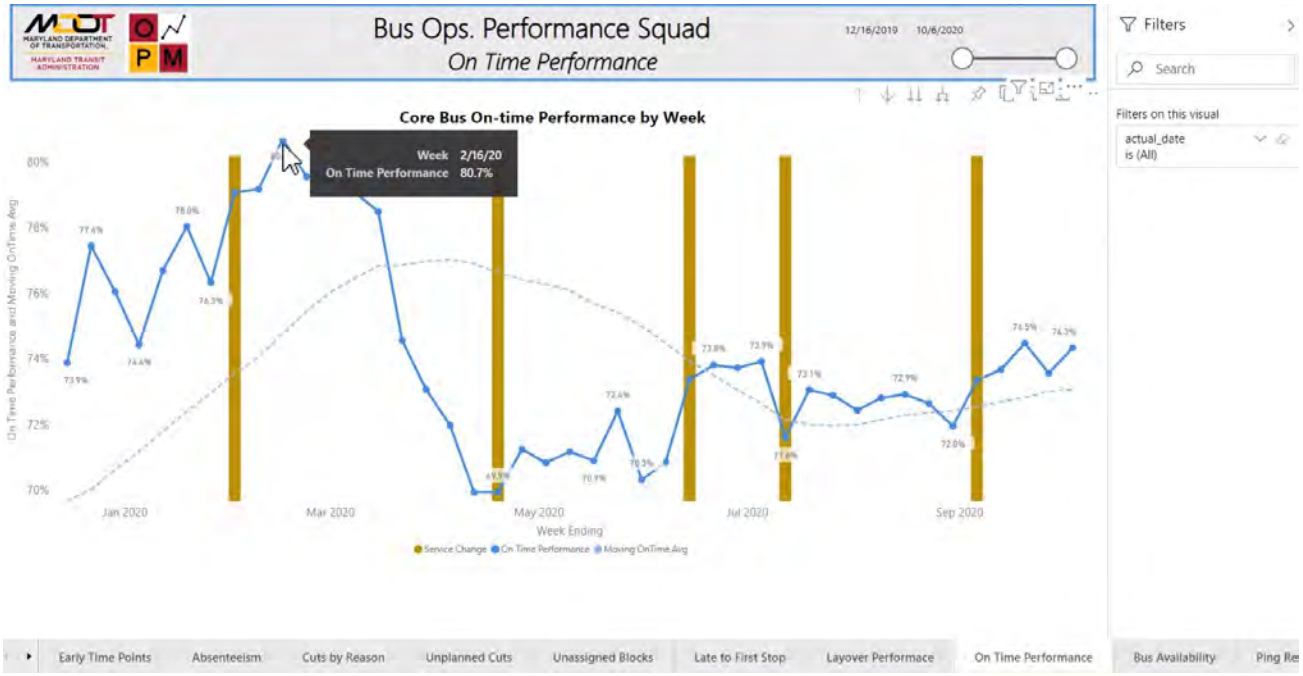

Figure 13: Example – MDOT MTA Bus Performance Dashboard – On-time Performance

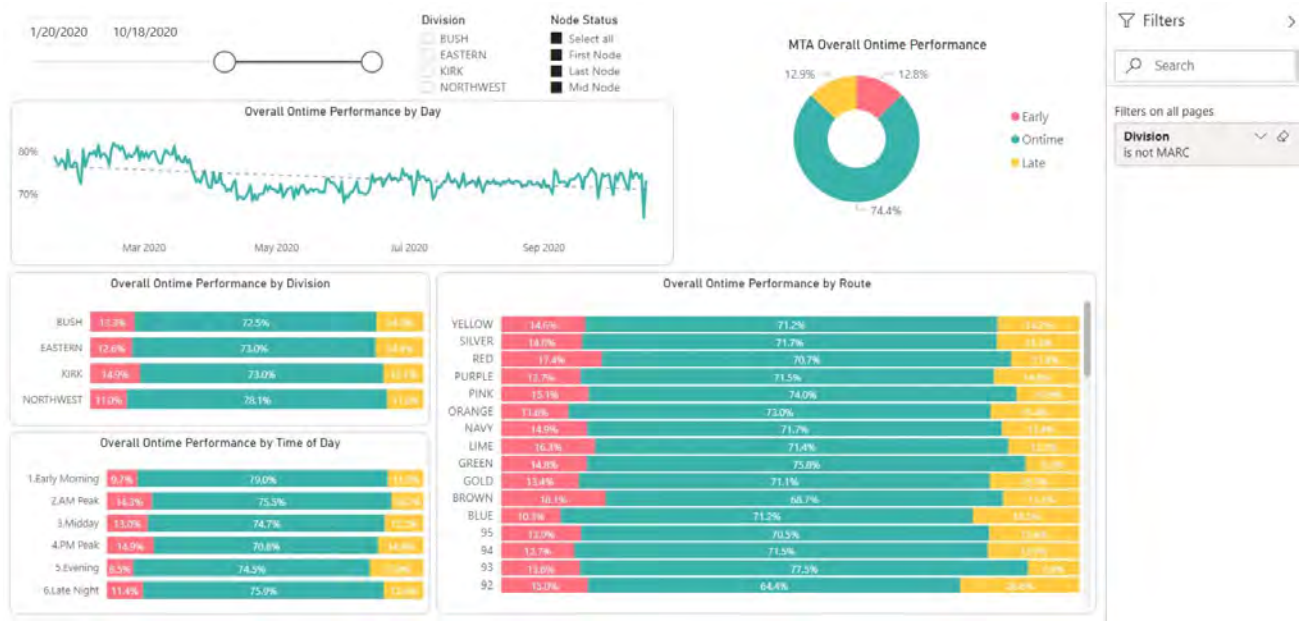

Figure 14: Example – MDOT MTA Bus Performance Dashboard – On-time Performance Summary

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Bus Availability – A simple dashboard showing percentage of buses available at the peak pullout period for both the AM and PM peaks.

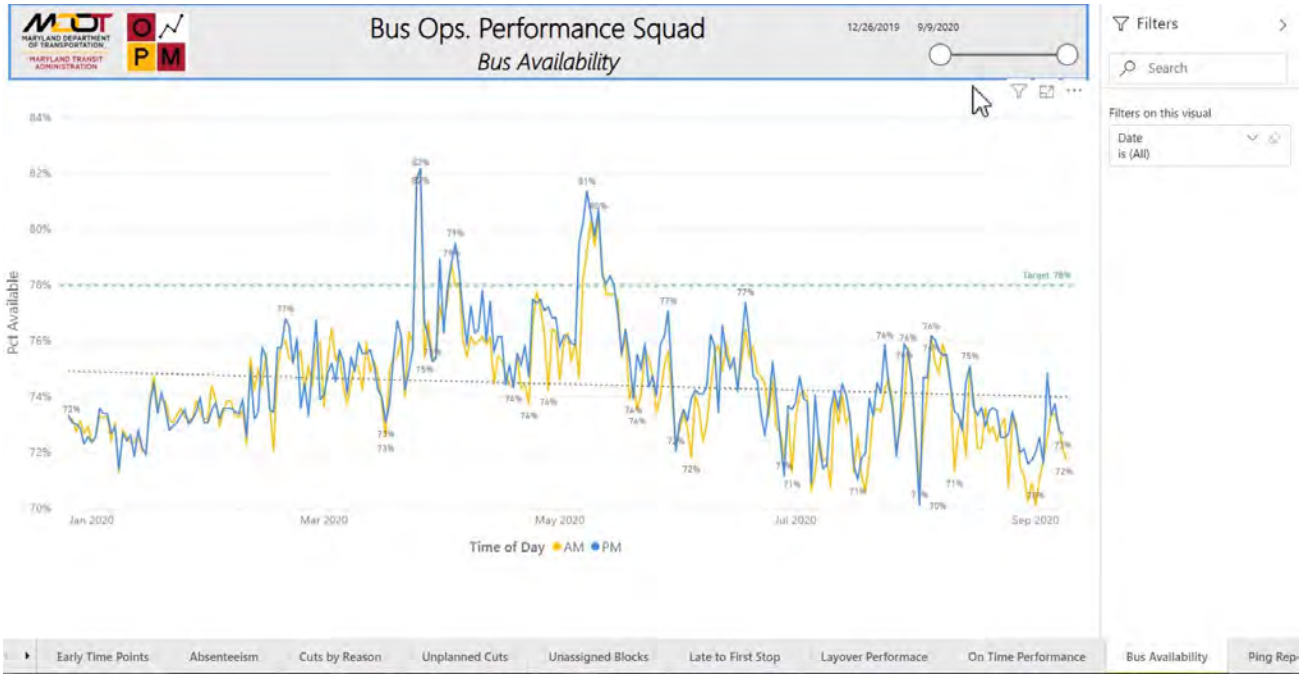

Figure 15: Example – MDOT MTA Bus Performance Dashboard – Bus Availability

Citations – Another straightforward dashboard, this one tracks red-light and speed citations for bus operators over time, with some pie charts included to show the distribution of citation type and which division operators were responsible for the citations.

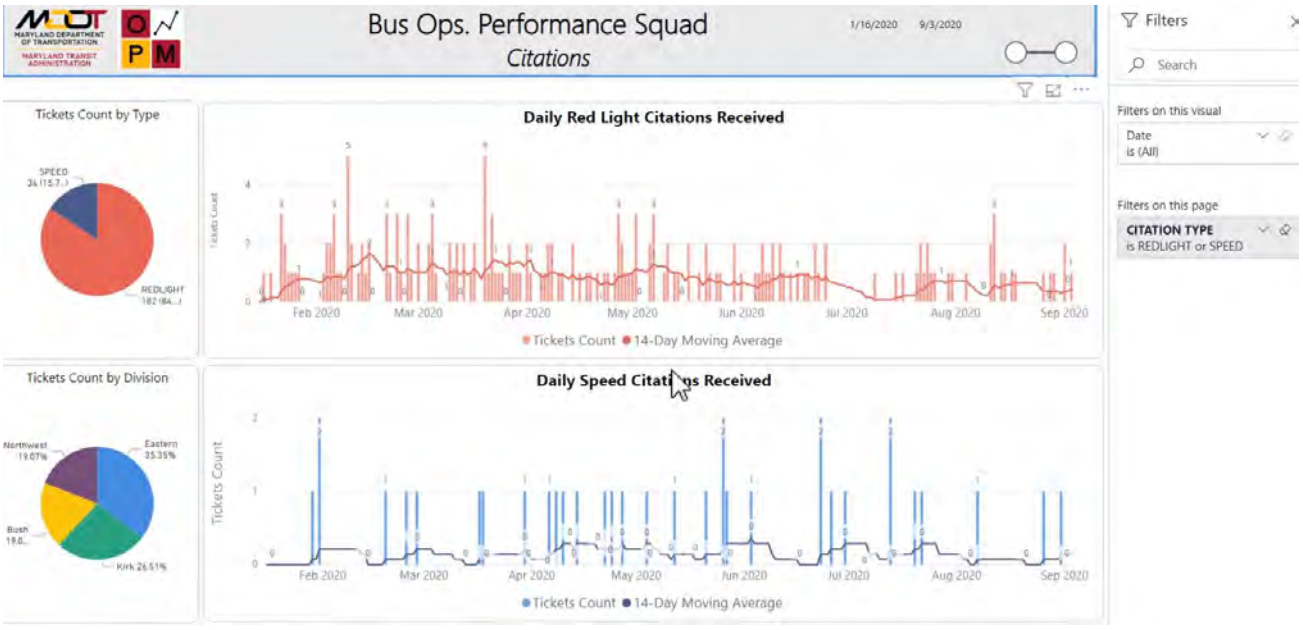

Figure 16: Example – MDOT MTA Bus Performance Dashboard – Citations

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Operator Report Card – This is the operator report card, for which an operator can be chosen (as shown in the second screenshot) and their performance by all routes they drive is shown as well as a comparison to those routes' overall performance. In addition to their general on-time performance, the user also is provided with their on-time pull-out performance and their layover performance.

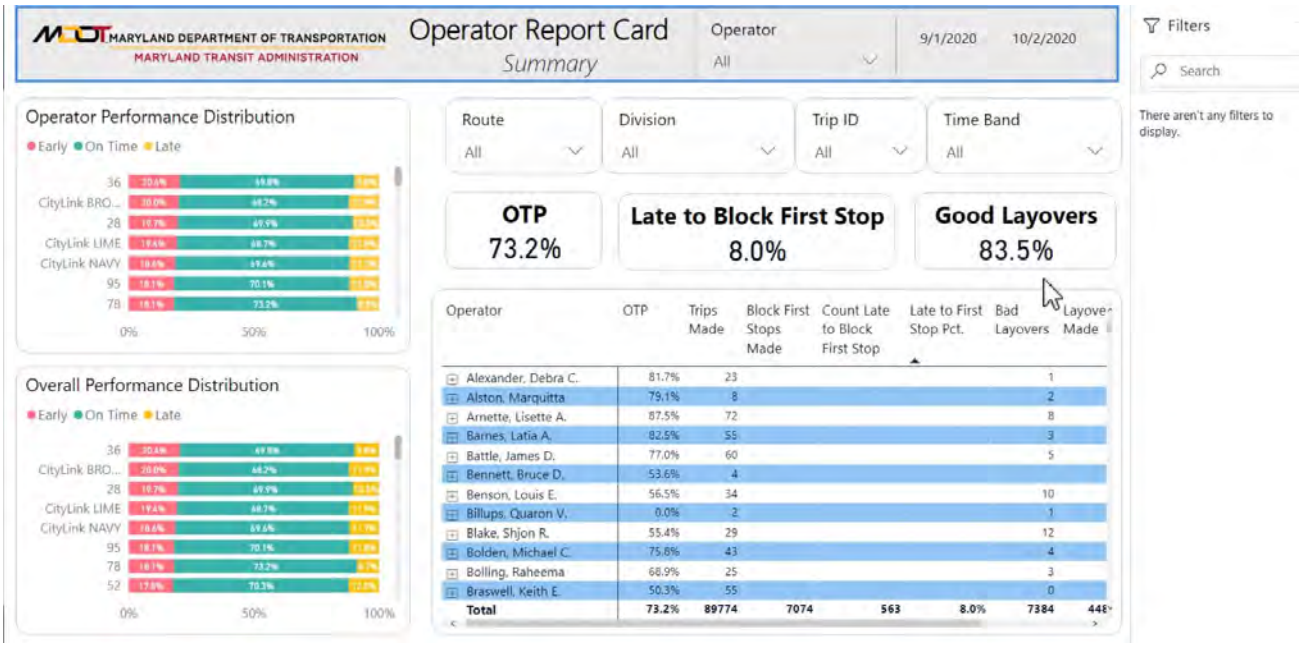

Figure 17: Example – MDOT MTA Bus Performance Dashboard – Operator Report Card 1

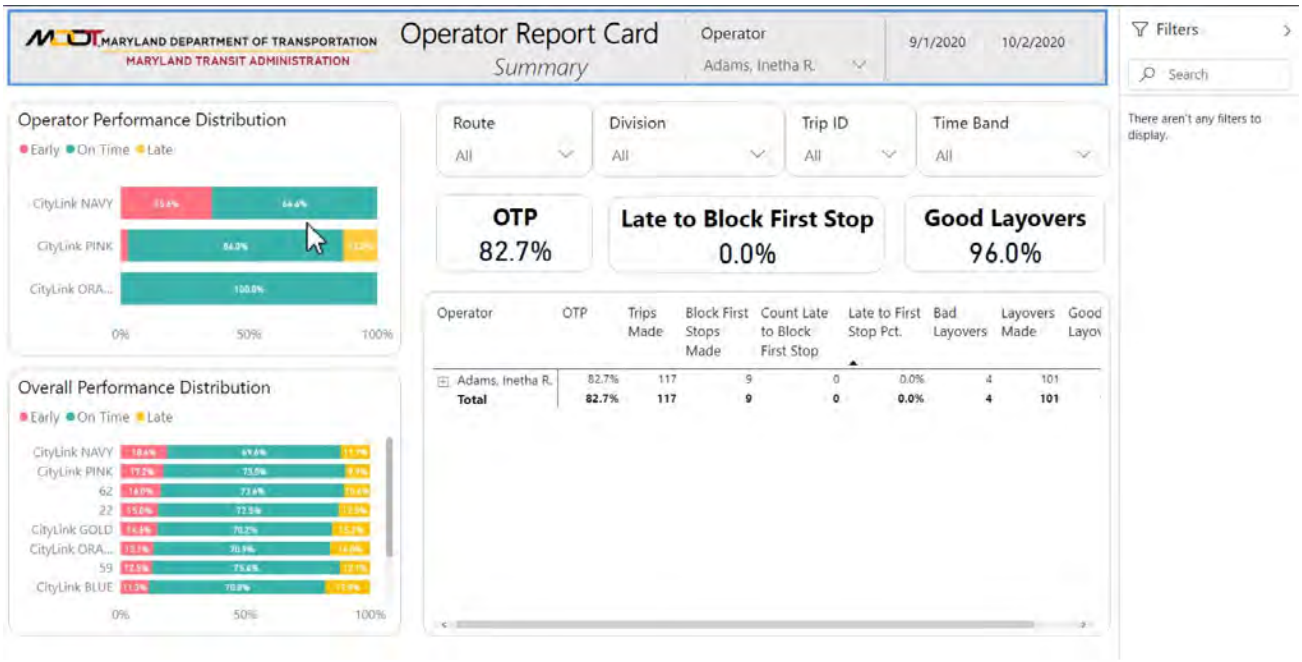

Figure 18: Example – MDOT MTA Bus Performance Dashboard – Operator Report Card 2

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6. Training Program

6.1 Effectiveness of Maintenance Training Program

6.1.1 GoDurham Bus Maintenance

There are clearly defined company resources available to GoDurham employees, which seem to be broadly understood; however, there was no documentation provided of maintenance-specific training requirements to determine the success or efficacy of GoDurham's maintenance training program. For example, there is no *mandatory* maintenance-specific training provided in the documentation and the Director of Maintenance for DCTC noted a lack of safety training.

Recommendation: If an informal, mandatory training regimen exists, it must be documented, and records of completion retained for employees within the organization. If not, this program should be developed with input from front-line capital asset and rolling stock maintenance employees and supervisory/administrative staff. Key components of any proposed mandatory training should minimally include:

- Advance notice to staff and employees of mandatory training availability
- Positions required to attend
- Trainer (including brief background)
- Training date(s)
- Title of training
- Period for which the training is valid
- Number of continuing education units (CEUs), if relevant
- Certificate of completion
- Official attendance sheet singed by attendees

In addition to no mandatory training for maintenance-specific staff, there were no records provided for optional training opportunities or optional maintenance-specific training regimens.

Recommendation: If an informal optional training regimen exists, it must be documented, and records of completion retained for employees within the organization. If not, this program should be developed with input from frontline capital asset and rolling stock maintenance employees, supervisory/administrative staff. Key components of any proposed training should include:

- Advance notice to staff and employees of optional training availability
- Positions eligible to attend
- Trainer (including brief background)
- Training date(s)

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- Title of training
- Period for which the training is valid
- Number of CEUs, if relevant
- Certification of completion
- Official attendance sheet singed by attendees

Pre-employment training manuals were not provided for GoDurham maintainers. There also is no documentation for review of the pre-employment or onboarding process for maintenance staff. Onboarding new staff through an informal process, lacking structure, was noted as an issue that should be addressed through staff interviews.

Recommendation: Commit to writing and retaining all documents used to onboard new employees to the organizational culture. Components of onboarding should minimally include:

- Comfortable understanding of the employee handbook
- Sign-off document that the employee has had an opportunity to review and understands all segments covered in pre-employment onboarding
- Organizational core values identified and discussed
- Review of roles and responsibilities
- Starting wage/benefits

The recommendations above are aimed at documenting and memorializing GoDurham's onboarding and training regimen, both required and optional, for maintenance staff. Once that documentation is available, the organization should keep records of completion for the purposes of providing opportunities for promotion, incentives, or pay raises—along with an audit of compliance to the program.

Recommendation: A module should be incorporated into existing software (i.e., financial, HR, or maintenance) that tracks and documents staff trainings completed, date completed, certifications, and CEUs required annually to maintain or enhance credentials.

6.1.2 GoDurham Access Maintenance

No documentation was provided specific to training for GoDurham Access maintenance staff. ***Training requirements and standards should be documented for purposes of review and compliance***.

6.2 Effectiveness of Operator Training Program

6.2.1 GoDurham Bus

GoDurham Bus operators receive three types of training: new operator training, annual operator training, and incident related training. New operator training is mandatory and utilizes the TAPTCO Transit Operator Development Syllabus which consists of three weeks of classroom and behind the wheel training.

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Training includes a combination of the following (hours):

- Classroom Hours (22.3)
- Pre-Driving Skills (7.0)
- Observation (22.5)
- Behind the Wheel (18.5)
- Driving with Passengers (40)

These new operator training components combined equals roughly 110 hours. For operators involved in incidents, retraining is approximately four to eight hours.

Recommendation: It is not obvious if new operator training includes the opportunity to drive each GoDurham bus route. If new operators are not doing this, it would be considered a best practice to orient drivers—whether as part of behind the wheel training or through other means such as videos accessible to drivers. Videos could also serve as refresher training when operators pick new work on bus routes that they are less familiar with to orient them to timepoints, stops, and any geographic challenges.

In addition to new operator training, operators are provided eight hours of annual training. It is unclear if this is related to new services, refresher training, or customer service or if it is mandatory or optional. It is not clear if these training hours are documented through payroll in order to track attendance and completion. It is worthwhile to note there is no absence code for annual training in the payroll records received by the consulting team.

Recommendation: Annual training topics should be developed with input from operators and street supervisors. Additional input could come from customer service and planning. Training topics could be tied to Key Performance Metrics such as customer service complaints, on time performance, and safety records. Training participation should be tracked through payroll and participants should be acknowledged for their participation, if optional.

GoDurham also provides incident related training, approximately four to eight hours each time training is required. Per the collective bargaining agreement, an Accident Review Board comprised of management and bus operators determines whether an accident is preventable but does not determine discipline. It is unclear how incident related training relates to decision of the Review Board or subsequent disciplinary action.

Recommendation: If incident related training is determined by referral of the Accident Review Board, documentation of remedial training should be noted in an operator's personnel file. Periodic review of accident patterns, by operator, route, or other measures could help identify unsafe bus stops, route alignments, or shortcomings in other aspects of operator training and supervision.

The recommendations above are aimed at documenting and memorializing GoDurham's onboarding and training regimen, both required and optional, for bus operators. Once that documentation is available, the organization should keep records of completion for the purposes of providing opportunities for promotion, incentives, or pay raises—along with an audit of compliance to the program.

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6.2.2 GoDurham Access

The training syllabus for paratransit operators was provided for review and is sufficient for onboarding of new Paratransit operators. However, it is unclear if there is any opportunity for continued learning, either mandatory or optional, for operators through their employment with GoDurham Access.

6.2.2.1 Paratransit Operator Training

Paratransit operators undergo three weeks of training. The first week consists of 36 hours of classroom, observation, and behind-the-wheel training on the following topics:

- Federal Regulations
- Safety and Defensive Driving
- About the Bus
- Driving Situations
- About the Driver
- About the Passengers

The second week consists of 36.5 hours of classroom, observation, and behind-the-wheel training on the following topics:

- Americans with Disabilities
- Additional Programs
- Emergency and Accident Procedures
- Final Exam

The third week is exclusively 40 hours of cadet driving with passengers.

Recommendation: Beyond this three-week training program, it is unclear if GoDurham offers continual learning trainings to existing operators. If they were to do so, annual training topics should be developed with input from operators and supervisors, as well as customer service and planning staff. Additionally, periodic review of accident patterns, by operator, location, or other measures could help identify unsafe practices that may be remedied by increased training.

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7. Transit Operations

7.1 Bus Service Delivery

Fixed-route bus service data from July 1, 2019 through March 31, 2020 was utilized in the analysis below, to illustrate the performance of service against the agency's stated standards.

7.1.1 Relief Vehicle Analysis

In order to determine the routes most likely to benefit from the deployment of strategic spares, the project team analyzed on-time performance (OTP) and loading conditions for all routes in near proximity to Durham Station. Looking at these metrics will allow a strategic spare to help combat the issues that go along with poor performance—late and early bus departures and overcrowding. Adding a bus to a line spreads out ridership, which in turn improves the OTP of buses.

OTP and load conditions were summarized for each period of the day for the routes near Durham Station. The OTP values shown in the following table are how frequently each route was on time in the given time period. As noted in **Section 5,** *GoDurham Bus has a target of 95 percent on-time schedule adherence overall.* The routes with the lowest OTP and highest percentage of late trips, pulling down overall OTP performance below target, are summarized in **Table 10**.

The Maximum Load values represent the percentage of trips on that route in the specified time period where the average maximum load is greater than 30 passengers. Although typically 40 passengers is the threshold used to consider a bus overcrowded, the data set provides only the average value of trip maximum load during a month, so the overcrowded conditions are balanced out by lower crowding conditions, and the average values do not accurately reflect the frequency at which standing-room-only loading conditions occurred. Generally, loading conditions do not seem to reach standing-room-only very often.

Recommendation: Routes 5 and 15 have the potential to benefit from relief vehicles, because they have the lowest average OTP particularly in the PM Peak. Routes 9A and 9B would also benefit from relief vehicles due to their high max loads.

Table 10: Routes with Lowest OTP and Highest Percentage of Late Trips

Route	Time Period	# Trips	Average % OTP	Average % OTP	Max Load > 30	Average % Late
1	AM Peak	840	81.21%	82.46%	0.00%	3.98%
	Midday	1788	84.36%		0.00%	5.28%
	PM Peak	1092	79.17%		0.00%	10.63%

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Route	Time Period	# Trips	Average % OTP	Average % OTP	Max Load > 30	Average % Late
	Evening	1601	82.50%		0.00%	7.46%
	Overnight	1205	83.47%		0.00%	1.97%
1A	AM Peak	1056	85.52%	79.92%	0.00%	4.41%
	Midday	2112	86.99%		0.00%	8.78%
	PM Peak	1408	66.64%		0.00%	30.71%
	Evening	0	-		-	-
	Overnight	176	67.79%		0.00%	2.08%
2A	AM Peak	1056	77.46%	77.35%	0.00%	18.25%
	Midday	2112	85.36%		0.00%	11.23%
	PM Peak	1408	64.34%		0.00%	33.60%
	Evening	0	-		-	-
	Overnight	176	84.62%		0.00%	10.48%
4	AM Peak	2957	81.35%	76.42%	0.00%	8.92%
	Midday	6012	78.46%		0.00%	16.96%
	PM Peak	3832	67.19%		0.00%	28.74%
	Evening	1601	79.06%		0.00%	9.42%
	Overnight	1507	79.24%		0.00%	2.03%
5	AM Peak	2995	79.33%	73.56%	0.00%	6.67%
	Midday	6112	76.68%		0.25%	13.55%
	PM Peak	4076	65.15%		0.37%	27.05%

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Route	Time Period	# Trips	Average % OTP	Average % OTP	Max Load > 30	Average % Late
	Evening	2099	74.42%		0.00%	11.50%
	Overnight	1699	71.28%		0.00%	5.38%
6B	AM Peak	1048	74.86%	76.02%	0.00%	22.70%
	Midday	2104	83.23%		0.00%	14.76%
	PM Peak	1224	63.47%		0.00%	33.80%
	Evening	0	-		-	-
	Overnight	176	84.14%		0.00%	7.23%
9	AM Peak	240	79.74%	76.28%	0.00%	3.27%
	Midday	588	80.85%		0.00%	7.21%
	PM Peak	392	76.64%		0.00%	4.99%
	Evening	1651	75.44%		0.00%	10.66%
	Overnight	1105	74.22%		0.00%	5.34%
9A	AM Peak	1356	81.07%	80.04%	0.00%	7.93%
	Midday	2712	82.80%		0.00%	9.26%
	PM Peak	1808	74.24%		1.16%	17.69%
	Evening	0	-		-	-
	Overnight	226	87.01%		0.00%	6.25%
9B	AM Peak	1356	75.81%	74.90%	0.00%	4.67%
	Midday	2712	77.26%		0.00%	6.07%
	PM Peak	1582	70.35%		1.33%	12.53%

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Route	Time Period	# Trips	Average % OTP	Average % OTP	Max Load > 30	Average % Late
	Evening	0	-		-	-
	Overnight	226	72.91%		0.00%	5.65%
10A	AM Peak	2112	84.20%	81.59%	0.00%	3.95%
	Midday	4224	82.91%		0.09%	10.32%
	PM Peak	2640	77.82%		0.91%	18.77%
	Evening	0	-		-	-
	Overnight	352	78.44%		0.00%	8.16%
10B	AM Peak	2210	86.21%	87.10%	0.00%	3.89%
	Midday	5424	88.85%		0.00%	3.38%
	PM Peak	2938	84.53%		0.00%	8.36%
	Evening	0	-		-	-
	Overnight	0	-		-	-
15	AM Peak	1221	65.18%	70.64%	0.00%	29.28%
	Midday	2513	75.95%		0.00%	20.47%
	PM Peak	1820	54.82%		0.00%	42.61%
	Evening	1221	75.21%		0.00%	21.73%
	Overnight	1001	87.13%		0.00%	4.09%

The maximum load analysis above indicates that GoDurham does not have issues with crowding on buses during the time period of analysis. However, the passenger trip data from NTD indicates that some overcrowding would occur. The automated passenger counter (APC) data utilized for this analysis may require calibration to determine if these results are accurate. The current results do not indicate a need for relief vehicles due to crowding.

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7.1.2 First Timepoint of Block Data Analysis

The loss of OTP can oftentimes be explained through factors that are outside of any transit agency's control—construction, accidents, general traffic, and many others. However, the first stop of any block that is pulling out of the bus depot is largely within the control of the transit agency. A targeted way to evaluate how well pre-start operations are performing is to consider only the first timepoint of any block.

As shown in **Table 11**, the vast majority of routes perform worst on its very first timepoint of the day when compared to the route performance at large. This indicates that there are struggles in getting the buses out on the street in a timely manner. This could be due to several reasons—equipment not being ready when necessary, operators not leaving the depot in a timely manner, or the deadhead schedule not being sufficient to reach the first timepoint. All these possibilities should be investigated further to ensure that routes are starting on-time, which will in turn improve overall OTP.

Table 11: First Timepoint OTP and Overall OTP

Route	First Timepoint OTP	Overall OTP
1	72.05%	81.87%
1A	51.43%	80.21%
1B	93.12%	87.11%
2	77.04%	82.57%
2A	69.90%	82.66%
2B	64.09%	82.70%
3	75.63%	88.58%
3B	78.41%	85.31%
3C	85.09%	86.49%
3T	89.56%	86.28%
4	78.44%	79.46%
5	58.42%	75.21%
5B	72.41%	85.16%
6	63.63%	80.47%
6B	59.65%	80.23%
7	68.93%	85.37%
8	57.07%	85.15%
9	66.29%	76.69%
9A	60.70%	80.24%
9B	77.36%	73.33%
10	76.10%	80.90%
10A	73.22%	81.02%

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Route	First Timepoint OTP	Overall OTP
10B	77.02%	86.18%
11	70.46%	82.92%
11B	77.36%	81.50%
12	55.26%	80.65%
12B	66.33%	81.64%
14	51.80%	68.19%
15	64.85%	77.04%
20	62.96%	71.28%
23	62.23%	78.09%
Bull City Connector	65.79%	72.32%
NHS	73.28%	73.20%

As observed from other agencies, having pull-in/pull-out service can allow for a route to recover its overall OTP, as lateness can accumulate throughout the service day; however, GoDurham Bus appears to have minimal pull-in/pull-out service at all, so an additional analysis was performed to determine if there was any apparent issue with having no ability to "reset" the routes.

To see if this was a detriment to the overall performance of the system, individual trips were analyzed over all timepoints. As an example, the OTP of Route 3 is shown in **Table 12** and shows the pattern generally seen in all routes over time. There is an abrupt drop in OTP during the PM peak, which indicates that the on-street relief strategy is not causing a gradual decrease in OTP, but the low OTP during the PM peak is due to other causes.

Table 12: Route 3 Average On-Time Performance over the Course of a Day

	Route 3 OTP
12 AM	85.35%
5 AM	88.20%
6 AM	87.52%
7 AM	91.21%
8 AM	88.07%
9 AM	89.12%
10 AM	91.03%
11 AM	92.22%
12 PM	90.37%
1 PM	91.41%
2 PM	90.15%
3 PM	91.10%

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	Route 3 OTP
4 PM	81.85%
5 PM	78.97%
6 PM	77.95%
7 PM	84.32%
8 PM	88.06%
9 PM	87.48%
10 PM	89.36%
11 PM	88.57%

Recommendation: GoDurham's typical structure for building runs works well; however, there may be some extra attention warranted during the PM peak period, as there is a significant drop in performance.

7.1.3 Missed Trips Analysis

Missed trips also were analyzed to determine if any routes are not functioning well, and at which times of day trips are frequently being cut. The percentages of planned trips on each route that were completed are summarized in **Figure 19**. The data indicates that 663 out of a total of 235,134 trips that were scheduled during the analysis period were missed; or 0.3 percent of total trips were missed. Overall, this indicates very good performance for the percentage of cuts. For reference MDOT MTA's target for total trips missed is 1 percent.

However, within the 2,971 unique trips that GoDurham Bus provides on a weekly basis there are 3 percent of those trips that have 5 percent or more of their trips cut. This indicates that certain trips are having issues with performance. The figures that follow illustrate which routes, times, and days are underperforming.

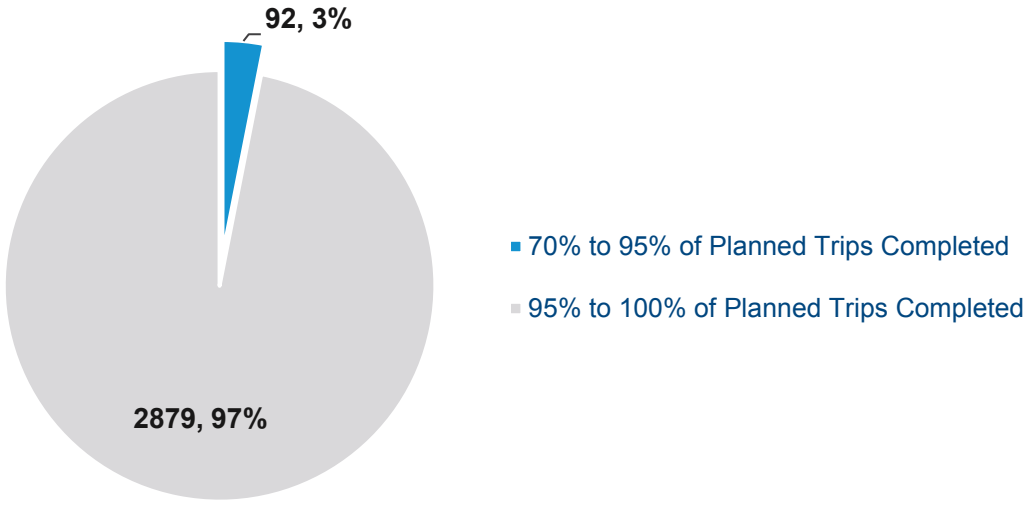

Figure 19: Trips with X Percent of Planned Trips Completed

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Of the trip IDs that missed more than 5 percent of planned trips, most of them were on the Bull City Connector route, as shown in **Figure 20**.

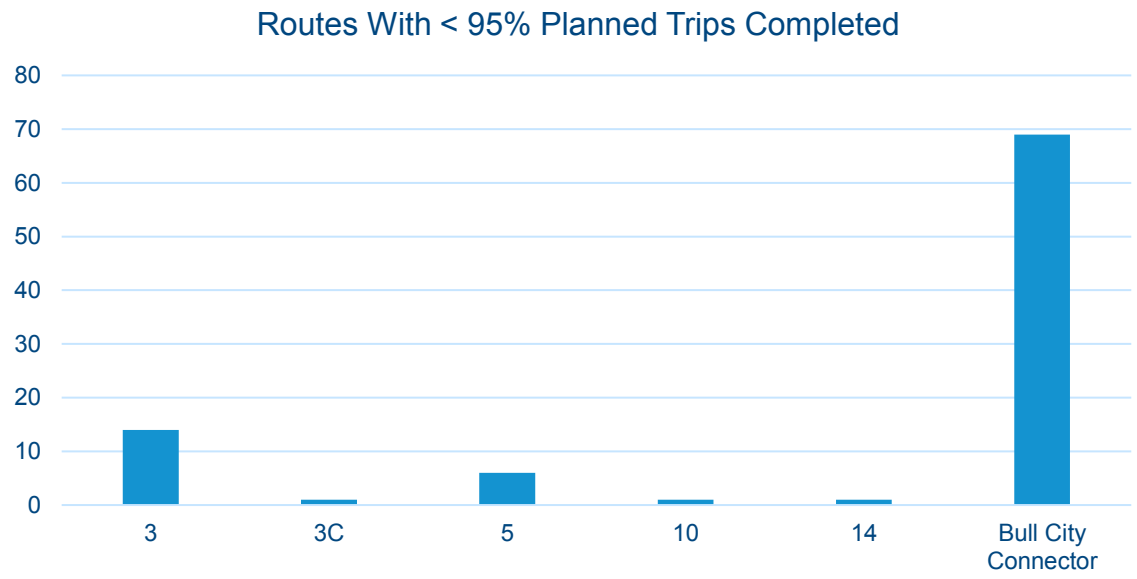

Figure 20: Summary of Most Commonly Missed Trips

As shown in **Figure 21**, all of these commonly missed trips occurred between the midday and evening peaks, with more than half occurring during the PM Peak.

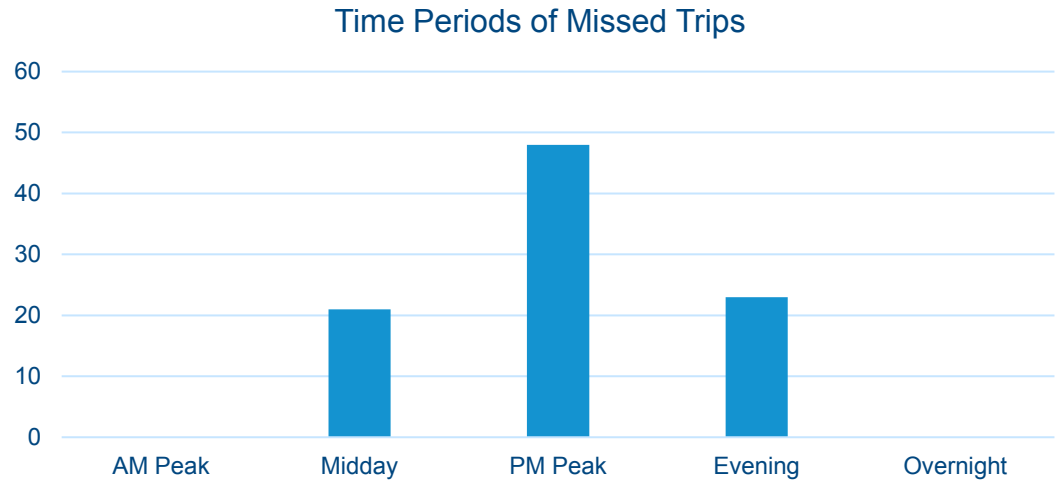

Figure 21: Time Periods of Missed Trips

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Most of these commonly missed trips occur on weekends and holidays, with nearly 90 percent occurring on Saturdays, as shown in **Figure 22**.

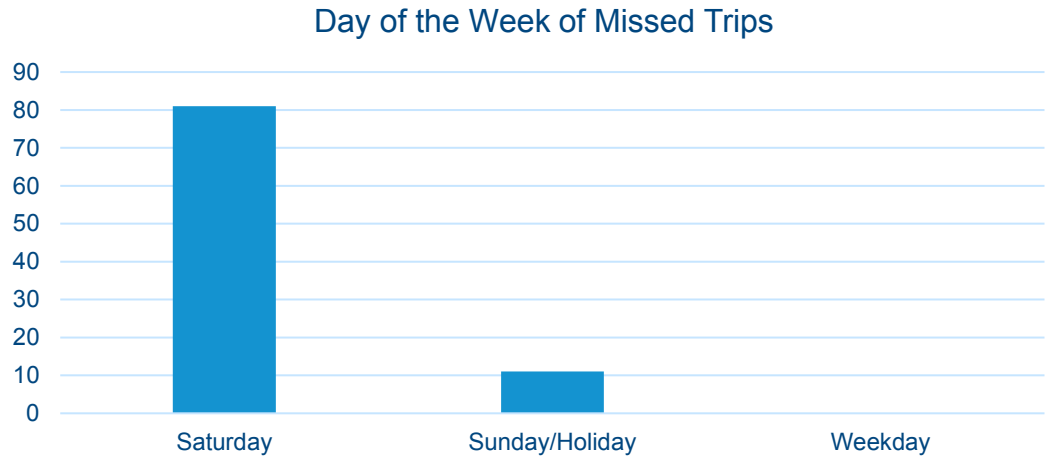

Figure 22: Day of the Week of Missed Trips

Using this analysis to look further into Bull City Connector routes, it is apparent that the most problematic part of the routes with the most missed trips occurs on Saturdays during the PM peak period. Route 3 would be the next route to consider and as it is struggling to make their trips on Sundays and holidays during the PM Peak period.

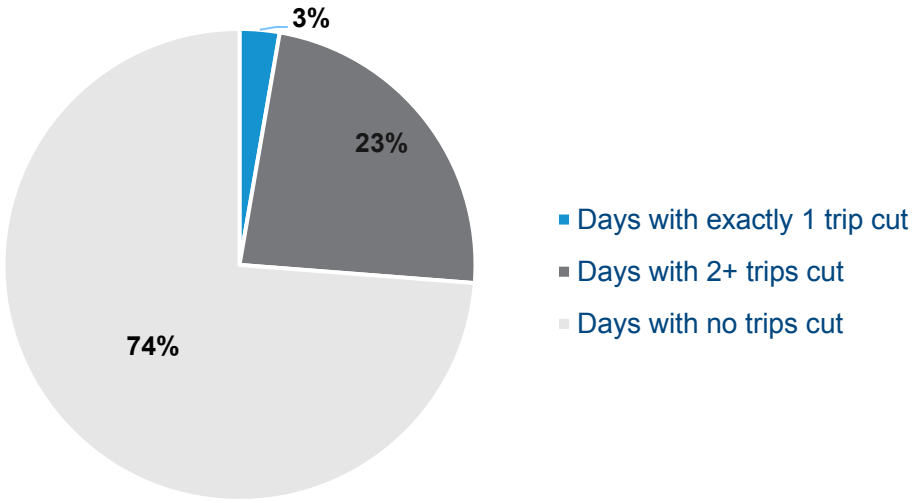

Figure 23. Cut Trips per Day July 2019 - December 2019

Cut trips were also considered through the service standard, which is “Missed trip level of no more than one (1) missed trip per each operating day.” A period from July 2019 to December 2019 was evaluated. Nearly a quarter of all days in this period failed to meet the service standard, as two or more trips were cut throughout the day. On average over this period 3.62 trips were cut per day.

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Recommendation: GoDurham should investigate the reasons to why these trips were not made—it could be based in a variety of reasons including lack of operators, insufficient extraboard, or equipment shortage. Depending on the primary issue, the right resource will have to be expended to correct the issue.

7.1.4 Bus Stop Spacing

GoDurham's *Service Standards* include a bus stop spacing standard designed to ensure the efficient placement of bus stops throughout the service area. The *GoDurham Bus stop Installation Guidelines* document (February 3, 2008; revised 2009) provides further details about stop placement and removal along GoDurham's fixed routes. It is unclear from the initial review of documents what the minimum and maximum spacing distances are for GoDurham Bus, though the standards note that:

Determinants of the spacing configuration include population density, land use proximity to schools and business centers as well as other equally important consideration as the residential areas for the elderly and the disabled.

The SWOT analysis pointed out that many bus stops are underutilized due to tight spacing of stops on some routes. Tight spacing of stops also can contribute to "bunching and queuing" of buses due to any extension of dwell time at a stop. To help make bus service more reliable and consistent, GoDurham should review its bus stop spacing practices. An evaluation of GoDurham's stop spacing from the summer of 2019 was performed using General Transit Feed Specification (GTFS) files and is shown in **Table 13**. On average, GoDurham's stops are about a quarter-mile apart, which tends to be best practice in urban areas; however, there are many routes well under that average where compliance to minimum stop spacing should be evaluated.

Table 13: Summary of Existing Bus Stop Spacing

Route Number	Route Name	Average Stop Distance (miles)
1	Northgate-North Pointe-Croasdaile Crossings-Willowdale	0.22
1A	Northgate-North Pointe-Loehmanns	0.22
1B	Northgate - Guess Road - Willowdale	0.23
2	East Durham-Angier Ave	0.27
2A	East Durham-Angier Ave	0.28
2B	East Durham-The Village	0.19
3	The Village - Glenview Station	0.23
3B	The Village-Highway 98-Southern High School	0.21
3C	The Village - Highway 98 - Rummel Street	0.22
3T	3Tripper The Village - Glenview Station	0.24
4	South Square - New Hope Commons	0.19
5	South Square - New Hope Commons	0.2
5K	South Square - Pickett Rd	0.17

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Route Number	Route Name	Average Stop Distance (miles)
6	Duke & VA - Hillsborough Rd	0.2
6B	NCCU - Hwy 54 & 55	0.31
7	Forest Hills-Weaver Street-MLK Jr Pkwy	0.21
8	Lawson Street - NCCU - Durham Tech	0.21
9	Dearborn Drive - Durham Regional - Foxfire - Riverview	0.19
9A	Dearborn Drive - Durham Regional - Riverside HS	0.2
9B	Dearborn Drive - Ben Franklin Boulevard - Northern HS	0.21
10	Hwy 54 & 55 - Southpoint	0.34
10A	TW Alexander - Brier Creek	0.91
10B	North Roxboro - North Duke Crossing	0.18
11	Fayetteville St-NCCU-Southpoint	0.24
12	Fayetteville Street Tripper	0.2
12B	NCCU - Hwy 54 & 55	0.31
14	Duke & VA Hospitals-American Village	0.21
15	Duke & VA Hospitals-Sparger Rd	0.23
20	Woodcroft - South Square - Duke & VA Limited	1.17
23	The Village - East Durham Link	0.23
BCC	Bull City Connector	0.2
	Average Total Stop Distance (weighted by # of trips)	**0.24**

Note: NHS Tripper removed as an outlier with more than seven miles between stops and one daily trip.

The averages shown in **Table 13** can obscure the locations where spacing is particularly tight as shown in Figure 24: Sample Map of Spatial Analysis of Bus Stop Spacing – Route 10B**Figure 24**. On this route, the average stop spacing is 0.17 miles, or 897 feet, but there are areas along University Drive and Chapel Hill Road with even tighter spacing. The spacing on this route may be warranted due to population density and activity centers, according to GoDurham's policy though ***additional review would help determine appropriate spacing to ensure efficient use of the infrastructure.***

A framework for evaluation is provided in the section that follows, based on the bus stop design standards used by MDOT MTA.

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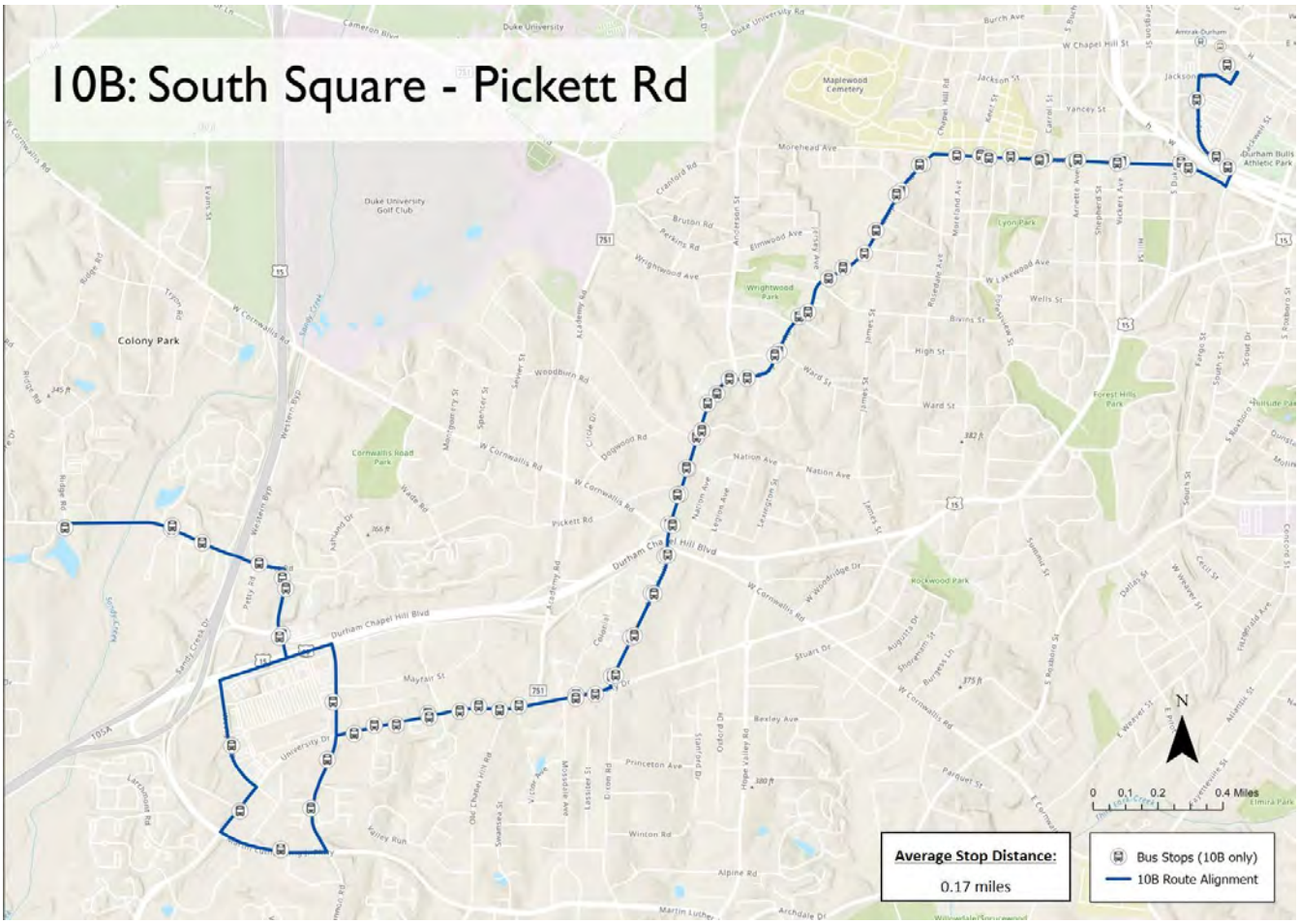

Figure 24: Sample Map of Spatial Analysis of Bus Stop Spacing – Route 10B

Examples from MDOT MTA's bus stop design guide are provided in **Figure 25** and **Figure 26** for consideration. Following processes similar to these will allow GoDurham to better serve its customers and create a more manageable system.

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Land Use Type	Land Use Type Example	Stop Spacing	Density[3] (Residents & Jobs)
High-Density Central Business Districts and Suburban Activity Centers	○ Downtown Baltimore ○ Eutaw Place in Bolton Hill ○ Fayette Street in East Baltimore ○ York Road in Towson (Figure 34)	750-1,000 ft. or every 2-3 blocks (5-7 stops per mile)	More than 30 people/acre
Medium-Density Residential/Commercial	○ Liberty Heights Avenue in Park Heights (Figure 45) ○ Ingleside Avenue in Woodlawn	750-1,320 ft. (4-7 stops per mile)	Between 15 and 30 people/acre
Low-Density Residential/Commercial	○ Edmondson Avenue in Catonsville (Figure 46) ○ Philadelphia Road in Rosedale	1,320-2,640 ft. (2-4 stops per mile)	Between 5 and 14 people/acre
Suburban/Rural	○ Ritchie Highway in Pasadena (Figure 47) ○ Eastern Avenue in Middle River	As needed	Less than 5 people/acre

Figure 25: MDOT MTA Bus Stop Spacing Guidelines

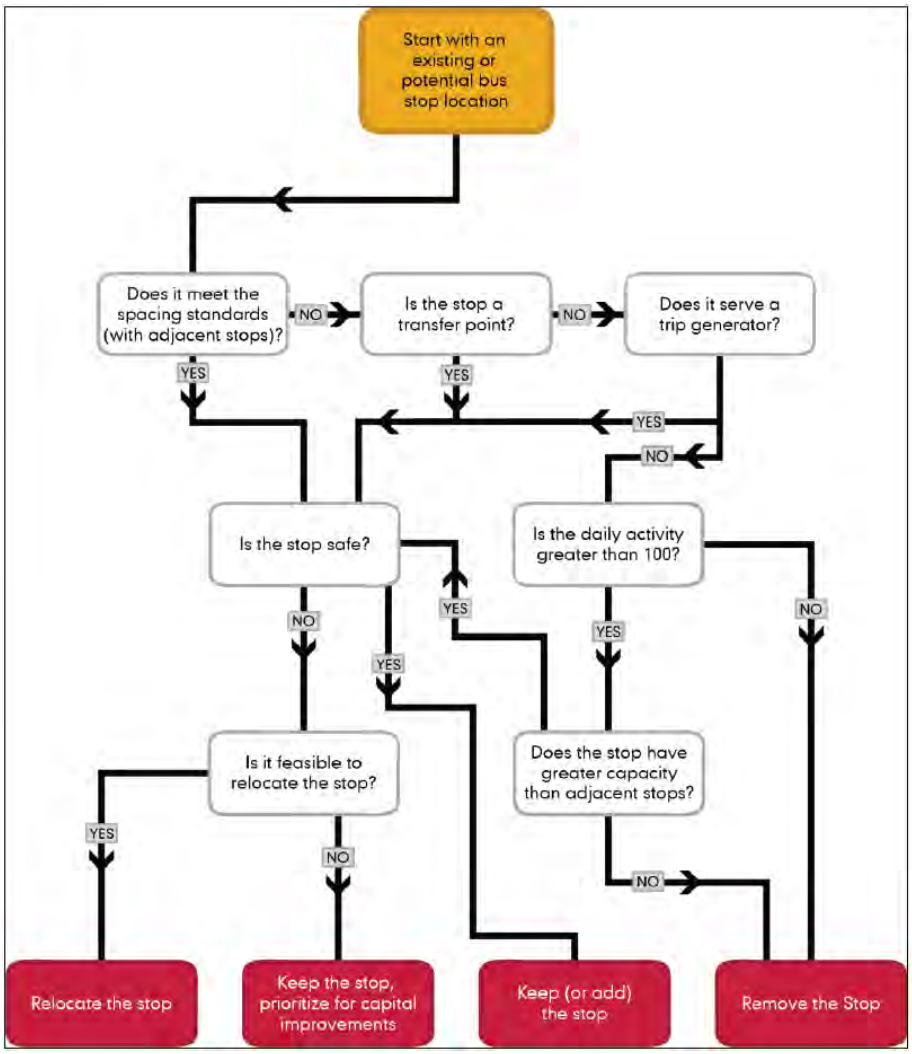

Figure 26: MDOT MTA Bus Stop Optimization Process

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7.2 Paratransit Service Delivery

The data below was provided for July 2019 through June 2020. Without documented service standards for comparison, it is unclear if this level of performance is aligned with the City's expectations for paratransit service in all cases. Comparing **Table 14** to the goals listed in the performance report, the paratransit service is meeting or exceeding goals for:

- Commendations
- Denials
- Percentage of all trips within 30 minutes

However, the goals are not being met for the remainder of the measures in the table.

Table 14: Aggregate Paratransit Service Metrics for FY20

	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	TOTALS
CUSTOMER SERVICE													
Complaints	4	5	3	2	5	2	5	6	2	0	0	0	34
Commendations	1	0	0	2	1	0	2	0	1	0	0	0	7
Denials	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Calls Answered	5,105	5,117	5,213	6,374	4,310	4,614	4,905	na	na	na	na	na	**35,638**
% Calls Answered	92%	90%	91%	92%	90%	86%	85%	na	na	na	na	na	**89%**
% Calls Answered in 1 min or less	92%	85%	86%	86%	85%	78%	75%	na	na	na	na	na	**84%**
Average Trip Time for All Trips (min)	32	32	33	34	34	33	33	34	33	25	25	26	**31**
% of All Trips Within 30 Minutes	71%	72%	71%	70%	71%	71%	70%	69%	65%	85%	85%	82%	**73%**

On-time performance for appointments and pick ups are shown in **Figure 27.** OTP for paratransit services averaged 82 percent for pick ups and 91 percent for appointments in FY20. Compared to the targets for service, OTP for pick ups was not met while OTP for appointments was exceeded.

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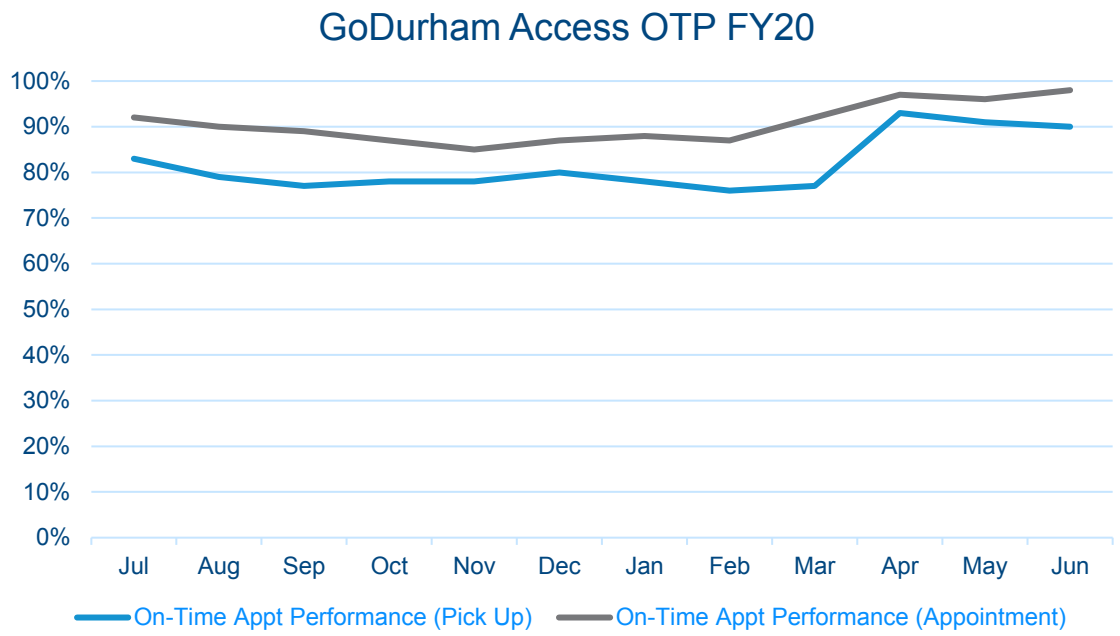

Figure 27: On-Time Performance for Paratransit FY20

The goals for processing calls to GoDurham Access are an average hold time of two and a half minutes and an average handle time of two minutes. In the months available for analysis in FY20, GoDurham has met the goal for hold times and only exceeded the handle time by one second. Trends in call times were stable across FY20, until COVID impacted services in February (**Figure 28**).

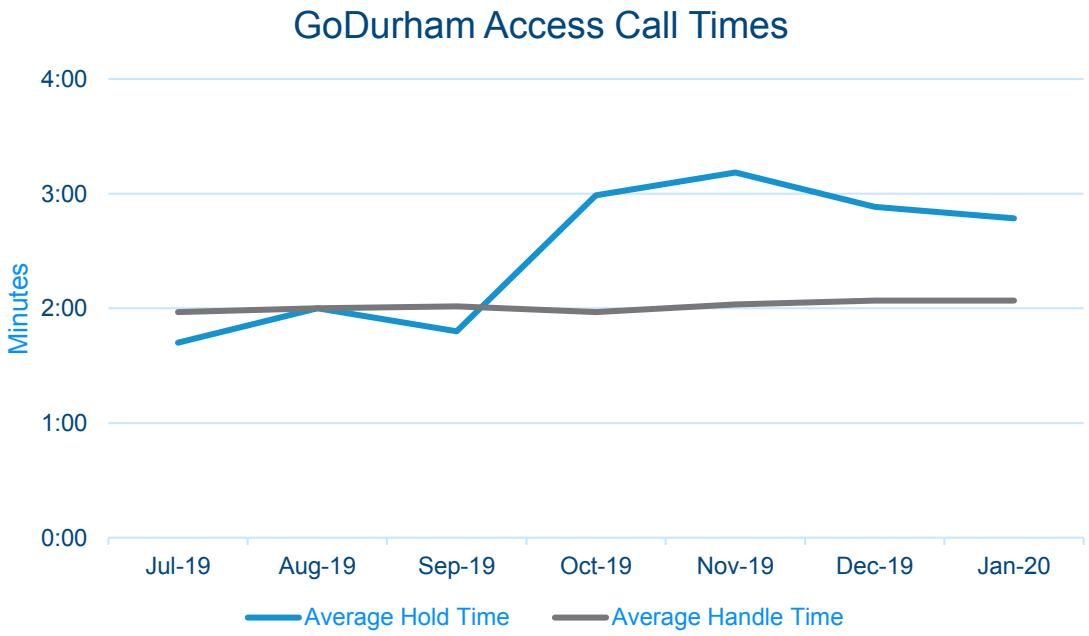

Figure 28: Call Times Performance for Paratransit: Paratransit Call Time Measures for FY20

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7.3 Staffing and Human Resources

GoDurham is undergoing this internal review of the policies and practices used to assign operator work, including utilization of spare and extra board tools, to determine how effective they are at meeting daily pull-out requirements in a cost-effective manner. In addition, this report presents findings from an analysis of operations administrative staffing in order to present recommendations for GoDurham to improve operator work practices and safety while continuing to provide high quality service to its customers.

It should be noted that GoDurham strives to offer competitive salaries, and a quality pension to retain employees within the agency. To further address issues with retention, GoDurham could also include health and wellness programs as well as skills training to improve retention. These programs have been successful with peer agencies. An employee satisfaction survey could be also used to better understand the issues related to turnover and provide the basis for more targeted actions.

7.3.1 GoDurham Bus

Fall 2019 and Winter 2020 Runboard data and four weeks total of sample payroll data during these timeframes allowed for an analysis of scheduled and unscheduled overtime, as well as a review of how work was covered during those service periods. In addition, data documenting operator employment levels and classifications of operator absences were provided for three one-month periods in August 2019, September 2019, and January 2020.

Data from Fall 2019 shows GoDurham was authorized 124 Full Time Equivalent (FTE) employees. In terms of positions, or “actual bodies,” GoDurham had 119 FTE’s, or five operators short of the authorized level.

One of the challenges for an analysis of this nature is the temptation to reduce issues to numbers. Some of the challenges facing all transit agencies relating to operator overtime are the impacts on transit operators, who may face driver fatigue due to ongoing operator shortages. Operator fatigue poses a risk for operators and passengers and may result in higher levels of absenteeism and accidents.

7.3.1.1 Scheduled Labor Deployment

GoDurham started each Runboard season with approximately 120 operators, broken down into the following types (**Figure 29**):

- Five-Day Schedule – 65 to 70 percent of operators were scheduled to work regular runs five days a week with two consecutive days off.
- Four-Day Schedule – Approximately less than a quarter (18 percent in Fall 2019 and 24 percent in Winter 2020) of operators were scheduled to work four days a week. Many of them have three consecutive days off, but some have two consecutive days off and a third day off that falls non-consecutively.
- Extra Board – The Fall 2019 Extra Board started with nine operators, and the Winter 2020 one started with eight.
- Vacation Board – Both sample Runboards had five operators on the Vacation Board.

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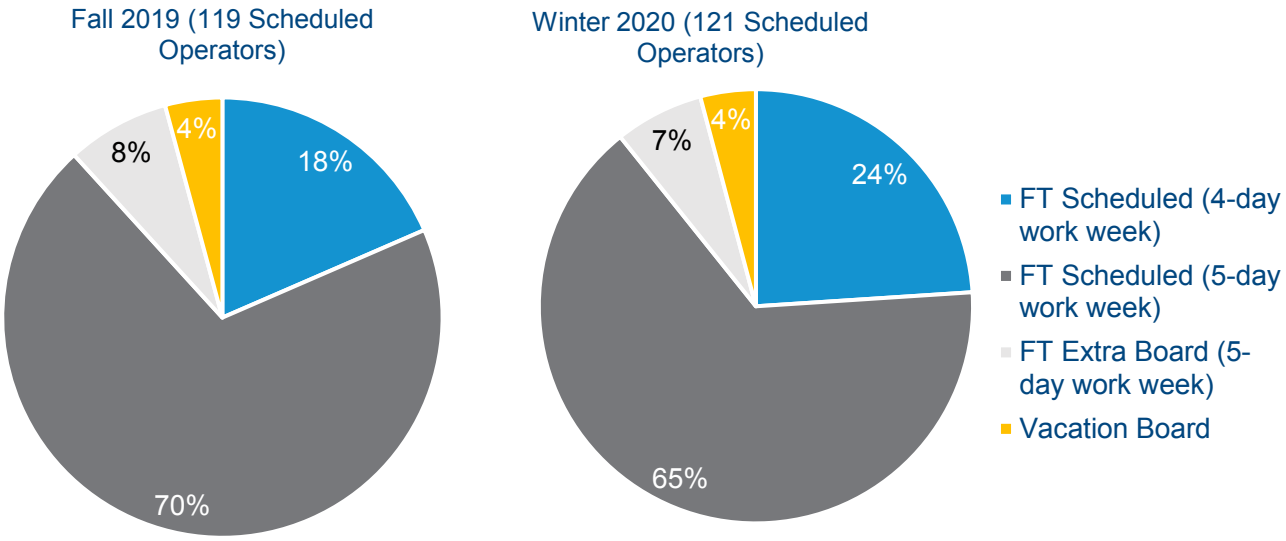

Figure 29: Types of Operators

The number of employees scheduled to work different operator roles fluctuated slightly as the Runboard season progressed, as shown in **Table 15**. During Fall 2019, a few schedules became permanently open (likely due to employees quitting, taking long-term absence, or being promoted), and there were some shifts between roles to fill other open runs. Note that this figure shows how many operators were scheduled to work in a given week, not how many actually showed up to work, which will be discussed in a later section.

Table 15: Number of Scheduled Operators

	At F19 Runboard Start	10/12-10/18	12/7-12/13	1/11-1/17	At W20 Runboard Start	2/29-3/6
Scheduled Operator (4-Day)	22	22	21	21	29	29
Scheduled Operator (5-Day)	83	81	81	82	79	79
Extra Board	9	9	8	8	8	8
Vacation Board	5	5	5	5	5	5
Total Operators	119	117	115	116	121	121
Open Schedules	0	2	3	2	0	0

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As shown in **Table 16**, the pay-to-platform ratio averaged 1.10 across all runs in Fall 2019 and 1.09 in Winter 2020. This ratio reflects a measure of pay in relation to time spent driving vehicles generating revenue—transit industry best practice is to maintain a pay-to-platform ratio below 1.1. ***GoDurham's scheduling performs well under this best practice and therefore should be maintained***.

Table 16: Pay-to-Platform Ratio

	Fall 2019	Winter 2020
Total Scheduled Paid Hours	4268	4391
Total Scheduled Revenue Hours	3896	4006
Pay-to-Platform Ratio	1.10	1.09

7.3.1.2 Overtime

In transit operations, overtime manifests for four reasons:

- Overtime to balance out the fact that transit operations seldom work perfectly for forty-hour work weeks. Being a little over 40 hours and paying overtime is better practice than operators working less than 40 hours and having to pay to bring them up to 40 hours.
- Overtime caused by needing more physical bodies to operate the service than allowed by a 40 hour per week schedule.
- Overtime that is caused by filling absences where operators are unavailable to work on any given day.
- Overtime that is the result of using operators to fill other job junctions, such as service supervisor or training instructor.

Factors Driving Overtime

Overtime practices vary widely among transit agencies. One of the largest components of those differences are calculating overtime after 40 hours in a work week, rather than over eight hours in a workday. GoDurham's overtime is based on a 40-hour work week, which provides a tool to maintain a lower overtime rate, assuming there are enough operators available to fill scheduled work. Many agencies do not share overtime data, but anecdotal evidence suggests that internal goals range from two-five percent scheduled overtime for agencies who package work on a 40-hour work week. Generally, this range is intended to maintain operator work weeks to a reasonable range of hours to ensure a reasonable work-life balance.

In addition to the way operator work is packaged for bidding, overtime can also be impacted by difficulties in recruiting and retaining bus operators. This issue has become more pronounced over the past several years throughout the transit industry. GoDurham maintains continuous recruiting and training and has utilized marketing efforts coordinated with GoTriangle, the Department of Economic Development, and community organizers.

Lastly, service expansion may require more operators, and a significant increase in FTE's requires coordination with human resources, operations, and training to ensure hiring and training aligns to meet publicly committed timetables to implement new services.

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Scheduled Overtime

GoDurham scheduled less than 2% of all operator paid hours at overtime.

In most transit operations, scheduled operator overtime is necessary to enable an agency to operate at an acceptable level of operating efficiency. For example, a bus schedule may operate over 18 daily hours. This schedule may be most efficiently "cut" into two operator "runs" or jobs, with each run being nine hours in length. A less efficient way to staff the bus over 18 hours would be to use three operators, two with eight hour shifts and a third with a two-hour shift. The lesser efficiency is primarily due to the increase in paid time that is unrelated to keeping the bus moving on its intended schedule, as well as the overhead costs associated with maintaining a third staff member.

Under the Labor Agreement between GoDurham and the Amalgamated Transit Union Local 1493, employees who work more than 40 hours a week are paid 1.5x rate for overtime. This overtime policy is consistent with the federal Fair Labor Standards Act where overtime is not accrued until an operator accumulates 40 hours in a work week. GoDurham makes 40 hours of work and two days off per week available for each full-time operator.

At issue for GoDurham, and many agencies, is how much scheduled overtime should be included as part of normal transit operations. As shown in **Table 17**, for the Fall 2019 Runboard, GoDurham has scheduled 1.6 percent of operator hours at overtime. For Winter 2020, the agency has 2.0 percent scheduled overtime hours. A majority of operators have some amount of scheduled overtime, with an average scheduled work hours per week slightly over 40. This scheduled overtime rate is low compared to industry standards.

Additionally, GoDurham has some scheduled pad time. "Pad time" is the time necessary to bring an operator up to a guaranteed 40 hours in a week where their actual paid hours do not total to 40 hours. For the Fall 2019 Runboard, there is only 1.17 hours of scheduled pad time per week. Pad time for Winter 2020 is greater, just under 18 hours per week which is close to half of an FTE. *In comparison, industry standards suggest a pad time less than ¼ of an FTE*, particularly where 40-hour work weeks are established rather than a daily guarantee.

Table 17: Weekly Scheduled Hours, Overtime, and Pad Time

	Fall 2019			Winter 2020		
	Total	Overtime	Pad	Total	Overtime	Pad
# of Scheduled Operators	105	87	7	108	67	37
Total Scheduled Hours	4267.72	68.88	1.17	4390.52	88.45	17.93
% of Scheduled Hours	-	1.6%	0.0%	-	2.0%	0.4%
Avg Hrs per Scheduled Operator	40.64	-	-	40.65	-	-
Total Unscheduled Hours	42.27	-	-	42.27	-	-

Recommendation: Maintain the low rates of scheduled overtime and ensure pad time is less than ¼ of an FTE.

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Actual Overtime

The number of operators working and the number of hours they work differ from the scheduled operators and hours due to a variety of factors, such as short-term and long-term leave, employee attrition, and new hires. **Table 18** shows the number of operators who are working (any amount of time) in each of the sample weeks, organized by type, compared to the number of operators scheduled to work. Across all operator types, slightly fewer operators are working than are scheduled to work. In three of the sample weeks, supervisors had to substitute in as operators to fill open trips. The sample weeks also all had several "Other Operators," or those who were not on the Fall 2019 or Winter 2020 Runboard but ended up taking shifts during the sample weeks. These operators are likely either new hires or returning employees who did not pick a run during the operator bidding process.

Table 18: Number of Operators Working by Sample Week

	Fall 2019				Winter 2020	
	Scheduled	10/12-10/18	12/7-12/13	1/11-1/17	*Scheduled*	2/29-3/6
Scheduled Operator (4-Day)	*22*	19	20	19	*29*	25
Scheduled Operator (5-Day)	*83*	77	73	75	*79*	73
Extra Board	*9*	4	6	6	*8*	7
Vacation Board	*5*	3	2	2	*5*	4
Other Operator	-	2	4	9	-	3
Supervisors (subbing as operator)	-	2	5	0	-	5
Total Operators	*119*	107	110	111	*121*	117

When scheduled operators do not or are not able to work their scheduled trips, other operators must fill in. Having more trips to fill than can be filled by the Extra and Vacation Boards results in unscheduled overtime for other operators.

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Table 19 shows the average number of hours worked by each operator type in each sample week. Across the sample weeks, scheduled operators (both four-day and five-day ones) are working on average one to four more hours than scheduled, however that additional time is not equally distributed among all operators. Extra Board operators are working on average three to 14 more hours than scheduled, while there is a wide range in Vacation Board and Other Operator work. Supervisors fill in for a few hours in each sample week.

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Table 19: Average Actual Worked Hours per Week

	Fall 2019				Winter 2020	
	Scheduled	10/12-10/18	12/7-12/13	1/11-1/17	*Scheduled*	2/29-3/6
Scheduled Operator (4-Day)	*40.43*	42.42	42.79	41.98	*39.79*	43.98
Scheduled Operator (5-Day)	*40.70*	43.73	42.67	42.35	*40.97*	41.81
Extra Board	*40.00*	48.56	53.57	43.93	*40.00*	47.06
Vacation Board	*40.00*	45.81	28.33	37.67	*40.00*	47.90
Other Operator		40.63	29.13	34.61		22.64
Supervisors (sub)		5.50	3.48			1.65

Though on average, operators are working just slightly over 40 hours a week, **Figure 30** shows how the range of work hours per week greatly varies by operator. The hours worked per week for each operator ranges for zero to 78. Each week, about 28 percent of operators work 48 hours or more, and about 9.5 percent of operators work 60 hours or more, though not necessarily the same operators each week. *The proportion of operators working long hours each week is relatively high compared to other agencies*.

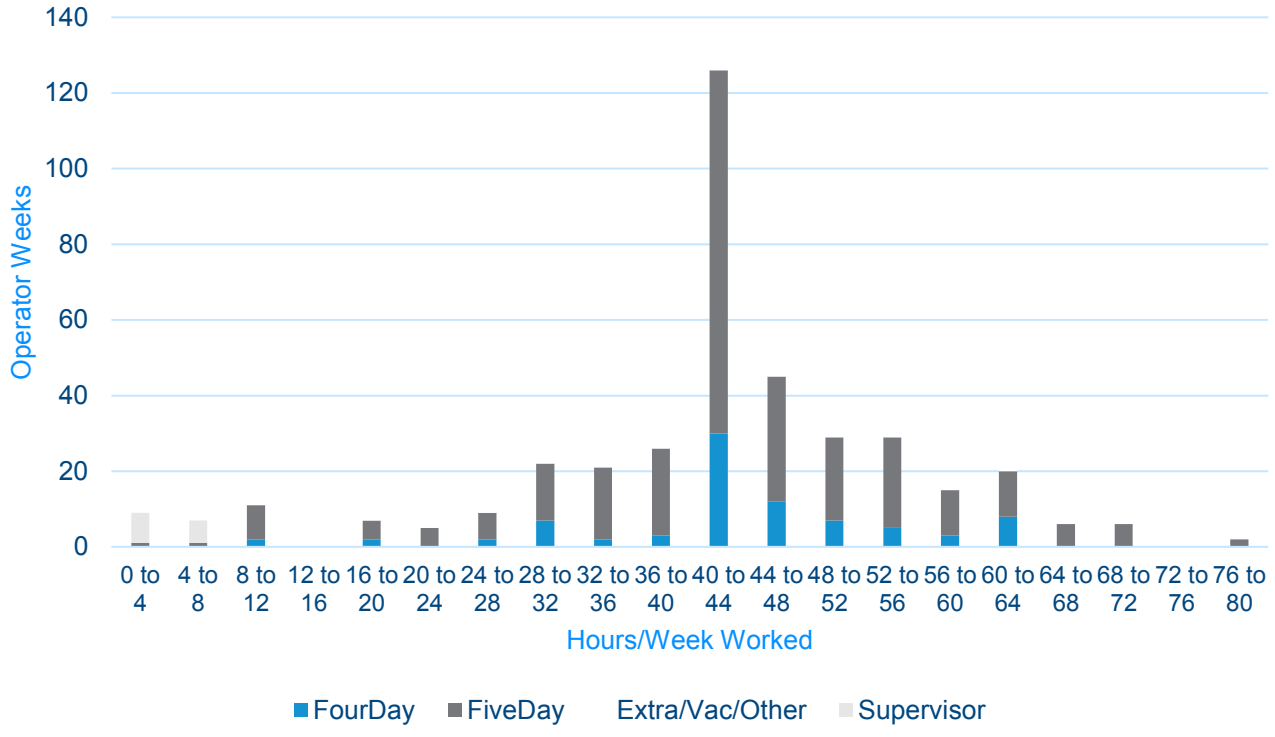

Figure 30: Distribution of Hours Per Week Worked (Across Four Sample Weeks)

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The wide range in number of hours actually worked per week leads to greater overtime rates than scheduled. Across the sample weeks, between 11 percent and 16 percent of hours worked are paid at overtime, compared to just less than two percent of scheduled overtime. On average, operators who are working overtime work about six to ten hours more than 40 hours per week (**Table 20**). This overtime rate is manageable, but a bit high compared to industry best practices. Averaging the four sample weeks, there are approximately 632 overtime hours each week, or the equivalent of almost 16 FTEs.

Table 20: Actual Overtime by Sample Week

	Fall 2019				Winter 2020	
	Scheduled	10/12-10/18	12/7-12/13	1/11-1/17	*Scheduled*	2/29-3/6
Regular Hours	*4,198.83*	3,915.15	3,779.05	4,108.15	*4,302.07*	4,134.60
Overtime Hours	*68.88*	692.78	703.75	515.82	*88.45*	614.08
% Overtime	*2%*	15%	16%	11%	*2%*	13%
Average OT for Operators taking OT	*0.81*	9.36	10.35	6.70	*1.32*	7.77

Overtime varies slightly by operator type, as shown in **Table 21**. There is little difference in overtime rate or average overtime hours between operators who are scheduled for four days and five days a week. Extra Board operators tend to work the most overtime, at 19 percent.

Table 21: Actual Overtime by Operator Type

	% OT Hours	Avg OT for Operators Taking OT
Scheduled Operator (4-Day)	13%	7.69
Scheduled Operator (5-Day)	14%	8.45
Extra Board	19%	10.96
Vacation Board	14%	10.96
Other	10%	7.41

Recommendation: GoDurham's relatively high unscheduled overtime rate means that there are many trips that are being fulfilled by operators working overtime. In order to combat operator fatigue and maintain quality service, GoDurham should set benchmarks to reduce the total overtime hours and the number of hours worked by each operator. For example, the agency can set goals to reduce total overtime hours to less than 10 percent of scheduled service and for no more than 10 percent of operators to work more than 50 hours per week. Meeting these benchmarks may require a combination of working with operators who seldom take overtime, adding more operator resources, and/or reducing absenteeism.

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7.3.1.3 Absenteeism

As one of the main causes of overtime, absenteeism was analyzed to understand how many scheduled operators were unavailable to work each day and for what reason. Attendance data was collected for GoDurham operations for the months of August 2019 and September 2019. January 2020 data was also collected, split into January 1-24 and January 25-31, which are the last few weeks of the Fall 2019 Runboard and the first week of the Winter 2020 Runboard, respectively. Therefore, this analysis is prior to COVID impacting operations.

Table 22: Absenteeism by Day for Sample Months

	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Average
August 2019 Average Week								
Scheduled Operators	65	34	83	83	83	83	83	-
Avg Absent	17.2	6	17.75	15.25	17	13.4	15.6	14.68
Avg Absenteeism	24.46%	17.65%	21.39%	18.37%	20.48%	16.14%	18.80%	19.95%
September 2019 Average Week								
Scheduled Operators	65	34	82	82	82	82	82	-
Avg Absent	20.5	8.4	15	20	19.75	17.75	24.75	17.6
Avg Absenteeism	31.54%	24.71%	18.29%	24.39%	24.09%	21.65%	30.18%	24.75%
January 1-24, 2020 Average Week								
Scheduled Operators	65	34	82	82	82	82	82	-
Avg Absent	16.67	8.33	16	17.33	13	18.25	13.75	14.79
Avg Absenteeism	25.64%	24.51%	19.51%	21.14%	15.85%	22.26%	16.77%	20.50%
January 25-31, 2020 First Week of Winter 2020 Runboard								
Scheduled Operators	70	40	83	83	83	83	83	
Avg Absent	16	5	13	13	12	7	16	11.71
Avg Absenteeism	22.86%	12.50%	15.66%	15.66%	14.46%	8.43%	19.28%	15.55%

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As shown in **Table 22**, absenteeism varies by day of week and month. On average across the three sample months, approximately 15 operators were absent during all or some part of the day, out of approximately 83 operators (less on weekends). This averages into a daily absenteeism rate of 21 percent, excluding scheduled vacation time. September 2019 had the greatest absenteeism rate, and the last week of January, at the beginning of a new Runboard, had the lowest rate. The improvement between September 2019 and January 2020 may be due to introduction of newly hired operators into the work force over the summer of 2019.

An absenteeism rate of 21 percent, or even the improved average of 15-20 percent in January 2020, is somewhat greater than some of GoDurham's peer agencies. The operator absentee rate is approximately 11 percent for Raleigh and 10 percent for COMET. For Rock Region Metro, the absenteeism rate has fluctuated between 15 percent and 40 percent during the COVID-19 pandemic, but prior to the pandemic, never rose above 25 percent.

Absences also varied by reason. As shown in **Figure 31**, on an average week in the three sample months, the top three reasons operators were absent were sickness, FMLA (family and medical leave), and on the job injury. Personal days closely followed.

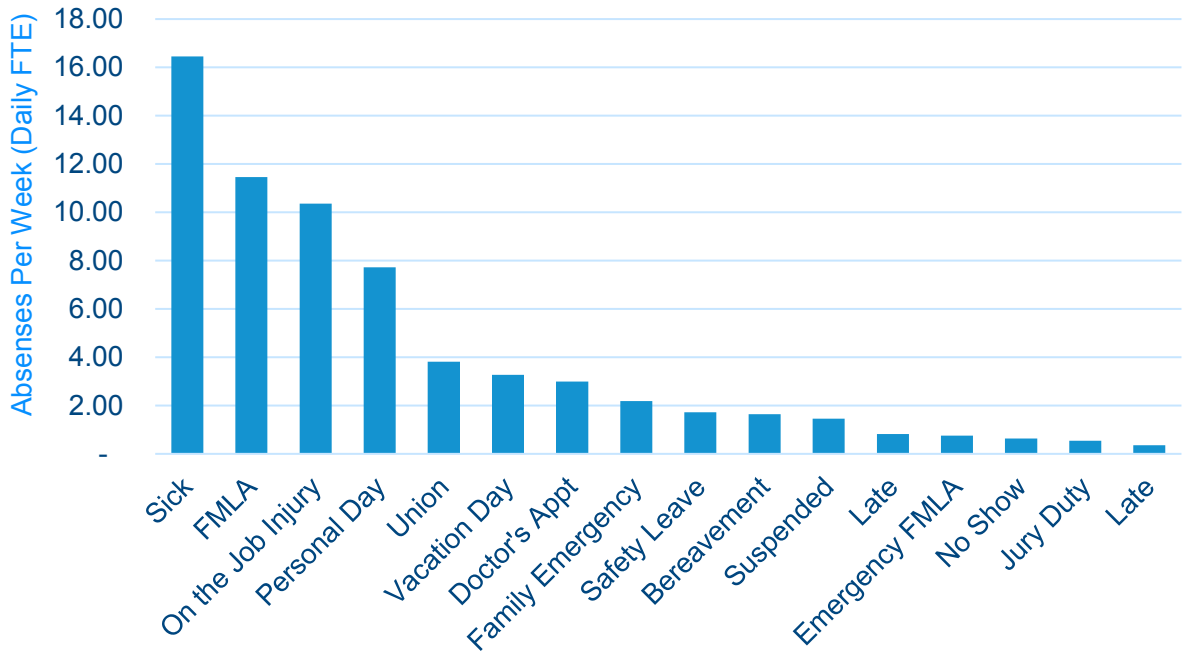

Figure 31: Weekly Absences by Reason

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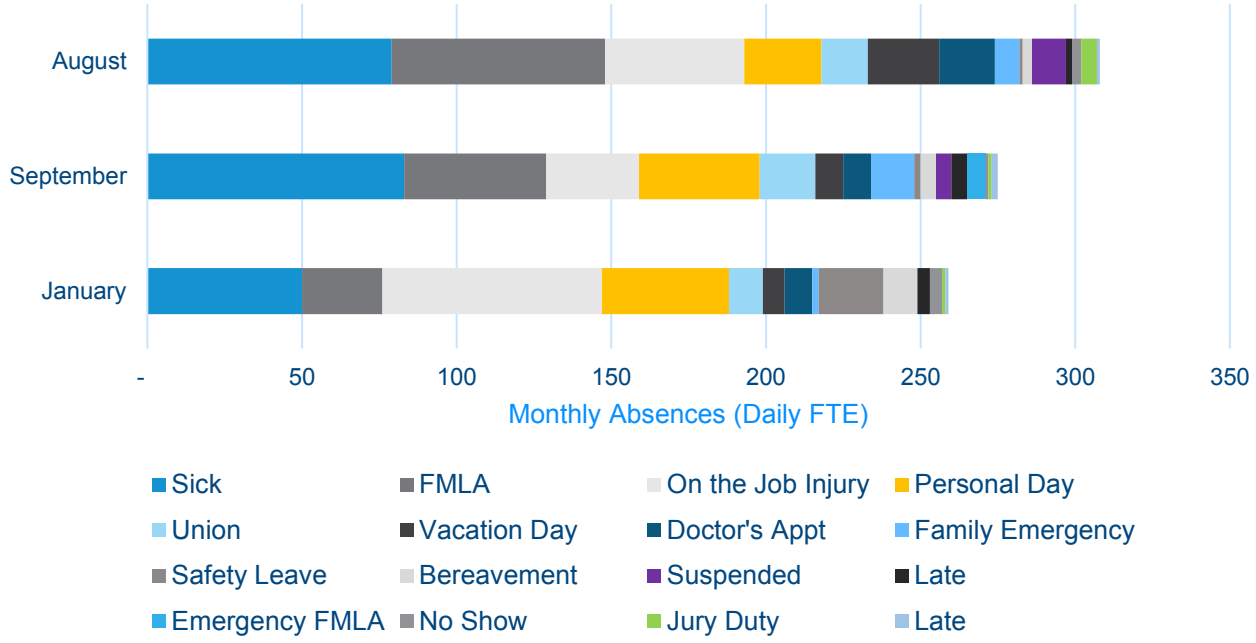

Figure 32: Absences by Sample Month

Figure 32 shows the absences by month by reason. From August to September to January of the next year, absences decreased in terms of hours. In January, sickness and FMLA are less than in the summer months, but on-the-job injury is considerably greater.

It should be noted that despite the high absenteeism rates, it does not seem to directly affect the performance on getting trips on the road. This could be occurring due to a number of factors, such as having sufficient extraboard, not scheduling aggressively enough for the number of rosters, or a high willingness to work overtime and cover these extra shifts. From the above overtime analysis, it is likely that this is the primary reason trips are still being performed.

Recommendation: GoDurham's absenteeism rates are relatively high and decreasing absenteeism should be a priority. Potential solutions include:

- Hiring more operators to achieve a more optimal distribution of hours worked per week in an effort to reduce workload stress that often leads to higher absenteeism.
- Revisit the attendance policy and disciplinary procedures.
- Establish a performance benchmark or goal to make it more obvious if action is needed to address absences. For example, a goal of 87 percent availability (13 percent absence rate).
- Consideration of tighter language in collective bargaining agreement (CBA) surrounding attendance policies.

7.3.1.4 Fatigue Management

Based on the union contract, operators are not allowed to work more than six days in a row or 15 hours in day, and they must have at least one day off every week. Managing operator fatigue

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is important in terms of safety, operator health, and decreasing absenteeism and overtime, plus improving retention.

Spread Time

Spread time is the number of hours between when an operator starts their first shift of the day and when an operator finishes their last shift of the day. Due to the nature of how runs are scheduled, an operator may either work one straight shift or split shifts, with time between shifts that they are not operating. Operators are only paid for hours that they are working.

Figure 33 and **Figure 34** shows the distributions of spread times scheduled on the Fall 2019 and Winter 2020 Runboards, respectively. Four-day and five-day work schedules are differentiated, since employees on the former schedule generally get paid for ten-hour workdays, while the latter gets paid for eight-hour workdays.

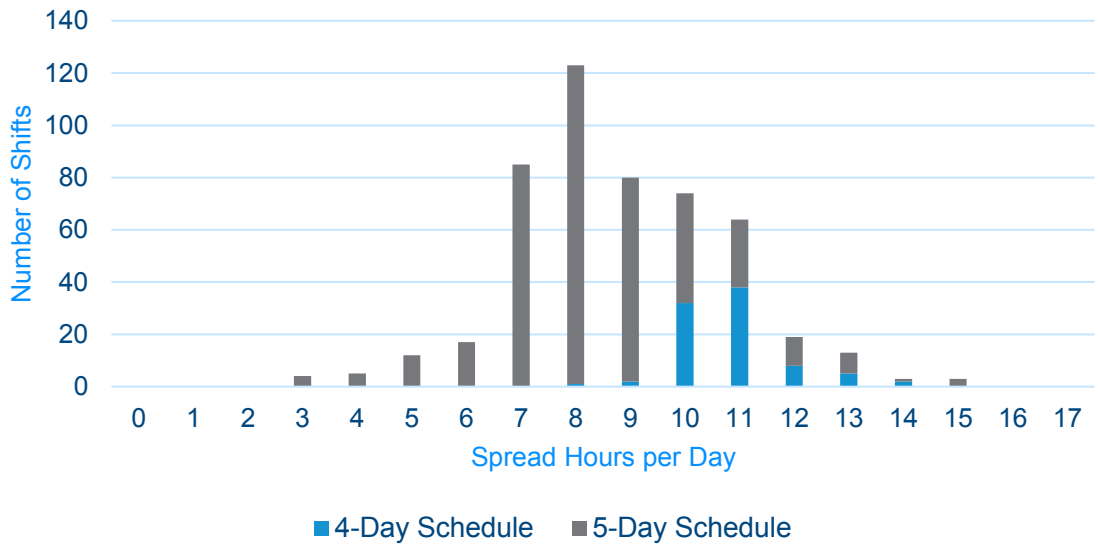

Figure 33: Distribution of Scheduled Spread Time (Fall 2019 Runboard)

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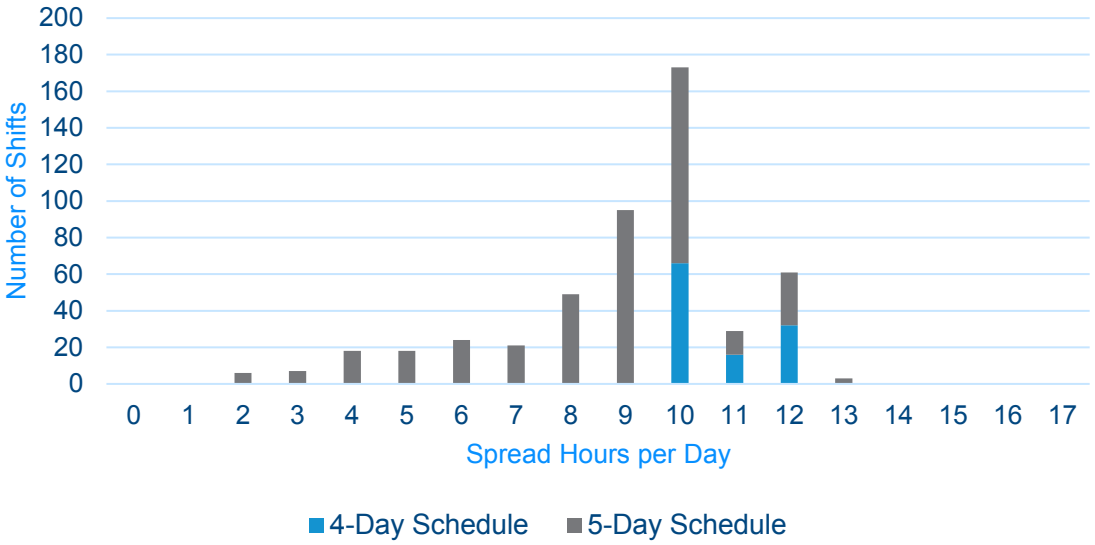

Figure 34: Distribution of Scheduled Spread Time (Winter 2020 Runboard)

For Fall 2019, most operator schedules have approximately 7 to 11 hours of spread time each day, but a sizeable number of shifts have scheduled spread times over 12 hours. The scheduling for the Winter 2020 Runboard improved, reducing spread times so that almost no shifts are spread over more than 12 hours.

Figure 35 explores the spread time in the sample week attendance records to see how long operators actually worked. Actual spread time skews higher than scheduled spread time, with more operators having spread times greater than 14 hours.

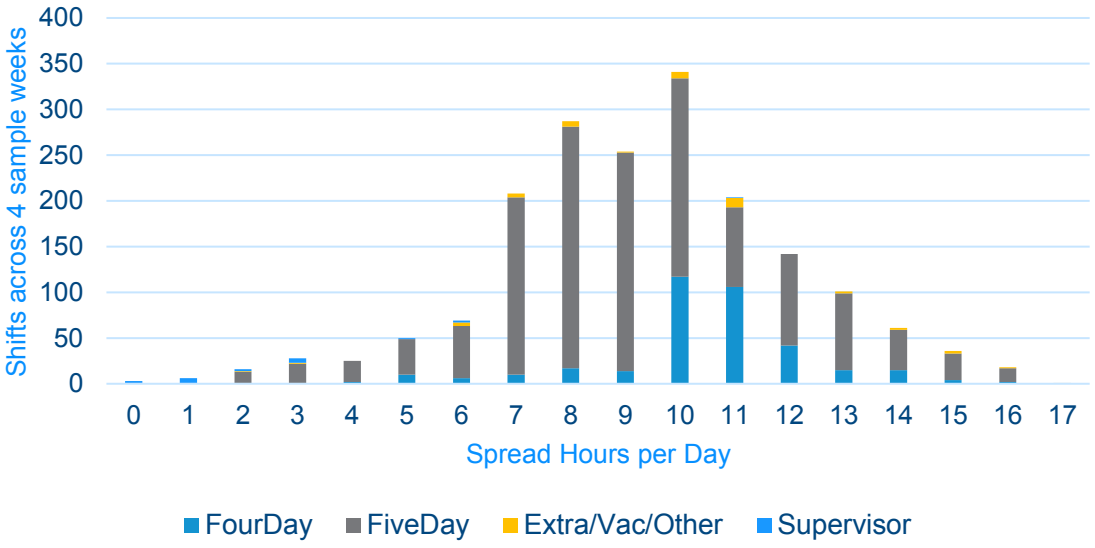

Figure 35: Distribution of Actual Spread Time (Across 4 Sample Weeks)

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Recommendation: Limit spread times when scheduling runs to 12 hours, or under, for each shift. Adopt a benchmark for reducing actual spread time (for example to 13 hours or less) by reducing overtime.

Rest Time

Rest time is the number of hours between when an operator ends their shift one day and when they begin their shift the next day. Commercial Driver License (CDL) certification requires at least eight hours of rest time per day for operators of large vehicles. As shown in **Table 23**, the average rest time scheduled in the Fall 2019 and Winter 2020 Runboards is around 14 hours. There are 12 operators with at least one rest period less than ten hours and two operators with at least one rest period less than eight hours.

Table 23: Average Scheduled Rest Time

	Fall 2019	Winter 2020
Operators w/ at least 1 rest period <8 hours	2	1
Operators w/ at least 1 rest period <10 hours	12	12
Average rest time in hours	14.57	14.28

Comparing the distribution of rest time as scheduled (**Figure 36**) and as actual in the four sample weeks (**Figure 37**), many operators are getting less rest time than scheduled. Almost 2 percent of shifts have rest times that fall below eight hours, the CDL limit. A greater proportion are in the eight-to-ten-hour range.

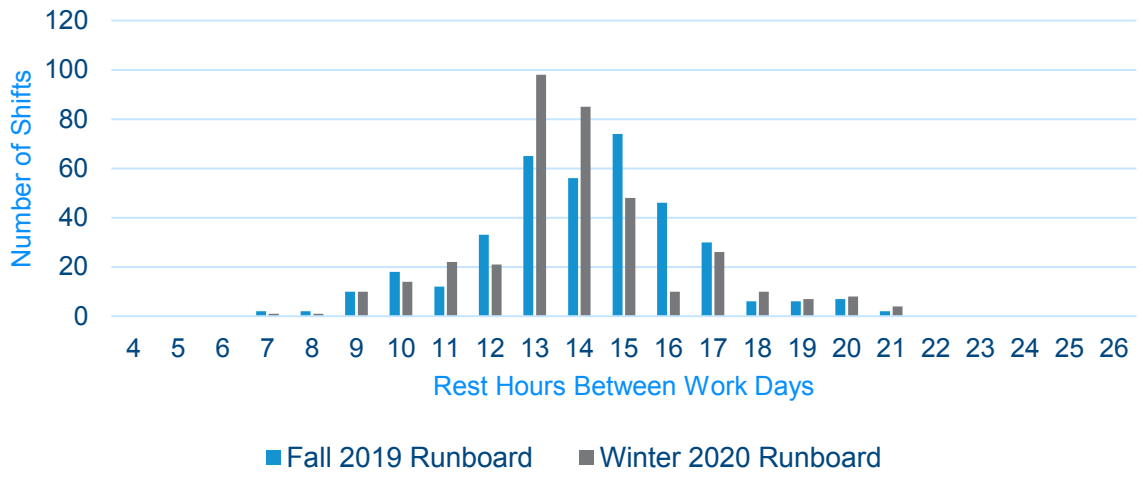

Figure 36: Distribution of Scheduled Rest Time

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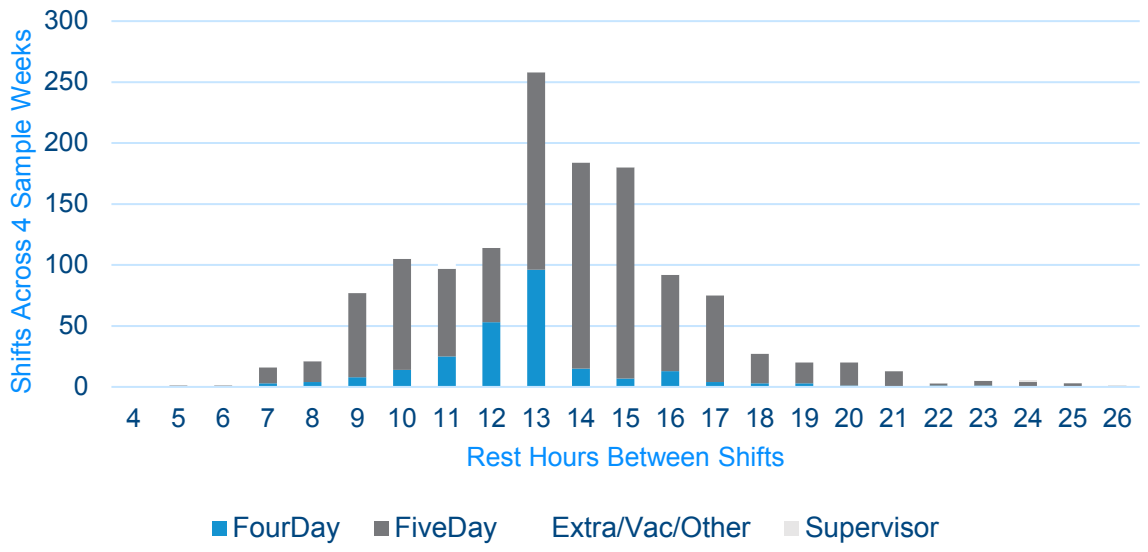

Figure 37: Distribution of Actual Rest Time (Across 4 Sample Weeks)

Recommendation: Schedule shifts so that no shift has a scheduled rest time less than eight hours, ideally not less than ten hours. Prevent operators from picking overtime shifts or assigning them overtime shifts that would bring their rest time under eight hours.

Start Time Variability

Lastly, start time variability plays a role in fatigue management. A schedule that starts around the same time every workday is optimal in fighting fatigue. If that is not possible, it is better to have a schedule that starts successively later as one goes through the work week, rather than successively earlier, since the operator will not have to wake up at an earlier time each day which has been shown to disrupt sleep patterns and contribute to lower alertness and greater fatigue.

Figure 38 shows the range of scheduled start times for each operator for the two sample Runboards. While many operators have relatively consistent start times, with ranges between zero and two hours, a sizeable number have wide ranges, over seven hours. For operators who have large variability in start times, there is not a clear pattern for how start times vary from one day to the next.

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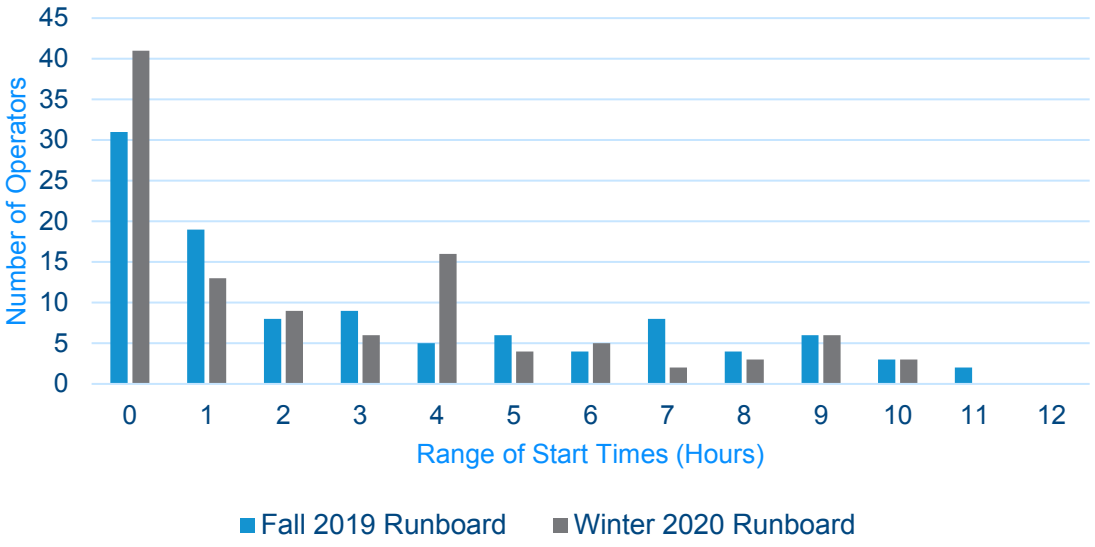

Figure 38: Variability in Scheduled Start Times

Figure 39 shows the range of actual start times for each operator for the four sample weeks, categorized by operator type. The pattern of actual start time ranges is similar to the scheduled ranges. However, operators working four-day weeks generally have better start time variability than those working five-day weeks or on the extra/vacation board.

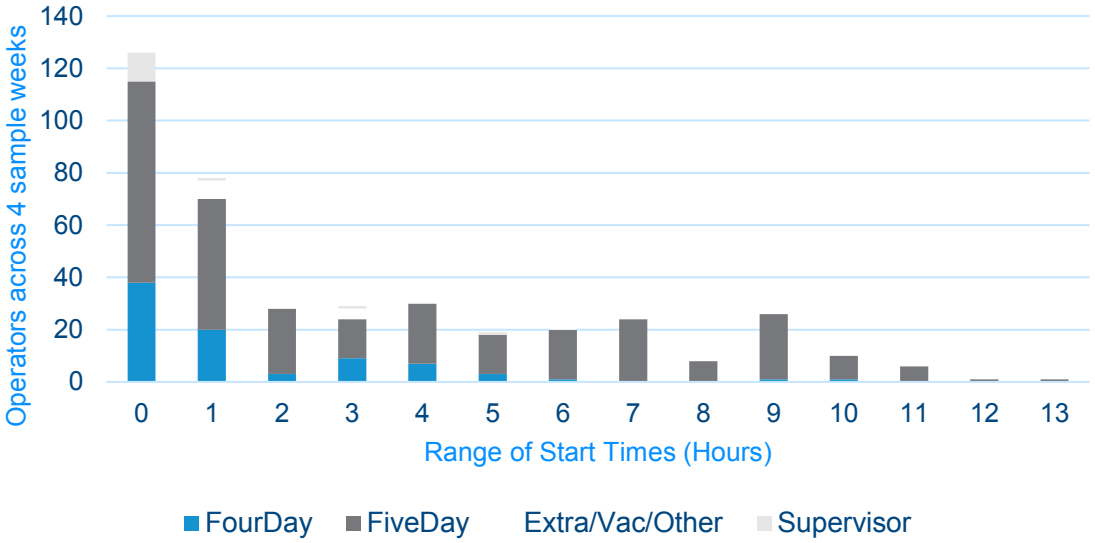

Figure 39: Variability in Actual Start Times (Across 4 Sample Weeks)

Recommendation: Improve schedules so that start times are more consistent. Where that is not possible, develop a methodology to evaluate if shifts are starting successively later as each operator progresses through their work week, and if they do not, try to shift schedules to do so.

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7.3.1.5 Administrative Staffing

GoDurham's Operations Department is led by the Transit Service Director who oversees Customer Service, Street Supervisors, Dispatchers, and Bus Operators (

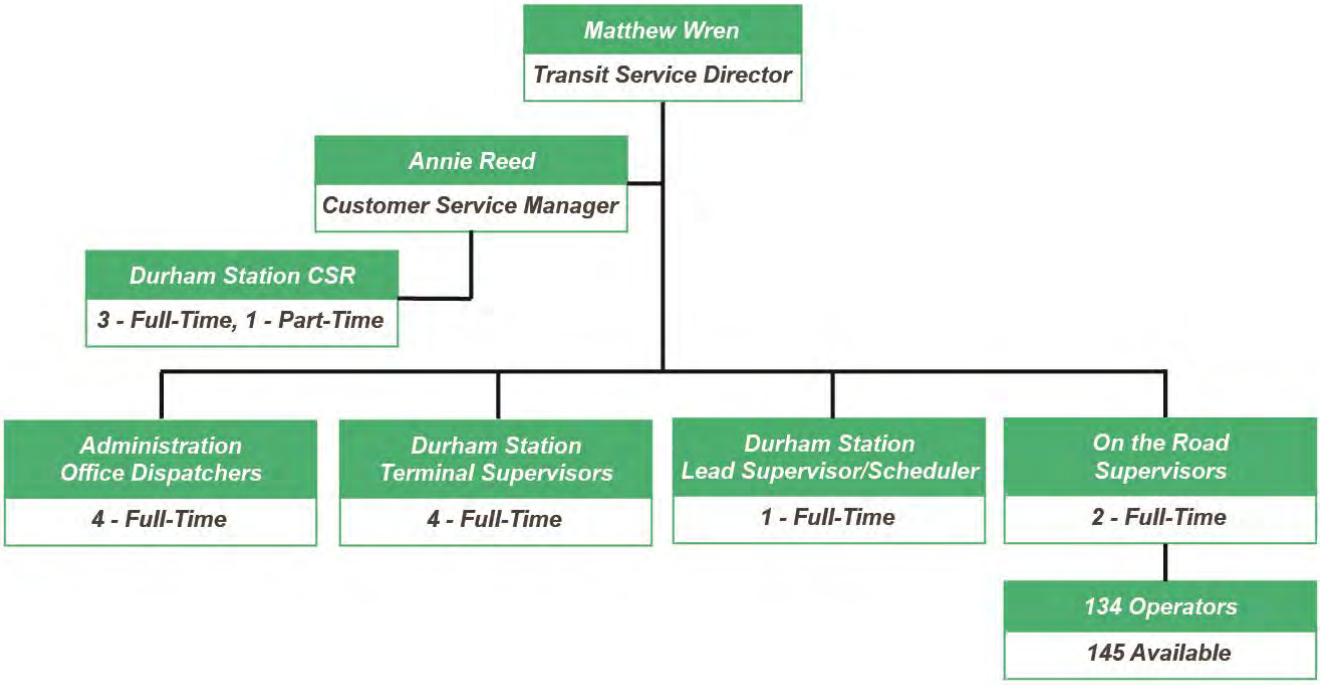

Figure 40). A review of Street Supervisor shifts demonstrated adequate coverage for routes and terminal facilities during scheduled hours of operation.

It is unclear how operator performance is monitored on an ongoing basis. If street supervisors are not receiving information on operator performance related to accidents, customer complaints, or attendance, a best practice would be to develop a system for monitoring and tracking individual operators to evaluate performance, evaluate training needs, and provide commendation. The size of the supervisory work force required for regular operator monitoring and evaluation depends on how the program is operated. For example, does a supervisor conduct an on-board or follow-along evaluation of each operator, and does a supervisor personally contact an operator at some regular interval, for example quarterly? Development of a monitoring program will indicate the number of supervisors necessary to carry out the monitoring process. For example, if the program included an annual observation and contact at least twice per year, one supervisor with no other duties assigned could easily monitor 125 operators. If the program is for closer supervision with more annual contacts and evaluations, the number of supervisors required will increase.

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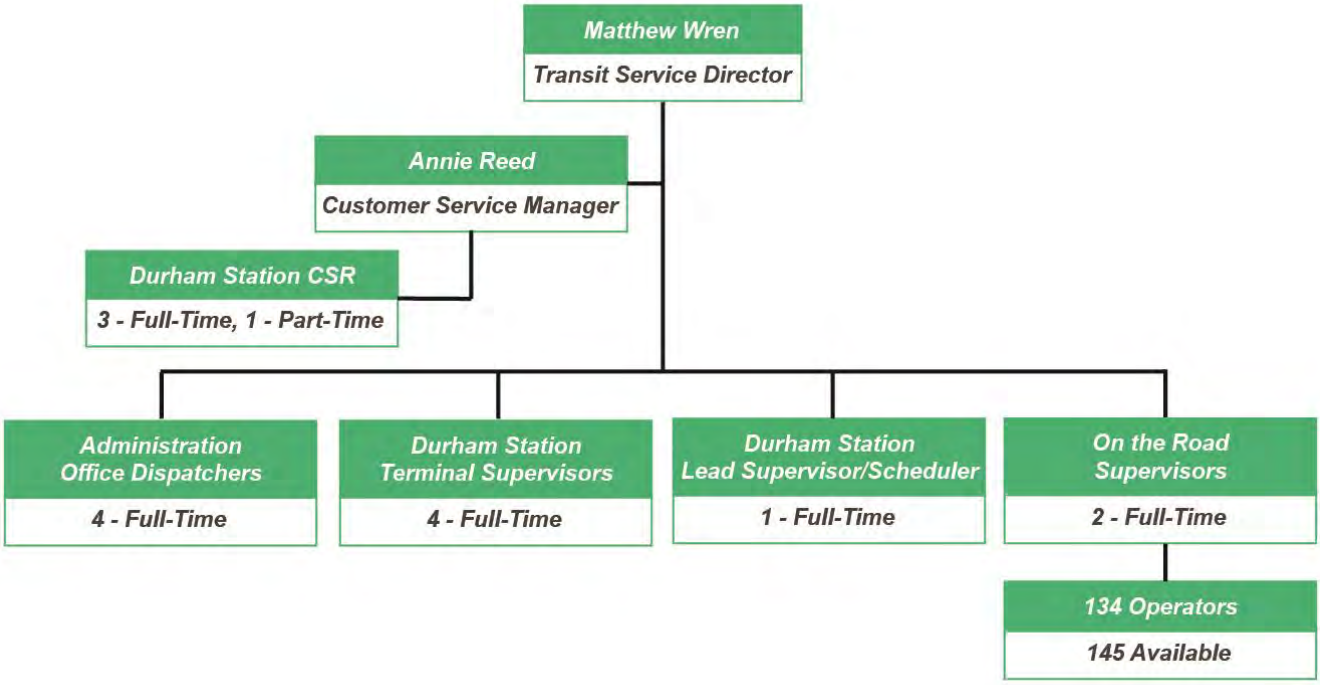

Figure 40: Operations Department Organization Chart

7.3.2 GoDurham Access

This section presents findings from analysis of paratransit operational staffing. The data used in this analysis includes the February 2021 run pick, attendance from September 2020 to January 2021, and information from GoDurham staff.

7.3.2.1 Scheduling

There are currently 33 full time paratransit operators, four part time operators, and two trainees. During the February 16, 2021 run pick, there were 41 bids available and 34 operators picked bids, leaving seven open schedules, or 17% of schedules unpicked (**Figure 41**).

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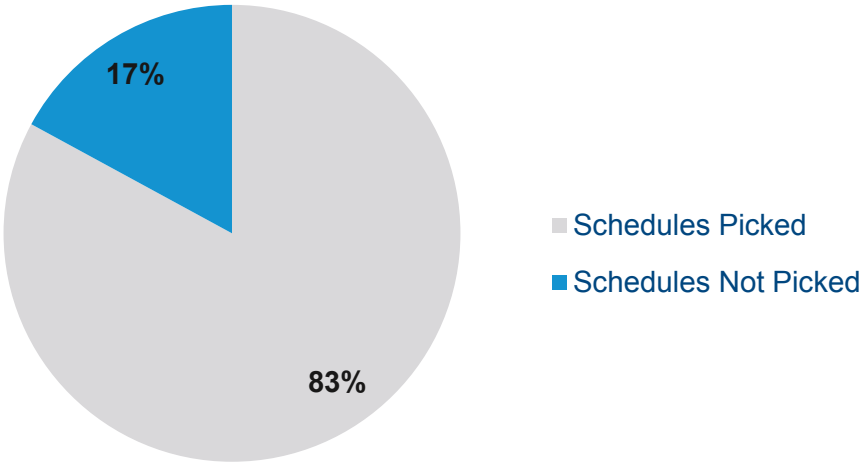

Figure 41: GoDurham Access Schedules Picked

All schedules have consistent timing and span throughout the week, which means that operators start work at the same time each day, except for one schedule that has one day start one hour later than the other days. Out of these 41 available bids, only one is a four-day schedule, and the rest were five-day. Approximately 17% percent of the schedules have split shifts (**Figure 42**), where operators have a break in work hours in the middle of their day, around three to four hours between the two halves of each shift.

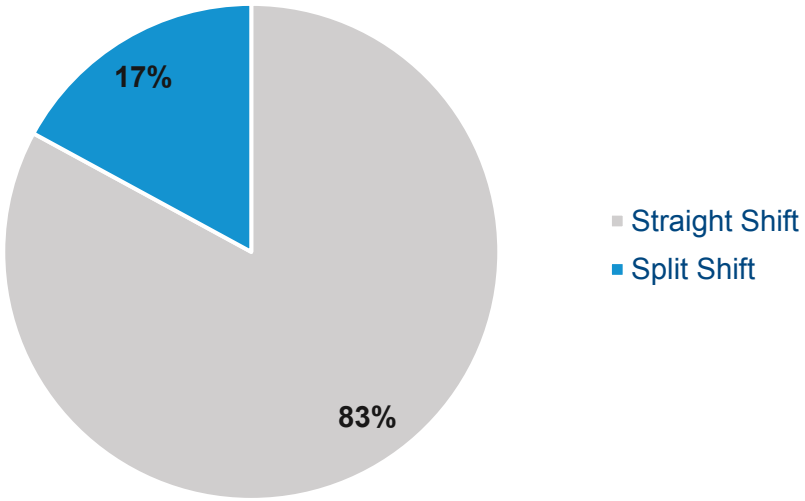

Figure 42: GoDurham Access Schedule Type

Figure 43 shows the number of paratransit operators scheduled each day of the week. Friday has the greatest number of scheduled operators at 40 operators, and Saturday and Sunday have the smallest at 16 and seven operators, respectively.

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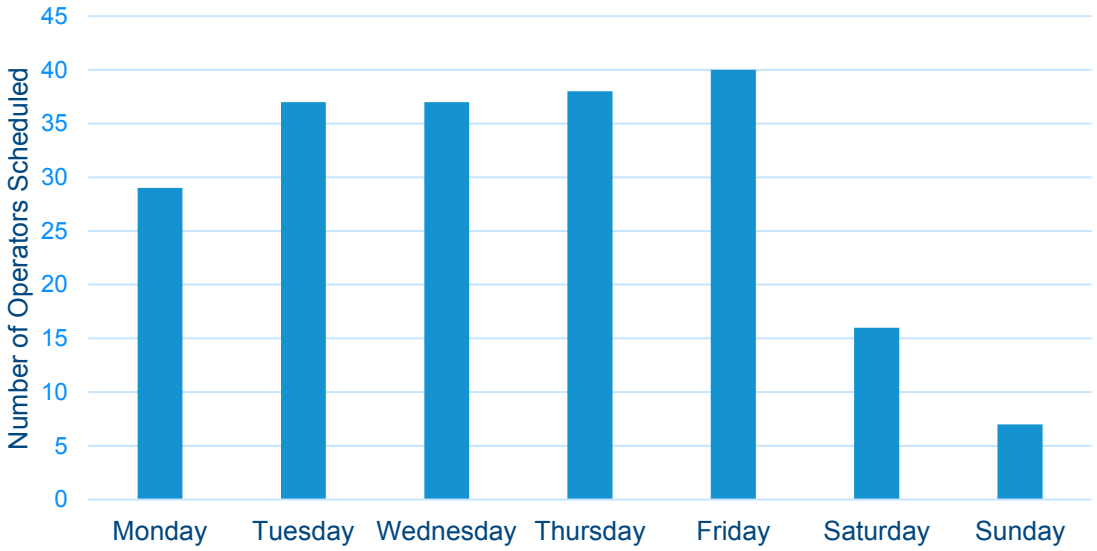

Figure 43: Scheduled Operators by Day of Week

Recommendation: Prioritize hiring and training new paratransit operators so that there are enough employees to pick all available runs during each run pick. Compare the number of operators scheduled by day of week and time of day to current ridership, trip requests, and trip denials. Adjust schedules accordingly based on that comparison.

7.3.2.2 Absences

Between September 2020 and January 2021, the driver absence rate ranged between 0.7% in September and 3.82% in December (**Figure 44**), with high rates in December likely due to the holiday season. Compared to industry standards these rates are relatively low, illustrating good management of absenteeism within GoDurham Access operators.

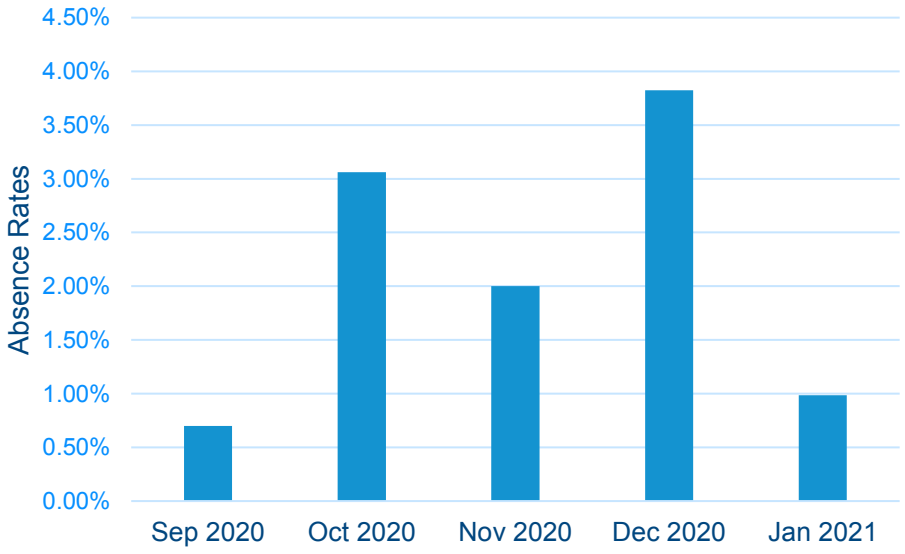

Figure 44: Monthly Absence Rate

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7.3.2.3 Overtime

Between September 1, 2020 and February 15, 2021, the average overtime rate was 3.6%. This number is also relatively low based on industry standards. Therefore the only concern is the distribution of overtime, which can cause fatigue if certain operators are putting in considerably more overtime than others.

An analysis of which and how many operators are working overtime can help GoDurham assess if overtime policies need to be changed. Overtime hours should be distributed among many operators, rather than a few, to reduce fatigue.

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8. Maintenance

Maintenance plans and procedures provided by GoDurham were in line with industry standards for vehicle and bus stop maintenance; however, very little information is available to illustrate compliance with these plans. There is only evidence of tracking preventative maintenance (PM) on-time completion for the GoDurham Access fleet. Historical data on maintenance program on-time completion for fixed-route buses and annual audits of maintenance programs were not provided and appear to not be included in GoDurham's practices for improving maintenance processes.

High-performing agencies rely on analysis of PM on-time completion, the ratio of PM to corrective maintenance (CM), and annual audits of defects to understand if their maintenance program is performing. There is no evidence that GoDurham is utilizing these methods of analysis across all asset types, which may be due to a lack of a comprehensive, user-friendly work order software that can provide periodic compliance reports. FASTER, the current system, was noted to be cumbersome and underutilized. A modern computerized maintenance management system (CMMS) can provide ease of reporting and transparency for cost and compliance. In addition, it can provide the information needed to allow for more predictive and less reactive maintenance.

8.1 Fleet Reliability

Mean distance between failure (MDBF) is a metric that indicates if a fleet is being maintained in a consistent and reliable manner.

8.1.1 Bus Fleet Reliability

Failures that impact service (both major mechanical failures and other failures) are included in the MDBF calculation in **Figure 45** to show a trend over the past three years. However, detailed PM logs were not available to cross analyze with MDBF performance.

In mid-2018 there was a significant drop in MDBF, indicating a lot of equipment issues at that time. After that point however, MDBF of the bus fleet has been steadily improving.

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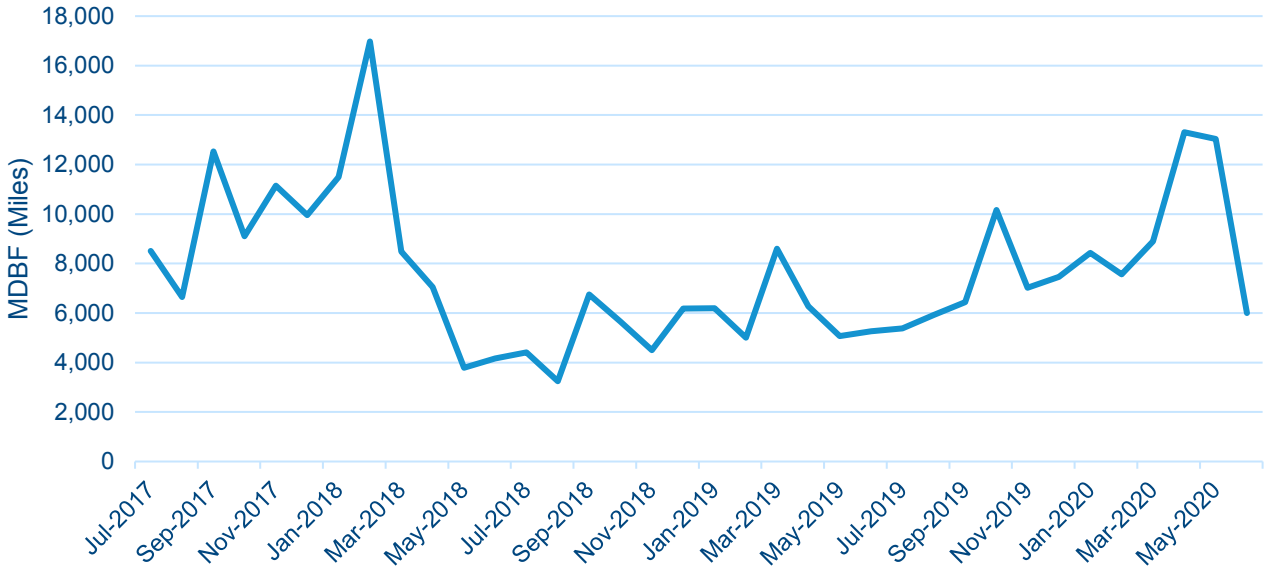

Figure 45: Mean Distance Between Failures (MDBF) FY18-FY20

8.1.2 Paratransit Reliability

For the GoDurham Access fleet, there were no major incidents at all involving the fleet for half of the months included in the analysis. The trend in MDBF is in line with the general maintenance records provided, which show 100 percent on-time completion of PM activities for the entirety of FY20 (**Figure 46**).

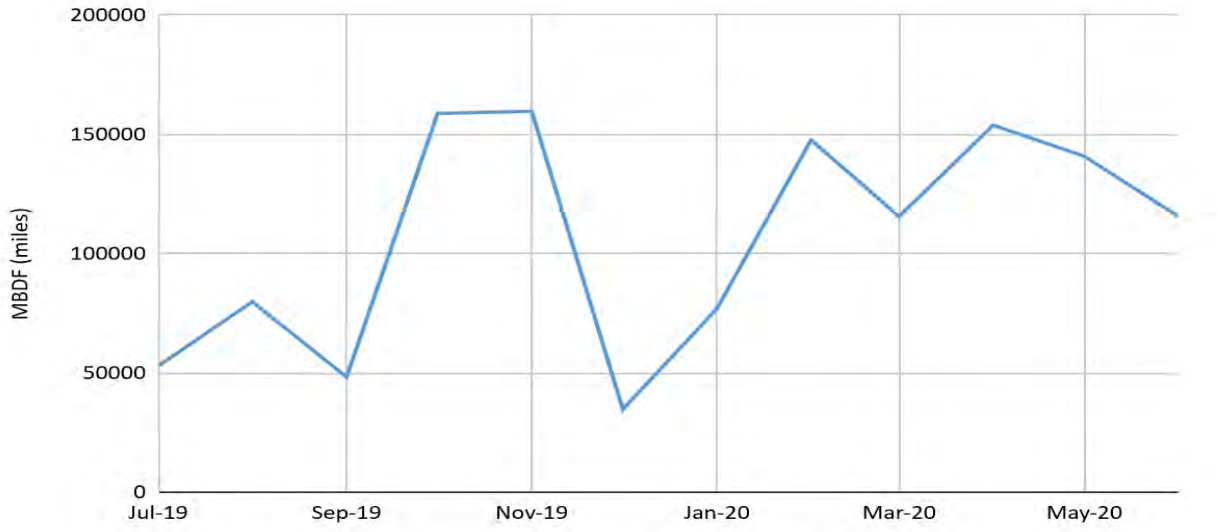

Figure 46: GoDurham Access FY2020 Mean Distance Between Failures (MDBF)

Note: Oct 19, Nov 19, Feb 20, April 20, May 20 had no major failures, the total fleet miles for that month were used instead.

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8.2 Maintenance Plans and Compliance

8.2.1 Bus Maintenance

The maintenance plan provided by GoDurham is thorough, comprehensive and falls well within the requirements set forth by FTA; however, the organizational structure is somewhat unconventional, with the Parts Division falling underneath the Finance Department. Clear and unfettered communication between all maintenance personnel is critical to effective and efficient operation of this department.

There were no positional roles and responsibilities provided for maintenance staff and it was stated that none existed in writing. As such, there is no way to determine who has responsibility to ensure the maintenance being provided is aligned with the maintenance plan requirements. Although the work appears to align, it is unclear if qualified personnel are completing the work without a roles and responsibilities document. Additionally, no return for service documents were provided.

Recommendation: Clearly defined positional roles and responsibilities should be drafted for each position. This document should contain any certifications, degrees, or specialized training required to fulfill the identified area of responsibility and role within the division. Staff should take a leadership role in this initiative and invite input from all affected maintenance positions. It is strongly suggested that a document outlining clear and concise roles and responsibilities for each position be developed. This document will provide employees clear direction and maximize their ability to excel at their job. Leadership comes at all levels and the maintenance department should recognize and leverage its talent to the benefit of the organization.

8.2.1.1 Compliance Audit of Maintenance Procedures vs. Maintenance Reports

Compliance audits are not conducted by GoDurham. This is an opportunity to improve the workflow of compliance with the maintenance plan. Annual compliance audits of the maintenance plan requirements vs. maintenance performed is a valuable tool not only to highlight areas where the maintenance division performs well but also documents those areas that need attention. Additionally, an audit conducted by an independent third party may be able to highlight areas where it is more cost effective, and or efficient to bid some of the work out to the private sector.

Since GoDurham did not provide roles and responsibilities for their maintenance staff, it is difficult to determine what positions are responsible for completing tasks on time. This issue becomes increasingly important when the rolling stock vs. annual miles is reviewed. Although the ratio of mechanics to vehicles appears to be adequate, GoDurham tends to operate their buses for extended periods of time thus accumulating excessive mileage and thereby requiring maintenance procedures to take place much sooner than normally projected. This in turn places additional burden on the maintenance staff to ensure oversights do not occur. A case in point is the repowering taking place at the five-year mark as opposed to the seven-year mark simply due to the excessive mileage incurred due to extended operation.

Recommendation: An independent third-party audit should occur once every two years, at a minimum. These audits should assess the performance of the maintenance plan and defects to the fleet, with corrective actions provided. This audit should be conducted so there's adequate

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time to implement recommendations into the draft budget recommendations for the following budget cycle.

Recommendation: As noted in previous sections, GoDurham's bus fleet is highly efficient in the delivery of service, though it requires high operating costs to maintain. The rolling stock inventory should be reviewed to consider an expansion to relieve some of the maintenance pressure on the existing fleet.

8.2.1.2 Inspection checklists and procedures for identified defects

No information was provided that could be reasonably used to determine the on-time compliance of GoDurham's PM program. In fact, questions regarding PM completion were treated with suspicion and no detailed PM inspection records were provided.

The FASTER software seems to be cumbersome and somewhat difficult to use. Additionally, this software generates reports (DCTC PM Tracker) that are ignored by maintenance staff, thus obfuscating the intervals during which work is being completed.

Recommendation: With input from staff and front-line technicians, implement an intuitive, web-based maintenance work order system capable of tracking all aspects of the workflow from beginning to end. This system should include all of GoDurham's maintainable assets, as an opportunity exists to combine vehicles, facilities, and bus stop amenities into one system. Additionally, the system must provide maximum flexibility to customize reports. This software also should allow maintenance staff to understand their:

- Responsiveness to requests for service
- Accountability for repair work performed
- Length of time required to make the repair
- Satisfaction the repair was effective
- Final cost of the repair

8.2.1.3 Warranty resolution

Recapturing warranty expenditures is not an issue and no changes outside an updated work order system are recommended.

8.2.1.4 Functionality of ADA equipment and policy for dead-lining

The policies and procedures in place to dead-line vehicles with nonfunctional or impaired ADA equipment is adequate.

8.2.2 Paratransit Maintenance

8.2.2.1 Inspection Checklist

A review of the paratransit pre- and post-trip inspections was conducted. It should be noted that this was an evaluation of the protocols as documented, however, there was no information on if the protocols are being followed for every single inspection performed.

The pre/post-trip inspection checklist is sufficient compared to industry standards.

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Within the documentation, it was unclear if inspections were conducted every time a new driver takes over a shift, or just daily. The term “verified” is used, but not explained in the documentation.

Additionally, it does not clearly state in the checklist which defects deadline a vehicle, there should be clear written procedure for something that is found that causes the vehicle to be unusable.

From the documentation it is unclear if this is being done, but operator hours should be cross-analyzed with pre/post-trip inspections as operators could overlook defects if they are fatigued.

8.2.2.2 Compliance Audit of Maintenance Procedures vs. Maintenance Reports

The PMI Methodology was reviewed. It appears that the documentation provided is a standard document that National Express Transit (Contractor for Maintenance of paratransit vehicles) uses and is not customized to GoDurham Access. The document is typically geared toward a heavy-duty coach instead of typical paratransit vehicles (e.g., cutaway).

As part of the inspection criteria, it is only required that the vehicles are maintained to the minimum requirements set by National Express company-wide. However, in other regions it is not unusual for maintenance departments to set customized benchmarks that account for the characteristics of the operation and region they function within.

Recommendation: GoDurham Access should evaluate their maintenance benchmarks and determine if they are suitable for their services in Durham and the conditions in which they function.

Overall, the document reviewed is comprehensive and covers the major components of the work necessary to maintain the paratransit fleet.

8.3 Staff Performance

8.3.1 Bus Staff

8.3.1.1 Code of conduct

Although the employee handbook details minimal expectations for employees, a set of organizational core values was not listed. As noted in **Section 4**, core values along with their definitions should be established with input from frontline employees, supervisory staff, and administrative personnel. These core values will set initial expectations at a level consistent with a high-performing organization.

Harassment policies are clearly defined in the employee handbook.

Recommendation: Amend the employee code of conduct to align with identified core values and, at a minimum, address the following areas—Accountability, Respect, Honesty, Integrity, Innovation, Responsiveness, and Continuing Education.

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8.3.1.2 Annual performance reviews

No performance reviews were provided

Recommendation: If annual performance evaluations are not conducted, this tool should be under consideration for future use. Evaluations should be conducted annually with input from individual staff and supervisory personnel. These evaluations do not need to be long but do need to be comprehensive and document employee strengths as well as areas determined to need improvement. Additionally, it is critical that all employees to be evaluated are provided with the positional as well as professional expectations/goals for the upcoming year.

8.3.1.3 Verbal warnings, written reprimands, suspensions, and terminations

No disciplinary action was taken during the previous 12 months. While no type of reprimands being issued is admirable, it is recognized that documentation is often a component that falls by the wayside when trying to address small issues. *It is recommended that supervisory personnel be reminded of the need to maintain a "memo of record" when addressing even seemingly minor issues.* Typically, disciplinary action is stepped-based and small infractions are kept from becoming larger issues through documentation by the immediate supervisor, coaching (if appropriate), and finally discipline.

8.3.1.4 Rate of scheduled and non-scheduled absences and no-shows

The absenteeism rate provided did not differentiate between operators, mechanics, and administrative staff. Without this information, it is difficult to assess if there are true absenteeism issues within the maintenance department. *However, due to the number of runs canceled due to "no operator available," it is strongly suggested that the available operator pool be increased as soon as possible*. To have runs repeatedly remain unfilled for hours on end runs counter to the performance metrics demanded by a high-performing organization.

8.3.1.5 Percent of payroll budget dedicated to overtime

The overtime budget is not excessive given the demand placed on the maintenance division due to the number of vehicles and annual mileage.

8.4 Cleaning Procedures and Evaluation

8.4.1 Bus Stops and Shelters

The use of additional third-party contracts for cleaning was not clear during initial review of GoDurham's documentation; however, the maintenance plan indicates that GoDurham contracts with two other third-party for this service (i.e., neither DCTC/First Transit nor National Express Transit). It appears that Transit Amenities Specialists and Done Right First Time Contractors work in tandem to manage and perform the maintenance work. These contractors, along with the City of Durham and GoTriangle, are jointly responsible for maintaining bus stops.

The schedules/procedures detailed in the maintenance plan for bus stop amenities are sufficient; however, without follow-up documentation from Done Right First Time Contractors, the City of Durham, or GoTriangle it is impossible to determine if expectations are being met.

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There is currently no way, given the information provided, to determine whether the work is being completed within the given parameters.

Recommendation: If interior/exterior cleaning workflow is not being documented, an electronic matrix should be developed in the near term that can track these tasks to assure administrative staff that work is being completed on time.

Recommendation: A map of Durham should be created that details all GoDurham amenities assets using Global Positioning System (GPS) coordinates. The tags should include such information as camera availability, shelter and date asset installed, projected asset life, pad and date poured, bike rack(s), shelter repair date, etc. This is a living document and would be constantly updated as maintenance and relocation of amenities occurs. *This recommendation should be combined with the development of a web-based maintenance work order system to allow for vehicles and stationary assets to be tracked in one system (replacing the matrix recommended above).*

As bus shelter maintenance appears to be a joint effort, coordination between the City of Durham's Public Works Division and Done Right First Time Contractors is critical to ensuring bus stops are maintained to standards in line with a high performing organization.

Recommendation: The customer service timelines be revised to compress the response/corrective action time.

8.4.2 Vehicle Cleaning

Bus cleaning policies, procedures, and frequency of tasks were covered in the maintenance plan. The required checklists as referred to in the maintenance plan were not provided, so there is no way to determine if the work is being completed as needed or on time.

Recommendation: Bus interiors should be cleaned daily following the guidance detailed in the maintenance plan with documentation in a work order or other electronic system (noted previously) to provide assurance that the work is being completed.

8.4.3 Paratransit Cleaning

According to the data provided, there is a wide range of intervals for different vehicle components to be cleaned: seats, walls, drive area, windows, doors, panels, yellow strips. These intervals should be more standardized and at a minimum be swept or wiped down once every twenty-four hours. More thorough cleaning should be done at least once a week.

There are no clear references to Material Safety Data Sheets (MSDS). The staff should have access to these documents and have the appropriate training for the equipment identified in each document in the case of an accident or incident.

With regards to the Safety Management System – the verbiage used seems to be fairly rigid, using words like determined and diagnosed. It doesn't clarify what should happen in situations where a driver may not be immediately aware of an incident. Some example incidents are:

- Adult/baby diapers leaking onto passenger seating
- Small amounts of blood, or
- Vomit, etc.

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These incidents should have clear guidance on what to do in the event they occur. Additionally, the operator should also have the authority to request a replacement vehicle in these situations, this may be the case currently, but was not clear in the documentation.

In the service cleaning logs, there are options for both “yes” and “no” when marking if the cleaning was performed as scheduled. It was observed that only “yes” was used, and it was typically left blank otherwise. This makes it ambiguous if the vehicle was purposefully skipped or simply forgotten about. The staff should use “no” if they are not able to clean the vehicle when meant to.

Recommendation: Random audits of cleaning tasks should be performed, as it is an easy way to introduce accountability into the cleaning procedures.

Lastly, there was no documentation, but if possible, specific COVID-19 guidance would be helpful as transit agencies continue to mitigate challenges with the ongoing pandemic.

8.4.4 Customer reporting procedures & goals for corrective action

The customer complaint response procedure is designed so that the amenities team (as well as planning, maintenance, etc.) receive and track the complaints through Zendesk and allow the complaints to be routed to the correct or adequate department or individual to address the issues. If an individual customer calls into the complaint center, the customer service agent will create a ticket number that will be given to the customer who could track the status of the complaint. If the customer enters the ticket number and an email address through the website, customer will receive and email confirming that the complaint has been received and noted by the customer service team.

Each complaint tickets in Zendesk require follow-up and the agent that receives the complaint ticket are required to resolve and record how they resolved the complaint in order to close the ticket. The Information Supervisor monitors Zendesk complaints and alerts the managers regarding open tickets (not resolved within two business days).

Recommendation: Ensure the Zendesk complaint module is visible on GoDurham’s website for reporting issues with bus stops and amenities (in addition to vehicles) and that complaints are routed to the correct contractor. The module should assign a number to the complaint and automatically email the complainant that the complaint has been received and provide the customer with the complaint number. Ideally, the customer would receive a response within 24 hours informing them that the complaint has been corrected, is in progress, or that more time is needed to address the issue. If additional time is required to address the issue an estimated timeframe for corrective action is provided. Once the issue has been resolved, the employee assigned to correct the issue signs into the module and writes what corrective action has been taken and closes the complaint. The customer then receives an automatically generated email informing them that the complaint has been resolved and closed.

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9. Summary of Recommendations

It is important to note that GoDurham has many strengths to draw upon in this work—including a high level of ownership by staff and commitment to the community. The community itself is supportive of transit, with dedicated funding provided. In addition, GoDurham's service is highly effective and efficient compared to peers and the industry in general. The recommendations included in the following section are meant to allow GoDurham's organization to perform with the same level of efficiency and effectiveness under growing demand for services and increased capacity.

Detailed recommendations are included throughout the report to illustrate the conclusions of the COA analysis. In this section, those recommendations are ordered in terms of priority, dependency on other recommendations, and a realistic timeframe for implementation.

9.1 Short-Term Recommendations

Short-term recommendations include those that can be completed ***within a year*** and were noted as significant issues or weaknesses during staff interviews and the SWOT workshop. Short-term recommendations include:

Organizational Structure and Staffing

- Clarify roles and responsibilities as an attachment to the new agreement between the City and GoTriangle.
  - All parties must agree to the roles and responsibilities of their staff to avoid inefficiency and duplicate effort.
  - Eliminate informal matrix management; a RACI matrix would help support this effort, particularly for escalation of issues.
- Ensure that digital copies of all legal agreements are retained in a document management system until such time as a future contract replaces it.
- Create two new positions to provide capacity and key roles that address current weaknesses:
  - A Performance Management position within the City's transportation structure.
  - An Assistant General Manager role for external communications and customer relations.
- Change the role of the current City Transit Administrator to a Compliance Officer and move that position to sit with other City transportation staff (off-site of operations and maintenance).
- Restructure meetings and split them into separate topics (tactical and strategic) with standardized agendas:
  - Tactical "Ops Stats" meetings with all entities on a biweekly basis to review more detailed KPIs and action items.

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- Strategic management meeting with only management staff from the City, GoTriangle, and contractors (GM of DCTC and GM of paratransit) to coordinate on major initiatives.

Service Delivery

- Deploy Strategic Spares at Durham Station; Routes 5, 15, 9A, and 9B have the potential to benefit from relief vehicles, because they have the lowest average OTP, particularly in the PM peak, or high max loads
- Target schedule improvements during the PM peak period, as there is a significant drop in performance.
- Investigate reasons for missing trips to determine corrective actions: lack of operators, insufficient extraboard, or equipment shortage. Depending on the primary issue, the right resource will have to be expended to correct the issue.

Training

- Clearly define roles and responsibilities for each position, including any certifications, degrees, or specialized training required to fulfill the identified area of responsibility and the role within the division.
- Incorporate a module into existing software (e.g., financial or maintenance) that tracks/documents staff trainings completed, date completed, certifications, and CEUs required annually to maintain/enhance credentials.
- If an informal mandatory training regimen exists, document it and retain employee records of completion. If not, this program should be developed with input from appropriate staff.
- If an informal optional training regimen exists, document it and retain employee records of completion. If not, this program should be developed with input from appropriate staff.
- Document employee onboarding and pre-employment procedures and retain records of completion.
- It is not obvious if new operator training includes the opportunity to drive each GoDurham bus route. If new operators are not doing this, it would be considered a best practice to orient drivers – whether as part of behind the wheel training or through other means such as videos accessible to drivers.
- Annual training topics should be developed with input from operators and street supervisors, customer service, and planning. Training topics could be tied to Key Performance Metrics. Training participation should be tracked through payroll and participants should be acknowledged for their participation, if optional.

Maintenance

- Determine method for tracking and reporting PM on-time compliance while a CMMS is under development.
- Develop a method to track bus stop amenities cleaning and maintenance tasks to assure administrative staff that work is being completed on time.
- Ensure that bus interiors are cleaned daily, in accordance with the maintenance management plan.
- Begin documenting employee corrective actions *in all cases*, if not currently documented.

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- Improve Paratransit cleaning guidance to increase frequency of cleaning events and more clearly state procedure in case of specific incident types.
- Utilize audits to introduce accountability into cleaning procedures.

Capacity

- Consider an expansion in fleet to relieve some of the maintenance pressure on existing fleet and allow the capacity for expansion as the existing fleet is unlikely to become more efficient compared to current high levels of efficiency.
- Review operator and maintenance staffing levels for possible expansion (along with facility capacity study). An additional trainer and supervisor may be necessary in the near term.

Staffing

- Maintain practice to continuously hire new operators to maintain staffing levels. Transit operator staffing shortages across the industry indicate recruitment will continue to be a challenge.
- Maintain low rates of scheduled overtime and ensure pad time is less than ¼ of an FTE.
- Set benchmarks to reduce the total overtime hours and number of hours worked by each operator. For example, the agency can set goals to reduce total overtime hours to less than 10 percent of scheduled service and for no more than 10 percent of operators to work more than 50 hours per week. Meeting these benchmarks may require a combination of working with operators who seldom take overtime, adding more operator resources, and/or reducing absenteeism.
- Hiring more operators to achieve a more optimal distribution of hours worked per week in an effort to reduce workload stress that often leads to higher absenteeism.
- Revisit the attendance policy and disciplinary procedures to reduce absenteeism issues.
- Establish a performance benchmark or goal to make it more obvious if action is needed to address absences. For example, a goal of 87 percent availability (13 percent absence rate).
- Limit spread times when scheduling runs to 12 hours or under for each shift. Adopt a benchmark for reducing actual spread time (for example to 13 hours or less) by reducing overtime.
- Schedule shifts so that none of them have a scheduled rest time less than eight hours, ideally not less than ten hours. Prevent operators from picking overtime shifts or assigning them overtime shifts that would bring their rest time under eight hours.
- Improve schedules so that start times are more consistent. Where that is not possible, develop a methodology to evaluate if shifts are starting successively later as each operator progresses through their work week, and if they do not, try to shift schedules to do so.
- Prioritize hiring and training new paratransit operators so that there are enough employees to pick all avaible runs during each run pick. Compare the number of operators scheduled by day of week and time of day to current ridership, trip requests, and trip denials. Adjust schedules accordingly based on that comparison.

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9.2 Medium-Term Recommendations

Medium-term recommendations require implementation of more complex process improvements, some of which are dependent on the successful completion of short-term actions. Therefore, the medium-term recommendations should be considered for implementation in ***one to three years***.

Strategic Direction

- Develop and communicate a new, unifying vision and mission statement with all entities' buy-in.
- Develop a single Strategic Plan encompassing all of GoDurham's services and activities.
  - Individual entities or departments should then produce Business Plans that align with delivering the strategic goals.

Performance Management

- Reinstate an annual summary performance report across all GoDurham modes, with graphs and related targets to illustrate annual trends in performance, key achievements, look forward to next year, etc.
- It was noted by staff that an annual performance report used to exist for GoDurham but is no longer in use. However, there is documentation of a GoDurham Access annual report for FY2020. An annual report that covers all modes should be reinstated leveraging existing quarterly updates to these higher-level metrics. Targets for each applicable measure should be included in the reporting (some performance measures targets or goals are already included in the Access monthly reports, see Figure 6), along with graphs to illustrate trends.
- Implement independent third-party annual or biennial audits, similar to FTA triennial audits, provided by GoTriangle to the City against maintenance and operations plans. These audits should also include defect reports on fleet and corrective actions.
- Create a performance dashboard, utilizing a data warehouse, available to City, GoTriangle, and contractor leadership to create a common understanding of KPIs, avoid bespoke analysis requests, and allow all parties to prepare for performance discussions.
  - Consider inclusion of detailed metrics similar to MDOT MTA's operations dashboards, as part of ongoing study.
  - To improve transparency, include public-facing scorecards with KPIs to align with strategic goals.

Maintenance Management

- Ensure that Zendesk is more visible on the GoDurham website, with resolution tracking and automated customer responses.
- Compress customer service timelines for response/corrective action time on complaints and/or asset failures.
- Amend the employee code of conduct to align with identified core values from the new Vision/Mission and Strategic Plan.

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- Consider conducting annual performance evaluations for maintenance staff, allowing for input from front-line and supervisory staff and clarification of professional expectations/goals for the upcoming year.
- Implement a web-based, user-friendly CMMS to include:
  - Tracking of work orders and PM on-time completion for all assets (vehicles, facilities, intelligent transportation systems [ITS], and bus stop amenities).
  - Bus stop locations, assets at each location, and conditions of amenities.
  - Completion of bus stop cleaning and maintenance work by additional third-party contractors.
  - Documentation of daily bus interior cleaning to provide assurance that the work is being completed.

All parties that are part of the GoDurham organization should have access into the implemented CMMS system to allow real-time review of performance information. In addition, consistent use of the CMMS system by third-party contractors may require review of contract requirements to ensure the City can own the system and require contractors to use it appropriately.

9.3 Long-Term Recommendations

Long-term recommendations are proposed for implementation ***three years or more*** into the future. As GoDurham is planning to expand services over the next five years, these recommendations are summarized in terms of planning for growth in **Appendix G**.

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10. Appendices

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10.1 Appendix A: Documents Reviewed

- Contract for Operation of Durham Transit Services – entered June 21, 2010 between City of Durham and Triangle Transit
- Amendment to Contract for Operation of Durham Transit Services – entered April 30, 2013 between City of Durham and Triangle Transit
- Letter from Assistant Director of Transportation to City Manager regarding Decision Process for Durham Transit Services Changes, dated May 17, 2011
- Contract No. 15-037 for Management and Operation of The City of Durham's Demand Responsive Transit Service (Transit Contracting), effective October 1, 2015 between GoTriangle and First Transit, Inc.
- Contract No.18-089 for Transit Management and Operation of City of Durham's Fixed Route Transit Service "GoDurham", effective October 1, 2018 between GoTriangle and First Transit, Inc.
- Organization Chart for Transportation, dated June 9, 2020
- GoDurham Organization Chart, dated August 13, 2020
- Picture of Durham Area Transit Authority (DATA) Vision, Purpose, and Mission
- GoDurham Service Standards, City of Durham Department of Transportation, July 2017
- GoDurham 2019-2022 Strategic Plan, developed by Durham City Transit Company (DCTC)
- GoDurham Maintenance Manual, dated January 16, 2020
- GoDurham First Timepoint Data 2019-07-01 to 2020-03-31
- GoDurham First Timepoint of Block Data 2019-07-01 to 2020-03-31
- GoDurham Trip Data 2019-07-01 to 2020-03-31
- Missed Trips 2019-07-01 to 2019-12-31, 2020-03-01 to 2020-06-31
- 7069 Organizational chart
- 2018 DCTC PM Tracker
- Maintenance Summary Report
- Monthly Absenteeism 3 Month
- Customer Service Policy
- DCTC Exclusion Policy 1-14-19
- Exclusion Notice
- DCTC System Security and Emergency Preparedness Plan
- Go Durham Camera Policy
- Employee Attendance Tracking User Guide
- Overtime Rotation Illustration
- Go Durham Employee Handbook
- Go Durham Rolling Stock Status Report
- Maintenance Plan January 2020
- Maintenance Summary Report
- Collective Bargaining Agreement
- Vehicle Replacement Schedules
- Maintenance Employee Training
- Facility Evaluation
- Forms & Check Sheets
- PO Logs
- 2020 Tow Log

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10.2 Appendix B: Staff Interviews

Interviewee: Sean Egan

Position: Director of Transportation – City of Durham

Interview Date: 10/07/2020

Description of Role: Responsible for oversight, policy, and funding for GoDurham transit services.

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Providing essential transportation services for the Durham community.
    - Observed a real focus on providing service that the community relies on – critical lifeline for a great majority of GoDurham riders.
    - Get constant feedback from community members – provide frequent and reliable service that meet their needs.
    - "Do everything the organization can to provide the service that the community is relying on"
    - Historic perspective of getting service out and fulfilling the schedule – have limited focus on things like service quality and customer experience.
    - Generally, service has been designed/operated from a perspective of fiscal constraint. Trying to change the perspective to what are the unmet needs that can be met without those fiscal constraints – change assumption that a good idea that costs money can't be done.
    - Communicate values – pre-pandemic times, meet the rider events at stations. GoDurham values are communicated through actions or lack of actions to riders complaints or feedback (i.e., soda on floor case study).
2. **What are the current goals/objectives of GoDurham?**
    - Provide frequent and reliable service that connects riders to major destinations and activity centers in Durham.
    - Core network does a good job a connecting to major activity centers or destinations but they are not frequent or unreliable.
    - Safety is a consideration but not a main objective discussed around in the agency.
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Riders per revenue-hour – clear indication of very high level of demand for service.
    - Intensity and duration of crowding on vehicles on routes – need to use this data better to service plan
    - On time performance and reliability needs – use AVL data to better identify areas causing delays and reasons behind it
    - Collisions – preventable and non-preventable collisions, and understand the causes/factors contributing those things and see if they can be avoided to reduce impact on service

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- What metric is the City using to measure success?
  - Timely and thorough reviews of service changes and proposals
  - Provide effective feedback on policy changes and service planning changes
  - FTA grant related work (e.g., developing funding grants)
  - Fleet purchase (i.e., Palm Beach County buses)
  - Service planning coordination and funding

4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
   - Within DCTC environment, the GM, the directors, and supervisor staff – there isn't enough staff to provide the necessary of service quality and customer service.
   - Operating at or above capacity prior to the pandemic.
   - There should be more staff to provide a more comprehensive safety, performance measure, service quality, and/or customer service improvement programs – need to identify exactly what those are and COA would be helpful
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**

6. **What are the communications/coordination protocols between organizations and how effective are they?**
   a. **Between the City and GoTriangle**
      - City is working on a new protocol. City is struggling with not overstepping in communicating with DCTC members – need to better at respecting GoTriangle's management role.
      - Is there an appetite for the City to take more of a direct management role? Not at this time.
   b. **Between the City and the third party contractors**
      - There should be very little if not any.
   c. **Between GoTriangle and the third party contractors**
      - It is inadequate now – there aren't many opportunities to discuss anything other than the day-to-day operations; more of a status report rather than discuss issues and needs identified
      - If there are more strategic goals and observations made by DCTC those are not coming through to the City.
      - Monthly meetings are not very extensive to touch all the necessary issues.
7. **If you could choose one thing or area to improve in the organization what will it be and why?**
   Better performance management program – sit under the City to be objective and avoid conflict of interest.

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Interviewee: Rochelle Parent

Position: Assistant Director Mobility Services

Interview Date: 10/01/2020

Description of Role: Started in June, work involves parking/taxis

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Equitable, efficient service across age/racial lines
    - With what is available in space, they want to increase access to service
    - Believes that it can be done more efficiently than it has been
    - Engaged community partners and involved the public in the decision making process, which makes decisions move quicker
    - Has experience launching transit projects over the last 7 years
    - Believes they do a great job of involving the public and community partners, but need to improve making informed decisions based on the data
    - Is current process for data collection/analysis efficient? No. Data collection and feedback is great, but analysis is not sufficient. Technology could help or having experts in that aspect could help. Trust with the community needs to be improved.
2. **What are the current goals/objectives of GoDurham?**
    - Organizing and gathering the right data
    - Decision making needs to be better implemented according to the data acquired
    - Wanting to move towards mobility as a service
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Origins/destinations data
    - Want to incorporate community engagement information about changes in service into how it will affect the service and why the decision is being made
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - Business analysts helped with finances
    - Management sometimes get distracted with small tasks that they probably shouldn't be doing
    - Rochelle wants her specialty to be utilized, and hasn't been able to do that yet
    - Staff was brought on within the last month to assist with other tasks, mostly business tasks (finding grants, staffing, etc)
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - Yes, COVID was an upset though
    - Believes that the staff is there, funding is there
    - Wants to launch a microstransit project, , but she is uncertain that it can be backed up because they don't have very good data at this point. They lost the community support in the past with some decisions made

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6. **What are the communications/coordination protocols between organizations and how effective are they?**
   a. **Between the City and GoTriangle**
      - Weekly call
      - Does not think there is enough strategic conversations about goals, its mostly a check list of what happened the previous week
   b. **Between the City and the third party contractors**
      -
      - Third party contractors need to be more aware of the goals desired to be achieved so that they can help move the service in the right direction
   c. **Between GoTriangle and the third party contractors**
      -
      - Roles need to be better defined
7. **If you could choose one thing or area to improve in the organization what will it be and why?**
      - Communication and clearer definition of roles/responsibility
      - Efficiency

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Interviewee: Pierre Osei-Owusu

Position: Transit Administrator

Interview Date: 10/06/2020

Description for Role: Works for City – Link between City Trans. Dept and contractors, link with NCDOT with regard to policy and programs

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Reliable, convenient transportation, and making it attractive
    - Goals are set on year to year basis by staff
    - Feedback from stakeholders? Organized public input process to gather desire and needs of the public. Federal process – involves public hearings, especially with issues such as service changes. Sometimes these require analysis.
    - Customer surveys? Yes, every 3 years. Last one was done 3 years ago in 2017. Pierre will provide survey data [not received]
2. **What are the current goals/objectives of GoDurham?**
    - Pierre to send service standards
        - Passengers/hour, every year anticipate increase by a certain percentage and compare each month's ridership to this to see if goal is being met
        - Customer complaints
        - On-time performance, goal is ~5 min
        - Accidents
        - Farebox recovery
    - Goals are set every year as part of the budget cycle. Budget cycle starts in November.
    - Group effort amongst transportation director and staff to determine what targets are set
    - Do contractors get involved? Yes.
    - Does City council provide input? Yes.
    - Is there a public dashboard about targets and performance? Came up at a public meeting, they aren't really letting the public know as much. It is on the radar.
    - On a monthly basis, they assess internally the performance against the goals set
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - No, biggest issue is GoDurham is divided up into so many units that it affects timeliness of getting tasks done.
    - GoTriangle set up is much better
    - DCTC – managed by first transit, which is managed by Go Transit and then the City
    - Who does first transit report to? Go Triangle, who reports to the City
    - Management of DCTC would be part of new contract if they severed ties with GoTransit
    - A portion of GoTriangle is managing GoDurham
    - There are 4 layers of management, which is not ideal

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- FTA still has “DATA” in their books rather than GoDurham
- Should a layer of management be taken out? Should GoDurham be managed by the City? Marketing is an issue for GoTriangle and GoDurham because they are different systems.
- GoTriangle has a lot of expertise and are specialized within the staff and are good at what they do.

4. **Is the current team or staffing structure adequate to meet GoDurham’s goals and/or to provide the services desired?**
    - The City does not have it
    - Between GoDurham and GoTriangle, there is a lot of redundancy in staff
    - City and GoTriangle has contract reviewers also
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - There are a lot of layers of management and different communication avenues, so it makes things difficult to get accomplished
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    a. **Between the City and GoTriangle**
        - No, expectations are always in flux. Go Triangle set up is confusing, people report to others within the organization
    b. **Between the City and the third party contractors**
        - Doug Middleton is in charge of DCTC and reponds to first transit and GoTriangle and City
    c. **Between GoTriangle and the third party contractors**
        - Can’t speak to it, but it exists between GoTriangle and DCTC management
7. **If you could choose one thing or area to improve in the organization what will it be and why?**
    - Minimize the number of communication channels
    - Sean, Rochelle, Doug and Brian Fahey will provide best info

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Interviewee: Laurie Barrett

Position: Director of Regional Partnerships

Interview Date: 10/06/2020

Description of Role:

- Director of regional partnerships
- City approached GoTriangle with having manager of contracts
- In charge of monthly progress meetings
- Assists with coordination for complex or critical issues – DCTC typically approaches the GoDurham Transit Administrator for day-to-day operational matters; however, DCTC does contact the Director of Regional Partnerships with complex or critical issues like personnel, legal, or public health (i.e., COVID-response) issues

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Customer service, improving on-time performance and safety
    - In last few years, the GM on the fixed route side has tried to tackle those values
    - Survey responses are considered
    - Worked with police to reduce incidents at Durham station and buses
    - Surveys are conducted by transit planning team, consultant or contractor will review
    - Work with contractors to communicate goals, contractors tell/train employees
    - City is involved. Sean wants to provide quality service and that is communicated in monthly progress meetings. Wants to do more statistics and reporting.
2. **What are the current goals/objectives of GoDurham?**
    - Focus on monthly stats – targets to achieve for fixed route and demand response
    - Fixed route GM has goals and objectives every year, which is tied to his merit increase every year.
    - Brian and Laurie determine the goals for the GM by looking at the past year and determining areas of improvement
    - Consider customer complaints, trends, grant opportunities, hope to add 3 electric vehicles to fleet and propane conversion on demand response service
    - Sean at the City is more involved in setting goals than other directors in the past
    - The City drives the transit plan more than GoDurham does
    - Plans for Durham station – improving flow and focusing on the outside of the station
    - Fleet and facilities study for GoTriangle and GoDurham on fixed routes and demand response
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Ridership is main focus
    - Fixed route – ridership levels, OTP, safety issues, cost per hour, weekends vs weekday, passenger loads

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- Demand response – ADA trips, capacity, avg load/hour, times spent on reservations, monthly expenses, ticket sales, recovery ratio from farebox
- Laurie to share a monthly stat report
- Have received some feedback from City but there is not a certain "report card" that they get back from the City that is formalized
- New agreement between the City is being discussed – contains management, marketing, oversight.
    - Is anything duplicate? Planning and managing the contract. Sometimes City staff go to contractors instead of GoTriangle, which gets confusing. There needs to be stronger communication and defining goals.
- Go Triangle is supposed to be the entity in touch with contractors
- Who does the GM of fixed route service report to? Laurie (personnel issues) or Brian (day to day activity), not the City because the City doesn't have a contract with them
- If Doug were to leave the GM role or you change the contract, does City have control over who replaces him? No, GoTriangle does, with Brian and Laurie screening and First Transit also interviews them. In the previous process of hiring the GM, there was a panel interview that was conducted that included people from GoTriangle and one person from the City.

4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - At this time, they can use more structure
    - Doug could use an AGM
    - Someone who is dedicated to improve customer service
    - Sean has asked for help with grants and other things
    - Is there a term limit for the new contract? New City manager may have thoughts on who manages the contract in the future, so things could change next year
    - New contract with GoTriangle and the City will be on a fiscal year
5. **Does the organization (City) have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - City does not have all resources
    - Sean has been great to work with on budgeting issues, whereas prior to him it was about cutting things to have the money
    - County fund has provided money and it's easier to get what is needed
    - If service had to be increased, do you have the resources? May want to add another trainer to fixed route, supervisors, AGM, someone who is customer service focused
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    a. **Between the City and GoTriangle**
        - Monthly meetings, Brian meets weekly with City staff (Pierre and Rochelle)
        - Not a clear viewpoint on what City needs to know vs GoTriangle's
        - City is too involved in personnel issues
    b. **Between the City and the third party contractors (First Transit or NTE)**
        - There should be little communication between them, but there is too much
        - Everything should be flowing through GoTriangle staff instead
        - Is there a public dashboard? They use Zendesk for the public to request improvements and register complaints, which are then filtered to the right people.

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City staff could put comments through there also instead of calling the contractors.

c. **Between GoTriangle and the third party contractors**
   - Overall, goes very well. Doug is comfortable calling GoTriangle about issues.
   - Accidents and incidents communication is being improved on the fixed route

7. **If you could choose one thing or area to improve in the organization what will it be and why?**
   - Biggest issue ties to customer service, It is a challenge to keep bus shelters and stops maintained... There are some areas on the routes that are problematic (dwellers, graffiti, high crime). GoTriangle does not have any control over where the police patrols and the bus operators are not police (meaning it is not their role to address).
   - Getting the City to step back from contractors
   - Issues with homelessness and crime – scares customers. City looks to GoTriangle to solve that, and GoTriangle legal team deems it's not their property

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Interviewee: Brian Fahey

Position: GoDurham Transit Administrator

Interview Date: 10/01/2020

Description of Role: Funded by City of Durham, manages contracts for buses. Focuses on improving customer service.

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Current values: Safe, reliable, convenient and accessible transportation to City
    - Values to add: providing equitable service, being environmentally and fiscally responsible
    - Communicated in materials that are given out
    - Convenience is being communicated in plans
    - Everything in new paratransit contract is based on customer safety
    - Durham council for the Blind session – discussion about their experiences
    - Buses customer service has improved. 2018 policy did not have detailed information about customer service by the contractors.
2. **What are the current goals/objectives of GoDurham?**
    - Not all goals are tangible
    - Better communication amongst stakeholders
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Fixed routes – ridership, % of revenue hours actually operated, number of missed trips
    - On-time performance of all time points (81% are on time), arrivals at stations (95% make it on time)
    - OTP targets are set for all time points during the budget process between City and GoDurham
    - Will meet early march to discuss budget
    - Is the City engaged in planning? Yes. Sean is great with communication and pushing initiatives.
    - Does City initiate what's in the budget? Communication gap, may be going through GoTriangle
    - Managing contracts: Customer Service, safety, maintenance are also measured
    - Monthly snapshot of customer complaints, seeing how well they address them, what training plans are
    - Increased number of pass-bys at stops due to capacity limits due to Covid-19
    - Contractor meetings are monthly
    - Brian does day-to-day follow ups on monthly meetings
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - On Paratransit side, yes. Management team is great. Contractor brought in
    - Doug is trying to get more critical thinkers

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- Brian wants to see more standard operating procedures and those being acted on

5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - They are getting better at providing data to back up needs.
    - Brian thinks we need a more comprehensive fleet plan
    - Do you have issues getting fleet replacements? No. On the bus side it's getting better.
    - Do you have the technicians to do it in-house? Some, but contractor will probably be used. They have the skill set, but not the capacity. The City owns the fleet for paratransit and bus.
    - Do you use a maintenance management system? Yes.
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    a. **Between the City and GoTriangle**
        - Gotten better. It was supposed to be a partnership in the paratransit contract. There is too much micro-management from the City that takes up time from GoTriangle's employees. GoTriangle doesn't get the messages between the contractors and the City. City has an employee on-site which creates confusion. The contractors will complain to the City if they don't like something that's going on instead of going to GoTriangle.
        - Do you have forums where all 3 are sitting together? Monthly progress meetings for paratransit and buses
            - Contractors provide information, answer questions
            - Go Triangle gives updated on planning
        - Meetings with City are bi-weekly, weekly with both contractors, monthly with all 3
        - Communication needs to be better incorporated into the contract
        - Brian provides information on longer-term trends
    b. **Between the City and the third party contractors**
    c. **Between GoTriangle and the third party contractors**
        - Contractors' frustration is with the City contacting them too often
        - GoTriangle's communication with contractors has gotten a lot better on the paratransit side. On fixed route/buses, Doug's management team communication needs to improve.
        - They are all still working off of the 2010 contract
7. **If you could choose one thing or area to improve in the organization what will it be and why?**
    - Clear delineation of responsibilities within GoTriangle, and between all parties
    - More support from GoTriangle leadership
    - Clearer SOPs
    - Brian has helped with communication with GoTriangle and GoDurham

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Interviewee: Vinson Hines

Position: Assistant Director of Transit Operations for Go Triangle

Interview Date: 10/07/2020

Description of Role: With GoDurham was in charge of paratransit operations – no role anymore. Brian has GoDurham role.

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Try to provide the service under the budget provided – highly into customer service.
    - Illustrated or communicated through the budget and monthly reports of stats. Feedback through accessibility board.
    - Core values are set in coordination with the City (broader goals), Go Triangle, and City.
2. **What are the current goals/objectives of GoDurham?**
    - Passenger-miles, cost per passenger miles (2.0) from an efficiency measure
    - Complaints
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Inherited what the City did in the past and tweaked them as needed.
    - Any other KPI set outside of those set by City? No
    - There were inputs from the City mostly in metrics that affect cost
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - For that time, for paratransit the staffing was sufficient – cost savings or over run would affect the operators bottom line.
    - Fixed route could do whatever they want within the fixed budget.
    - When paratransit needed money they had to go through the City of Durham process, which didn't provide much flexibility.
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - It wasn't always like this but from the paratransit side there was a lot more effort from the contractor's side because their service efficiency would affect the contractor's bottom line (turnkey).
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    a. **Between the City and GoTriangle**
        - Better because of the established relationship – Lori use to have (maybe still) meetings with all the transit partners.
        - Hard part is that City have to deal with a separate council, neighborhood agenda that conflict with operational activities/decisions (i.e., fare changes).
    b. **Between the City and the third party contractors**
        - Especially when it first started, City use to communicate with contractor that creator confusion. Encouraged the City to reach out to GoTriangle primarily

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(unless it was an emergency). City transportation staff was in the same building which made it really easy to get in touch with contractor.

c. Between GoTriangle and the third party contractors

- Spend a lot more time with contractor (positive relationship). Not contentious

7. If you could choose one thing or area to improve in the organization what will it be and why?

- Having a strategic plan that is better

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Interviewee: Doug Middleton

Position: General Manager Durham City Transit Company

Interview Date: 10/06/2020

Description of Role: GM for fixed routes, 3 years in position

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Safety, courtesy, reliability
    - Culture that works to those values – training materials, handbooks, schedule for customers
    - City has branch of employees that are transportation oriented, GoTriangle has the same structure and thinking
    - Is there a Mission/vision statement? Yes, COVID took the plan off-track (which Doug wrote with consultant help). City has not seen it, but GoTriangle has.
    - Doug's plan aligns with City's, will send to us, worked with Joe Durham associates
2. **What are the current goals/objectives of GoDurham?**
    - Want to be world-class transit organization
    - Better collaboration with stakeholders
    - Build viable workforce to ensure exceptional quality service
    - Foster a more inclusive work environment
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Discussed every month
    - Ridership, accidents, customer complaints, incidents, mechanical failures, fleet availability, OTP, maintenance completion rates
    - Spreadsheets and reports show this information
    - Dashboard is internal, but not posted for overall employees
    - GoTriangle determines the targets, City is part of the discussion
    - Are there internal team metrics? Yes, completion of tasks, attendance (which is a struggle sometimes), management of their own staff
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - Better than they have been
    - Director at City has been amenable to adding more staff and is interested in growing the system
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - Yes
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    - Doug was hired by First Transit, but is GM for DCTC
    - Doug is accountable to Bill Harnet from First Transit and Laurie Barret at GoTriangle

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- First Transit has $30K contract for hiring/firing management staff
- DCTC would not go away if contract changes hands, but this is not written anywhere

a. Between the City and GoTriangle

- Better than the past due to Sean

b. Between the City and the third party contractors

- City would contact Doug directly, when not supposed to
- Other City employees contact Doug and his team directly
- Pierre at City is on site full-time

c. Between GoTriangle and the third party contractors

- Overall, good – especially with Laurie and Brian

7. If you could choose one thing or area to improve in the organization what will it be and why?

- Streamline the procedures with the City and their involvement with contractor

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Interviewee: Bob Losiniecki

Position: Maintenance Director, DCTC

Interview Date: 10/07/2020

Description of Role:

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Customer Service, reliability, safety is part of the mission statement
    - Believe mission statement is poor, communication is poor coming from the executive members to DCTC
    - DCTC tries to communicate the values to their employees because nothing is communicated from the top to operations staff
    - Specific example – Pierre says one thing and GoTriangle says another, which is very confusing
2. **What are the current goals/objectives of GoDurham?**
    - Don't have a clear cut answer on what they should strive to accomplish
    - Arrival times, performance measures, accident reports and complaints are established and reported monthly
    - 400,000 boardings
    - Reports with additional detailed information is provided to GoDurham, without being asked because they aren't told specifically what to provide
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Bob/Matt first started, there was nothing in place
    - Accidents/100,000 miles, complaints/100,000 boardings
    - Target for operating vehicles, Matt provides snapshot of daily availability/what was done via email to those that are involved in maintenance
    - Their team is 140+ operators as well as other staff, so communication of the goals is challenging
    - COVID has hindered full service
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - There are staffing challenges, need more customer service reps, supervisors
    - Constant fires need to be put out
    - Provide service like a big-bus system, who have twice the size of the current staff
    - Bob-COVID reduced service, created less repairs, improved cleaning schedules
    - Matt-COVID did not help. Operations demands around 11,000 ppl/day posed hardships for making a safe environment for operators; many operators who were in quarantine.
    - There are not enough staff to step in place should someone take leave for vacation, COVID, etc
    - 14 mechanics total for fixed route
    - 58 vehicles is peak-fleet size

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- There is twice the wear and tear, miles, people being moved than Raleigh but with half of the equipment

5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - Upgrading the fleet next year, still running the 2003 fleet today
    - Sean is open to upgrading the fleets
    - Need training programs for safety but don't receive them
    - Training department needs foundation and funding, a trainer was just hired
    - Someone gets hired, and is told what to do but the foundation and training is not provided
    - No supervisor or operator handbook
    - When supervisors are hired, it is embarrassing to tell someone to figure it out or follow employees around because there is no structure
    - There needs to be a set of standards, job descriptions, roles defined
6. **What are the communications/coordination protocols between organizations and how effective are they?**
    a. **Between the City and GoTriangle**
        - From DCTC's perspective, it's gotten better with Sean/Laurie
        - DCTC is not privileged to this information and doesn't know which party is being truthful and making the decisions
        - Pierre, Laurie, Bryan communications differ
        - DCTC would rather they talk to the managers in operations, Doug
        - Dealing with GoTriangle has been ok, but they bypass Doug and go to Bob/Matt
        - DCTC talks to Pierre the most at the City
        - Doug ceased all communication with the City and told Bob/Matt to talk to GoTriangle when staffing needs were being discussed
        - DCTC talks to Laurie and Bryan the most at GoTriangle
    b. **Between the City and the third party contractors**
        - Gotten better during COVID
        - Communication started going from Sean>Laurie>Doug
        - Pierre's communication with DCTC conflicts with Sean/Laurie in aspects other than maintenance
        - Pierre inserts himself in operator conversations that he should not be concerned with
        - Operators view him as someone important in the City, so a lot of side conversations happen with him
        - The City should be pointing operators to communicate with DCTC or GoTriangle
    c. **Between GoTriangle and the third party contractors**
7. **If you could choose one thing or area to improve in the organization what will it be and why?**
    - Lack of resources hinder the program to reach a new level of service

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Interviewee: Tara Caldwell

Position: General Manager

Interview Date: 10/02/2020

Description of Role: GM for GoDurham Access Paratransit division; Been in transportation for 27 years, active GM for 15 years

Questions:

1. **In your experience, what are the core values of GoDurham? How are those values illustrated or communicated?**
    - Customer Service, provide safe reliable transportation to customers
    - New direction is to make it more seamless for client to get around in Durham
    - Monthly meeting and weekly meeting with GoTriangle – knowing about complaints and how things are improving
    - Have a plan for transportation and ridership, plan is revised annually and produced by the City. GoTriangle brings it to her and GoDurham inputs it.
    - Is feedback considered? GoTriangle has taken feedback since they've gotten involved, and has been better since their involvement
2. **What are the current goals/objectives of GoDurham?**
    - Goals due to COVID are focused on time and booking trips online
    - Goals don't change frequently
    - Should they be revised? No
3. **What metrics (or performance measures) do you use to measure the success of the transit service? What metrics do you use to measure the success of your team's contribution to that service?**
    - Wait time for clients to be addressed on the phone, length of ride, how many complaints they get.
    - Internal measures: reports and recorded calls, runs monthly reports to see how long clients are in the call system
    - Vehicle maintenance: policy for preventative maintenance, reports are passed to GoTriangle
    - Would like to see how to transition paratransit riders to fixed
4. **Is the current team or staffing structure adequate to meet GoDurham's goals and/or to provide the services desired?**
    - Dur to new contractor in the last month, yes. Have 70 dispatchers.
    - Due to COVID they are overstaffed
    - Outside of COVID, they always need dispatcher help but have enough operators and maintenance help
    - Have good qualified maintenance team due to raised minimum wage
5. **Does the organization have or provide sufficient resources to be able to cover all necessary operations for the transit service desired by the City of Durham?**
    - Tara has direct communication with GoTriangle, gets staff when needed
    - Prior to GoTriangle managing the contract, there was no discussion about additional needs
6. **What are the communications/coordination protocols between organizations and how effective are they?**

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- Monthly progress meeting amongst all parties – discusses ridership, performance, revenue

a. Between the City and GoTriangle

- Not sure

b. Between the City and the third party contractors

- City comes to contractor sometimes, and they are referred back to GoTriangle

c. Between GoTriangle and the third party contractors

- Excellent communication, weekly meetings

7. If you could choose one thing or area to improve in the organization what will it be and why?

- Advertisement for paratransit is minimal because it's expensive
- Employees don't get recognition for what they do
- When they are expanding routes and service, need to make sure needs are met
- Money is moved around when adding service, which negatively affects some employees
- Would like proper funding for expansions

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10.3 Appendix C: SWOT Workshop Results

Strengths – What does GoDurham do well? In what ways is GoDurham perceived well by the community?

- Overall, GoDurham performs well in achieving a high level of engagement among its community, which, when combined with the consistent delivery of on-time service, results in a local community that is very pro-transit.
- A pro-transit political climate is also a strength for GoDurham, ranging across all levels including City Council, the Mayor's Office, and community advocates. The presence of a local dedicated transit tax is an additional strong point.
- GoDurham's fare structure offers low fares as well as several programs and initiatives aimed at the provision of discounted or free fares to customers. GoDurham's service productivity and overall ridership also performs well in comparison to its peers.
- Within GoDurham and across partners organizations such as the City of Durham GoTriangle, and DCTC, there is a strong commitment to and sense of ownership over the transit service that is provided to the community.

Weaknesses – What does GoDurham need to work on? What would outsiders say are the weaknesses? Are there issues with staff retention and operators?

- GoDurham must work to improve and advance its physical infrastructure, such as bus stops being outfitted with basic passenger amenities. Additionally, several bus stop locations suffer from low usage due to close spacing along routes.
- Lack of physical facility space and parking is seen as a restriction to growth opportunities and the ability to do more work in-house.
- Public perception is a weakness affecting GoDurham, including perceptions related to lack of safety and security on its services, as well as lack of transparency in decision-making that may affect underserved communities. The need for better public-facing marketing, communications, and public relations efforts is also seen as a weakness.
- Several weaknesses at the organization level were identified. There is room for improvement in GoDurham's overall management structure and communications, especially in a way that better aligns with the agency's stated goals and objectives. The lack of data analysis tools and organization-level data aggregation is seen as contributing to reactive decision-marking across the organization. Additionally, GoDurham's complex and confusing organizational structure – which included the City, GoTriangle, DCTC, and O&M contractors – presents a key weakness.

Opportunities – Are there any pilots that GoDurham would be interested in? What would help GoDurham be more efficient?

- There is opportunity for pilot project implementation to be better enabled through policies that support innovative practices.
- Several technology opportunities were identified, including customer-facing technology that would work towards the concept of Mobility as a Service (MaaS), technology that would enable GoDurham to be more predictive (rather than reactive), and other technology-related mobility solutions such as rideshare. Additionally, there

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is opportunity for maintenance software that is more geared towards transit holistically, rather than just fleet operations.

- Opportunity exists to be more customer-centric in transit service planning and operations and more uniform in key aspects of service such as timing and customer amenities.
- There is ample opportunity in the realm of planning, particularly in coordinating between short- and long-term planning (not only for fixed route services but also for on-demand/paratransit service). Opportunity also exists for GoDurham to move towards connecting its data and data driven decision-making in the planning and provision of service.
- Improvements to performance management is an identified opportunity. This may include elements such as Key Performance Indicators (KPIs) to track, as well as how to track them and the determination of what important decisions can be made from them.
- Opportunity exists to better link land use and transit, especially as the City is currently updating its Comprehensive Land Use Plan.

Threats – What things pose a hinderance to GoDurham's performance? Do you have the mechanisms through policy to pilot and launch quickly?

- Adequate funding was identified as a key threat to GoDurham and its performance. Additionally, competing priorities for transportation in the region present a significant threat.
- The COVID-19 pandemic was cited as a key threat, including its contributions to ridership losses and the uncertainty it presents in service planning for the proper levels of demand into the future.
- Staff hiring and retention of front line staff
- The organization's complex structure causes duplicative efforts, a lack of agility to respond to changes (silos), and accountability issues. The length of time that is required to make changes at the organization level was also identified as a significant threat.
- An additional, external threat includes transforming mobility trends and technologies, including changes to vehicle types (electric vehicles and connected/autonomous vehicles) and emerging mobility options.

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10.4 Appendix D: Summary of Peer Surveys

10.4.1 Management and Strategy

10.4.1.1 Comprehensive Operational Analysis and Lessons Learned

GoDurham is currently conducting a comprehensive operational analysis (COA), which is anticipated to be completed in Fall 2021. For comparison, its peers have a mixed experience with their COA efforts:

- Greensboro has not conducted a COA or similar review.
- Rock Region Metro recently completed a COA aimed at providing budget-neutral service to demonstrate efficiency, prior to soliciting additional funding for service expansion. The most important lessons learned from this study were to not be overly prescriptive in the procurement process, to establish a Stakeholder Advisory Committee, and to have board members be more engaged with local stakeholder groups.
- Raleigh is currently developing a COA.
- COMET in Columbia, SC is currently developing a COA.

10.4.1.2 Strategic Plan and Goals

GoDurham follows the city/county's transit plan and is party to the regional transit plan. While these plans do feature goals and objectives, the City of Durham does have room for improvement in communicating the vision and goals of those plans within the Transportation department and with cross-functional departments, such as Finance, Legal, and Safety. The peers of GoDurham have had varying levels of success in both the development and communication of goals and vision of their strategic plans:

- Greensboro's Transportation Department and Public Transportation Division has not had a strategic plan but are currently developing their own individual strategic plans.
- Rock Region Metro does not currently have a strategic plan, but intends to develop one in the next three to five years. It does, however, have a set of strategic imperatives, which need to be better communicated throughout the agency.
- The City of Raleigh's Strategic Plan has a section dedicated to Transportation and Transit. The agency's progress at meeting the objectives and initiatives is reviewed semi-annually with executive city management.
- COMET has a five-year strategic plan, COMPASS, that has set goals for all levels of the agency. However, leadership at COMET does feel that these goals could be more effectively communicated with the agency's employees.

10.4.1.3 Goals, Investments, and Performance Metrics

GoDurham connects its decision making to goals in its strategic plan for capital expenditures and performance measurement. This is consistent with peer agencies, who also tie their capital expenditures and performance measurement to existing plans:

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- Greensboro's current strategic plan efforts are intended to be linked to capital investment decisions and performance measures.
- Rock Region Metro has begun tying its capital investment program to metrics related to its goal during the development of its Transit Asset Management Plan and Public Transportation Agency Safety Plan.
- The objectives and initiatives described in the City of Raleigh's Strategic Plan are linked to capital investments.
- COMET's goals from their strategic plan are directly linked to capital investments and tracked through performance metrics.

10.4.1.4 Executive Roles and Responsibilities

GoDurham's leadership includes the Deputy City Manager, the Director of Transportation, Assistant Director of Transportation, Assistant Director (Mobility Services),Transportation Planning Manager (MPO), Program Administrator (For Hire Vehicles), Parking Systems Manager, and Transit Administrator. Leadership structures at peer agencies take on a variety of shapes and sizes:

- Greensboro's leadership includes City Council, the City Manager and Assistant City Managers, the Transportation Department Manager, Public Transportation Division Manager and Assistant Manager, and the Contracted Transportation General Manager.
- Rock Region Metro recently restructured its organization to streamline responsibilities and incorporate a formal Diversity, Inclusion, Equity, and Justice element. In addition to a CEO, the leadership team includes a Chief Operations Officer, Chief of Staff, Chief Financial Officer, and Chief Safety Officer.
- The City of Raleigh has a Director of Transportation and Assistant Director who are responsible for local leadership on transit.
- COMET has an Executive Director, Director of Administration and Operations, Director of Finance, and Director of Regulatory Compliance and Civil Rights Officer who are responsible for leading the agency.

10.4.1.5 Overlapping Responsibilities

GoDurham has recently experience some overlap of responsibilities due to the recent addition of the Business Services team and delineation between the operations and mobility services assistant director roles. This overlap is anticipated to become resolved as the roles become more defined. GoDurham's peer agencies, however, all report minimal duplication of roles and responsibilities:

- Greensboro's leadership has a clear division of responsibilities, but there is some redundancy for oversight of contracted transportation and legal compliance.
- Rock Region Metro has a clear division of responsibilities, but due to the size of the agency, there is some sharing of responsibilities when necessary.
- The Director and Assistant Director of Transportation in Raleigh have clear responsibilities, but frequently have overlap and coordinate on various programs within their division.

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- COMET's leadership team has clearly defined roles with very little duplication of responsibilities.

10.4.2 General Operations

10.4.2.1 Contracted Services

GoDurham contracts its operating, maintenance, and support services to GoTriangle. Its peers also use contracted services for operations, maintenance, and some support services:

- Greensboro uses contracted transit services for operations, maintenance, safety oversight (including drug and alcohol testing), training, customer service, and data collection and reporting compliance. Public Transportation Division staff is responsible for planning, marketing, and oversight.
- Rock Region Metro use contracted services for supplementary paratransit services and planning services.
- Raleigh uses contracted services for fixed route and paratransit services, but planning is handled by City staff.
- COMET has contracted services for operations and maintenance. Outside of these areas, only drug and alcohol pre-employment testing for COMET employees is handled through contracted services.

10.4.2.2 Issues with Contracted Services

There has been some misalignment between the contracted services of GoTriangle and the City of Durham regarding marketing efforts and lack of performance metrics. Recent changes in marketing leadership have improved the direction of the collaboration. Other issues are expected to be addressed through the contract re-negotiation process. Addressing issues through contract negotiation and on-going dialogue with the contractors have been successful at the peer agencies:

- Greensboro city staff meet with the contracted management staff weekly to discuss and resolve any service-related issues and ensure compliance.
- Rock Region Metro has not faced any issues with its contracted services, though these contracts have only existed for less than one year.
- Raleigh has not faced any major concerns with their contracted services.
- COMET had an audit performed for its contracted services, which highlighted issues that led to the procurement of a new contractor. The new contractor is expected to address any issues discovered through the audit process.

10.4.2.3 Strengths and Challenges in Operations

GoDurham has faced the challenges of retaining its workforce, identifying stable funding amid regional competition for resources, and complicated contracting and partner relationships that result in scattered accountability, marketing and messaging challenges, and procurement and approval delays. GoDurham does enjoy an engaged staff, city council, Mayor, and community at-large, who are dedicated to the success of planned transit vision. This enthusiasm allows GoDurham to have a strong focus on community engagement, equity, and inclusion.

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Peer agencies also reported struggles with funding, contracting, and workforce retention and like GoDurham, have community support and dedication to implementing their strategic plans:

- Greensboro has consistent support for transit service from the local government and community, but has a challenge securing funding for day-to-day operations and future transit needs.
- Rock Region Metro is the largest transit system in Arkansas and the only one with a streetcar system. Its greatest challenge is the lack of a dedicated funding source.
- GoRaleigh has implemented many new protocols and procedures to address common issues faced by their service, such as inclement weather, safety events, and customer service training. Its greatest challenge has been recruitment and retention of staff.
- COMET has implemented much of its strategic plan and successfully completed triennial audits. However, COMET does face the challenges of recruiting and retaining its workforce, identifying stable funding streams, managing a large set of subcontracts, and navigating the governance of a bi-county authority and divided board.

10.4.2.4 Staffing Shortages

GoDurham has experienced a driver shortage in Summer 2020, which it was able to address through marketing efforts coordinated with GoTriangle, the Department of Economic Development, and community organizers. The new hires brought on board help fill vacancies needed for a service expansion and to address temporary impacts from the COVID-19 pandemic in Fall 2020. GoDurham's peer agencies have also faced shortages, but have addressed them either through reliance on the contractor or traditional recruitment strategies:

- Greensboro has experienced staffing shortages, but the transportation services contractor has been responsive to ensure adequate staffing levels to remain in compliance with their contract.
- Rock Region Metro has consistently demonstrated a need for additional operators and addresses this issue through traditional forms of recruitment.
- Raleigh has consistently faced a challenge in hiring operators and mechanics. Attending and hosting job fairs has been one tactic for addressing this issue.
- COMET has not experienced any staffing shortages in operations.

10.4.3 Operators and Staff

10.4.3.1 New Operator Training

GoDurham's newly-hired operators complete extensive training hours. Of the 200 hours required, approximately 140 are behind-the-wheel. This is generally much more than the training for new operators at peer agencies:

- New operators in Greensboro have 40 hours of in-classroom training, 40 hours of behind-the-wheel training, and 40 hours of "cadet" or supervised in-service operations.
- New fixed route operators at Rock Region Metro have 60 hours of in-classroom training, 80 hours of behind-the-wheel training, and 160 hours of supervised in-service operations. Paratransit operators have 60 hours of in-classroom training, 16 hours of behind-the-wheel training, and 120 hours of supervised in-service operations. Streetcar

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operators have 16 hours of in-classroom training and 240 hours of on-route training, a mix of non-revenue and revenue operation dependent on individual skill levels.
- New operators in Raleigh have 40 hours of in-classroom training, 16 hours of closed-course behind-the-wheel training, 40 hours of behind-the-wheel training on the road, and 40 hours of supervised in-service operations.
- New operators at COMET complete 40 hours of in-classroom training, 48 hours of behind-the-wheel training, and 32 hours of supervised in-service operations.

10.4.3.2 Annual Operator Training

Annually, GoDurham operators complete 160 hours of additional training, including courses related to new services, safety, customer service, and other special training and refresher training courses. Annual training hours for existing operators at peer agencies are far fewer than what operators at GoDurham complete:

- Existing operators in Greensboro complete 18 to 24 hours of annual training, which includes refresher training, training for new services, sensitivity training, and safety and compliance related training.
- Rock Region Metro does not currently have any minimum annual training requirements, but is developing a new annual training program that will set minimum standards.
- Operators in Raleigh attend 8 hours of refresher training annually on a variety of topics.
- COMET operators are required to take a course in defensive driving every 2 years and an 8-hour refresher course in customer service annually.

10.4.3.3 Incident-Related Training

GoDurham requires mandatory training for operators as a result of accident reviews or disciplinary measures, as do its peers:

- Following an accident review or disciplinary measure, Greensboro operators must complete a minimum of two hours of training.
- Rock Region Metro uses refresher training for preventable accidents and disciplinary actions, but no formal requirements are defined.
- GoRaleigh requires 8 hours of refresher training for any operator who has been involved in a preventable accident.
- COMET operators are required to take mandatory training as a result of accident reviews or disciplinary measures, though no formal requirements have been provided.

10.4.3.4 Operator Absenteeism

The daily absentee rate for operators at GoDurham, is approximately 20%, of which approximately 28% are out for long-term absences. These absentee rates are somewhat higher than GoDurham's peer agencies, but may be a result of the COVID-19 pandemic:

- The current operator absentee rate in Greensboro is 27.5%, but this is largely attributable to conditions associated with the COVID-19 pandemic.

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- The operator absentee rate at Rock Region Metro has fluctuated between 15% and 40% during the COVID-19 pandemic. Prior to the pandemic, operator absenteeism did not top 25%.
- The operator absentee rate in Raleigh is approximately 11%, with 32% of those absent long-term.
- The operator absentee rate at COMET is approximate 10%. 2% of COMET operators are absent long-term.

10.4.3.5 Absentee Control Programs

GoDurham's absentee control program is administered through its contractor and has been generally effective. Peer agencies have had mixed implementation of absentee control programs, either through union contract or by the contractor, and have seen varying degrees of success:

- Greensboro's transportation services contractor does administer an absentee control program, which is being reviewed to address the current high rate of absenteeism.
- Rock Region Metro uses a points-based attendance policy for union employees, which has not been effective at controlling absenteeism.
- Raleigh's absentee control program is addressed in its union contract, which provides specific discipline for each absence.
- COMET's absentee control program is handled through its contracted services and appears to be effective.

10.4.3.6 Maintenance Training and Certifications

GoDurham's maintenance training is handled by its contractor and no specific requirements are defined, aside from insuring consistent, current, and thorough knowledge of maintenance and repair needs of several types of vehicles, systems, and parts. Most peer agencies do have more defined maintenance training and certification requirements:

- Maintenance new hires in Greensboro are required to complete 8 hours of maintenance training, with a 90-day follow-up assessment. In addition, these new hires must complete operator in-classroom and behind-the-wheel training. Maintenance technicians are expected to complete ASE certification courses, but are not required to obtain the ASE certification credential.
- Maintenance staff at Rock Region Metro complete a series of exams and mastery of specific systems (brakes, HVAC, electrical) for career advancement.
- New maintenance staff in Raleigh receive 40 hours of in-classroom training and 21 hours of behind-the-wheel training. Certifications are required for select job classifications, which have higher wages as an incentive for certification.
- COMET's contracted services determine the necessary training for maintenance new hires, but there is no specific requirement for new hires nor is there a defined certification requirement for maintenance staff.

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10.5 Appendix E: GoDurham Policies

GoDurham documented its policies for service standards in 2017. Among these policies, the service standards addressed the following topics:

- Service area coverage:
  - **Route Coverage & Accessibility**: GoDurham aims to ensure that the fixed route system is geographically distributed evenly within Durham so that passenger accessibility to the service can be maximized within the system's resource limits, resulting in minimal overlap of routes. GoDurham has a policy of providing fixed route service to all middle and high schools, and to the extent possible, primary schools as well.
    - The spacing between all bus routes along parallel streets shall be maintained at a distance no less than two blocks in the residential area (does not affect CBD).
    - Throughout high residential areas of the City (12 or more dwelling units per acre) such that coverage will result in at least 80% of this community being within X mile distance from a bus stop. The requirement for suburban or low density areas (6 or less dwelling units per acre) shall be at least 50% of all residential units having bus accessibility within X mile of bus service.
  - **Access to Private Property**: GoDurham must work with private property owners and developers to ensure that access on privately-owned properties and roads meet currently established design standards for most urban, local, and neighborhood streets for bus use and should discourage any service requests to areas that do not meet those standards without a liability waiver for any damage to the private roadways that may result from operation.
  - **Service on Streets with Humps & Bumps**: GoDurham will not operate on roadways with speed humps or bumps, unless grand-fathered into the current route design.
  - **Bus Stop Spacing**: Efficient bus stop placement is determined by a minimum and maximum spacing distance to ensure proper schedule adherence and the delivery of efficient service. Determinants of proper spacing configuration should include population density, land use, and proximity to schools and business centers, as well as other equally important considerations, such as residential areas for elderly and disabled populations.
  - **Route Deviation**: Route deviations from the main trunk of a route are only encouraged during the off-peak period and should only occur once per trip. Currently, the policy is that no more than one deviation off any main/trunk route is made on a single trip. Also, that the deviation would not exceed 16 percent in one-way mileage on the route, or no more than 5 minutes off the one-warp trip time for that route.
  - **Route Length:** Route length should not exceed two hours and the majority of all routes should not exceed one hour. GoDurham's fixed route system to operate routes that do not exceed 2 hours in round trip time in 15 minutes increment. Majority (80 percent) of all routes must be covered within 60 minutes or less.
  - **Route Structure:** To ensure schedule adherence and simplify route structures, 90 percent of the length of any future route established by GoDurham should be straight and traveled in both directions by the bus with no major loops. Loops are

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only considered where necessary for a bus turnaround. Route must be on street networks of neighborhood collectors or higher and avoid residential streets whose widths do not allow for easy passing of other motorists.

- **Amenities Placement**: GoDurham strives to provide a sufficient number of passenger amenities that are clean, safely located, attractive, comfortable, and inviting for patrons. Due to cost, GoDurham attempts to balance the demand or need for amenities with realistic delivery or placement constraints of amenities along routes. A shelter will be recommended at all bus stop locations that have 30 passenger boardings per day. A bench should be installed at stop locations where there are at least 10 passenger boardings per day. A Better Bus Stop Program has been established to select stops to upgrade on an annual basis. Selection is based on ridership, community demographic data, ease of implementation, and proper spacing.

- Service quality:
  - **Vehicle Loads:** GoDurham aims to prevent excessive passenger loads. GoDurham aims to maintain a vehicle load factor of no more than 150 percent for any vehicle type currently used by GoDurham. Trips with the potential for excessive passenger loads should be served with the largest available vehicle. When repeated over-loading occurs frequently, a Tripper service will be added to the route to service those particular trips.
  - **Vehicle Headways:** GoDurham determines headway based on demand, limited by maximum headways. The maximum headways during the off-peak period and on the weekends where demand is relatively lower should be 60 minutes. The maximum peak- period headway standard during weekdays and on productive routes should be 15 minutes. Routes and services that exceed the maximum headways must be addressed through service design and planning updates.
  - **Schedule Adherence:** The definition of “on-time” used by GoDurham is zero minutes early to five minutes behind schedule. The data that is collected to evaluate schedule adherence is generally obtained through checkers or road supervisors who conduct ride checks. Data on schedule adherence is generally collected on a continuous basis with monthly reviews. GoDurham establishes a minimum of 95 percent on-time schedule adherence for every trip system-wide per each cycle or review period.
  - **Passenger Transfers:** GoDurham sets an upper limit on the number of transfers that should be required to complete a commute trip within the fixed route system. GoDurham policy establishes that all routes are designed such that no passenger transfers more than twice in order to complete a transit trip.
  - **Missed Trips:** GoDurham sets the minimum number of trips that can be missed from the total number of trips scheduled for operating. Current policy establishes a missed trip level of no more than one (1) missed trip per each operating day.
  - **Service Span:** GoDurham has specific service spans based on minimum operating hours for weekday, Saturday, Sunday, and Holiday services. GoDurham establishes that weekday A.M. service would start no later than 5:30 A.M. The same service would end no later than 12:30 A.M. Saturday, Sunday and Holiday services would, based on productivity considerations, beginning at 6 A.M. or later. Sunday and Holiday service should end at 7 :30 P.M. However, Saturday service should end no later than 12:30 A.M. These service spans should be periodically reviewed to ensure the standards are valid approaches to the service provided.

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- **Passenger complaints**: Passenger complaints should be investigated and addressed as soon as possible. All complaints must be documented, compiled and reviewed/reported to management regularly. Additionally, complaints must be tracked by categories in order to identify any persistent issues that may be problematic to the delivery of our service.

- Passenger safety and transit security:
  - **Passenger Safety**: Monthly accident data is broken into passenger incidents and auto accidents and every resource must be expended to maintain this vital service quality goal. Accidents and passenger incidents are tracked on a per 100,000 operating miles basis. It is the policy of GoDurham to have no more than one (1) preventable auto accidents per 100,000 operating miles and also no more than five (5) passenger incidents per 100,000 operating miles.
  - **Transit Security:** It is the policy of GoDurham to provide a safe and secured bus transit system to the residents of Durham. Accordingly, all efforts should be expended by transit management to ensure that operators are trained to identify and appropriately handle all cases that threaten the safety and security of customers as well as the assets of the transit system. The City also works in collaboration with Law Enforcement to ensure that such safety and security matters are given prompt attention. To this end all operators undergo safety and security training every year, based on an established timeline provided by the transit system. The transit system hires police officers who would patrol or guard key areas of the transit system such as the Durham station where many patrons of the bus system congregate or transfer to other buses to complete their trips.
- Performance monitoring:
  - **Passengers per Vehicle Hour (PVH)**: GoDurham uses Passenger per Vehicle Hour as the main service productivity benchmark. Passenger per Vehicle Mile data is collected and analyzed on a monthly basis, but Passenger per Vehicle Hour is the primary measurement for productivity.

NEW ROUTE PERFORMANCE MEASURES COMPARED WITH OVERALL SYSTEM'S AVERAGE

MEASURE	6 MONTHS	12 MONTHS	18 MONTHS
Passenger per Rev Hour	30	50	60

ROUTE PERFORMANCE MEASURE COMPARED WITH OVERALL SYSTEM'S AVERAGE PERFORMANCE PASSENGER PER REV HOUR

Route Type	6 months	12months	18months	2 Years
Newly created or expanded route	30%	50%	60%	75%
*Established routes	--	--	--	75%
Established Sunday/Holiday routes	--	--	--	50%
Cross-town routes	--	--	--	60%

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*A route is deemed established after being in operation for 2 years

- **Passenger per Vehicle Mile (PVM):** GoDurham will continue to use the Passenger per Vehicle hour as its main productivity measuring yardstick for the fixed route system, even though PVM data will continue to be collected and analyzed on a monthly basis.
- **Cost Recovery:** GoDurham has an established system-wide minimum cost recovery ratio. If and when this threshold is unmet, for three consecutive months, staff must analyze and determine the causes and identify ways to remedy the situation. This productivity standard must be used in conjunction with other measures in order to create composite indexes. Other measures may involve a review of cost recovery ratio by route. GoDurham establishes a system-wide minimum cost recovery ratio of no less than 18 percent per month. If and when this threshold is unmet, for three consecutive months, staff must analyze and determine the causes and identify ways to remedy the situation.
- **Passenger per Trip:** GoDurham establishes a passenger per trip target that is in line with its passenger per hour criterion. The system's passenger per trip must be computed on a monthly basis and compared with the same data for each route and meet acceptable minimum performance targets.

ROUTE PERFORMANCE MEASURE COMPARED WITH OVERALL SYSTEM'S AVERAGE PERFORMANCEPASSENGER PER TRIP

Route Type	6 months	12 months	18 months	2 Years
Newly created or expanded route	30%	50%	60%	75%
*Established routes	--	--	--	75%
Established Sunday/Holiday routes	--	--	--	50%
Cross-town Routes	--	--	--	60%
*A route is deemed established after being in operation for 2 years				

- **Cost per Passenger:** GoDurham establishes a cost per passenger target that compares the system's average to cost per passenger for individual routes. The system's cost per passenger must be computed on a monthly basis and compared with the same data for each route and meet acceptable minimum performance targets. Acceptable minimum performance must be equal to the percentages shown below.

ROUTE PERFORMANCE MEASURE COMPARED WITH OVERALL SYSTEM' S AVERAGE PERFORMANCE COST PER PASSENGER

Route Type	6 months	12 months	18 months	2 Years
Newly created or expanded route	30%	50%	60%	75%
*Established routes	--	--	--	75%

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Route Type	6 months	12 months	18 months	2 Years
Established Sunday/Holiday routes	--	--	--	50%
Cross-town routes	--	--	--	60%
*A route is deemed established after being in operation for 2 years				

  - Route Improvement Plans are developed for that do not meet performance targets. Improvements include marketing, service frequency changes, rerouting, rescheduling, elimination of nonproductive route segments, consolidation of segments into other routes. After implementation of a Route Improvement Plan, the route will be given one year to move toward meeting performance targets. Any routes that do not achieve this performance may be targeted for additional curtailment or elimination. Any route doing poorly after two years of establishment must be discontinued. In some instances, positive ridership growth trends will be sufficient to classify the route as meeting improved performance requirements.
- Consumer feedback:
  - GoDurham sets a maximum target of passenger complaints on a per 100,000 revenue miles basis. All complaints are to be fully investigated, categorized, and shared with GoDurham management and addressed in a timely manner.
- Service change process:
  - GoDurham must conduct an analysis to determine the significance of a service change and whether there would be disparate impacts on minority or low-income populations. The Durham City Council adopted the "Durham Transit Service Change Approval Process" that was submitted by GoTriangle in 2011 that identified the appropriate decision-making body and process for each category of service change once a service change recommendation has been developed and also defined what constitutes a "major service change".
  - In accordance with the service change process and methodology approved by the Durham City Council, GoDurham will use a combination of on-board customer survey data, ridership counts, and most recent census-derived demographic data on households per block groups to evaluate the effects of all proposed fare or major service changes on minority and low-income populations. This analysis will describe the alternatives available and any mitigation strategies being developed for GoDurham patrons affected by the change. The results of such evaluation and recommended alternatives would be presented to the Durham City Council for review and approval.
  - GoDurham will conduct Disproportionate Burden analysis at all times when major service or major route changes are conducted and where the impact of such anticipated change on riders go above and beyond the minimum threshold set for the transit system as described above. In all such cases, GoDurham staff will use variety of data including the latest census information, on-board passenger survey results, household study outcomes, as well as civic and focus group interviews to evaluate the impact and import of such major service and fare changes to the entire population of Durham and in particular, the effect on GoDurham's core riders. Areas of investigation would include routing and service type examination, service frequency, service span, load factor. The results of

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such evaluation and recommended alternatives would be presented to the Durham City Council for review and approval.

- Public input and participation:
  - As part of the public participation process, GoDurham will regularly conduct surveys to measure or gauge the level of customer satisfaction for the service delivered by the transit system. Specific market and route-based surveys may also be conducted for a route or combinations of routes or services under consideration for major or minor changes. Further, GoDurham staff may, from time to time, solicit public comments via phone or text message or by mail as input for the evaluation of projects and programs. Outreach efforts are intended to provide individuals and groups opportunity to formally submit service requests to GoDurham for consideration.
  - Staff of GoDurham will attend public meetings either on request, by arrangement or in partnership with other stakeholders such as citizens' action groups, community groups, local colleges and universities or by elected officials. Through these meetings GoDurham staff will gather valuable information regarding service changes or issues desired by the community, customer suggestions, and needs. Such feedback would be considered as critical part of the information assembled and process during service or route changes.
  - GoDurham staff will fully engage our clients in all matters that affect the service delivered to them and cultivate a shared responsibility with those we serve to ensure that the services we provide continues to meet the needs of an ever-growing and ever-changing society. These objectives can be achieved through direct feedback, public meeting, public hearings and prompt response to questions and concerns from the population.

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10.6 Appendix F: Supporting Data Analyses

Data from the first timepoint of each block for each route was also summarized, because it is important to find which trips are not on time for their first timepoints. Determining late and early performance is much simpler for later timepoints, because at those points the bus has been out on its route dealing with traffic and passengers. Routes and blocks with low average on time performance for their first timepoints are summarized below. OTP of first timepoint data is summarized in Table 1, below.

Table 1: On Time Performance of First Timepoints

Route	Early Morning	AM Peak	Midday	PM Peak	Evening
1	80.34%	64.01%	--	--	--
1A	51.43%	--	--	--	--
1B	--	93.12%	--	--	--
2	78.56%	75.66%	--	--	--
2A	69.90%	--	--	--	--
2B	--	64.09%	--	--	--
3	75.12%	79.17%	--	--	--
3B	78.56%	75.00%	--	--	--
3C	85.09%	--	--	--	--
3T	--	--	78.21%	--	92.08%
4	77.09%	83.32%	--	--	--
5	56.19%	61.70%	--	--	100.00%
5B	--	72.41%	--	--	--
6	60.02%	73.77%	--	--	--
6B	59.65%	--	--	--	--
7	70.67%	63.24%	--	--	--
8	59.93%	33.00%	--	--	--
9	--	66.29%	--	--	--
9A	72.41%	48.99%	--	--	--
9B	75.59%	79.07%	--	--	--
10	78.48%	75.53%	--	--	--

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Route	Early Morning	AM Peak	Midday	PM Peak	Evening
10A	70.41%	78.65%	--	--	--
10B	--	77.02%	--	--	--
11	69.48%	90.74%	53.66%	--	--
11B	78.86%	76.11%	--	--	--
12	66.31%	31.81%	--	--	--
12B	59.37%	83.38%	--	--	--
14	65.73%	38.16%	--	--	58.00%
15	70.42%	60.69%	--	46.00%	--
20	--	59.49%	--	66.42%	--
23	--	55.77%	--	--	63.66%
Bull City Connector	--	67.15%	59.17%	--	--
NHS	--	--	--	73.28%	--

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10.7 Appendix G: Growth Planning

The Durham Transit Plan Update, when approved by the necessary elected bodies, will identify capital and operating projects that impact service areas in and around Durham County. Three scenarios are being reviewed by the public in order to better communicate tradeoffs between heavier investments in capital infrastructure versus larger investments in fixed-route local and regional transit service. Based on public feedback and the development of the final Durham County Transit Preferred Alternative, there may be large increases in GoDurham annual operating hours, fleet, maintenance and general staffing needs, etc. Although service improvements and necessary administrative changes would be phased over a period of time, it is necessary to identify those needs and prepare accordingly in budgeting and work planning exercises.

10.7.1 General Principles and Assumptions

The purpose of this section is to discuss organizational changes needed at GoDurham to successfully implement a 50 percent increase in service over a five-year period. A growth scenario that details the service levels, routes, service hours, and vehicle requirements has been established. The organizational changes discussed below are specifically pointed toward a sustained period of growth.

- The rate of service increase is assumed to be gradual and not a change that will occur in a short period of time.
- Service changes with improvements will be targeted to one or two implementation events per year.
- There is a commitment to ensuring the service delivery mechanisms are supported and sustainable.
- Service changes will occur with operator staffing that is appropriately sized to keep overtime and operator fatigue to *no worse than current levels*.

For the purposes of this analysis, services are assumed to grow by 10 percent per year on average over the next five years. The peak vehicle needs vary by scenario under the Durham Transit Plan but generally range between 6 to 15 additional vehicles over a 20-year period. For the purposes of this analysis, the two bus-focused scenarios were used as a basis for estimating staffing needs. These scenarios range between 11 to 15 additional peak vehicles. Once approved/adopted, the final plan will influence the rate of growth and vehicle assumptions.

10.7.2 Operator Staffing

10.7.2.1 Operations Staffing

The number of operators should be increased in direct proportion to the number of service hours. As noted in the body of this report, current operating staffing practices appear to be conducted in a thoughtful and sustainable manner. A base assumption is that this practice will continue even as the system expands.

For example, if service were to increase each year by about 10 percent, that means roughly 12 to 15 new operators will be needed to maintain current services and improve service in the

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future. As this is roughly equal to the current rate of hiring needed to maintain steady operations due to staff turnover, GoDurham will need to double the number of new operators hired each year. ***In total, to support staff turnover and expansion, about 25 to 30 new operators should be hired each year if services grow by 10 percent per year.***

A best practice is to forecast the number of new operators needed a year in advance for each service change to ensure the process of hiring and training is being accomplished in a sustainable and cost-effective manner. These forecasts should include the number of operators needed to support expansion and to support operator turnover. This information should be shared with human resources, training and operations to ensure the needs are being correctly anticipated and filled.

10.7.2.2 Operator Training

Running in parallel with the hiring process is ensuring that training is geared up for a larger than normal influx of new operators. Depending on desirable class sizes that means running 3 to 5 classes per year. Given current training curriculum and practice, this is likely beyond what can be achieved with current staffing. ***It is recommended that one new training position be hired to expand the training program to accommodate the influx of new operators.***

10.7.2.3 Operator supervision

From the COA review it is unclear if there is a formal system in place to mentor and monitor new operators as they enter service. With the plans for growth, a significant cohort of operators will be new to GoDurham and would benefit from formal mentorship. ***To encourage retention, support safe, professional driving practices, and reinforce outstanding customer service, it is recommended that GoDurham establish a new operator mentoring and follow-up program***.After completing training, each new operator should be contacted by one of the trainers at least once a week for their first month, then once every two weeks for the next two months, then quarterly after that until they have reached their first year in service.

Trainers should also be available for retraining new operators, as needed, or for new operators to consult with between visits if some urgent subject has arisen. Given the amount invested in each new operator, high staff retention rates are key to a cost-effective operation.

10.7.3 Maintenance Staffing

The GoDurham bus-focused growth scenarios will have a profound impact on the bus maintenance department. It will impact how service is delivered, how fast repairs can be made, the quality of the repairs, equipment needs and staffing requirements. This robust growth initiative will also impact:

- The type/number of passenger amenities at various bus stops
- The amenities themselves
- The maintenance/cleaning schedule for each asset

The following phases illustrate the impact of growth on Bus Maintenance Department staffing, including:

- Supervisors
- Mechanics

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- Service lane attendants

It is assumed that the service expansion will require three maintenance shifts, thus the need for three supervisors. A 4.5 bus to 1 mechanic/tech ratio (4.5:1) is also assumed for the bus maintenance department.

Phase I: Years 1 to 2

Prior to Phase I service expansions an additional supervisor, mechanic, and two service lane attendants should be hired. At the beginning of year two of the Phase I service increase, two additional mechanics and two additional service lane attendants should also be hired.

At the end of Phase I there should be a total of one new supervisor, three new mechanics and four new service lane attendants on staff.

Phase II: Years 3 to 4

Prior to implementation of service expansion for Phase II, it is recommended that an additional supervisor, two additional mechanics and two service lane attendants be hired. At the beginning of year three of the proposed service increase, two additional mechanics and two additional service lane attendants should be hired.

At the end of Phase II there should be a total of one new supervisor, four new mechanics and four new service lane attendants on staff.

Phase III: Year 5

Prior to a service expansion being implemented for Phase III it is recommended that an additional supervisor, two additional mechanics and two service lane attendants be hired.

The need for the additional staff will depend heavily on how service is implemented (i.e., increased frequency versus longer hours of service).

It's also recommended that repairs be modularized whenever possible. Modular bus components are much easier to address quickly as opposed to having to independently replace items within each system. An example would be to work on axels during down time. This way when the kingpins etc. need to be replaced you simply drop the axel and braking system and replace it. A few hours of work versus several days to replace kingpins.

Future Maintenance Staffing	Phase I		Phase II		Phase III
	Prep	2nd Year	Prep	2nd Year	Prep
Supervisors	1	-	1	-	1
Mechanics	1	2	2	2	2
Service Lane Attendant	2	2	2	2	2

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Asset Maintenance – Passenger Amenities

With an increase in ridership, there may be a need for adjustments to cleaning/maintenance schedules for passenger amenities. ***After the initial phase of expanded service, a review of passenger amenities should be conducted to assess the level of impact on amenities and determine if maintenance/cleaning schedules need to be adjusted***.

During regularly administered customer satisfaction surveys, passengers can also be asked to provide feedback regarding the adequacy of existing amenities after an initial phase of expanded service is implemented. It will be important to follow the current asset management plan as service is increased.

10.7.4 Human Resources and Marketing

10.7.4.1 Human resources

The increase in the need to recruit new operator staff on an on-going basis indicates a potential need for ***one additional human resources staff that is dedicated to recruiting and screening new hires.*** After the five year period of expanding and improving service, the size of the employee base will have grown to the point that that there will be a need to recruit operators continuously to maintain the new size of the operator workforce due to attrition.

For example, with 200 operators after five years and assuming 10 percent turnover, indicates a need to hire 20 operators per year just to maintain staffing. Investment in additional human resources personnel should be considered as an on-going need for the organization under a 50 percent growth scenario.

It is also important to recognize that selection and hiring does not necessarily result in a new operator. It is common for offers to have been extended and accepted by some number of candidates, but when training begins, that number to shrinks by 10 to 20 percent. People decide to take other jobs, and some will wash out of the training. If the need is to have 30 operators per year added to the operator work force, the hiring queue needs to aim for 35 to 40 new hires per year to ensure that 30 people make it to the operator ranks.

10.7.4.2 Marketing

It is also recommended that service improvements from Phases I, II, and III be detailed in periodic marketing efforts and, when possible, these marketing efforts should also be aligned with scheduled service changes/enhancements. ***A marketing budget of 10 percent of the cost of a service expansion will help grow and sustain ridership until the new service levels are mature***.

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