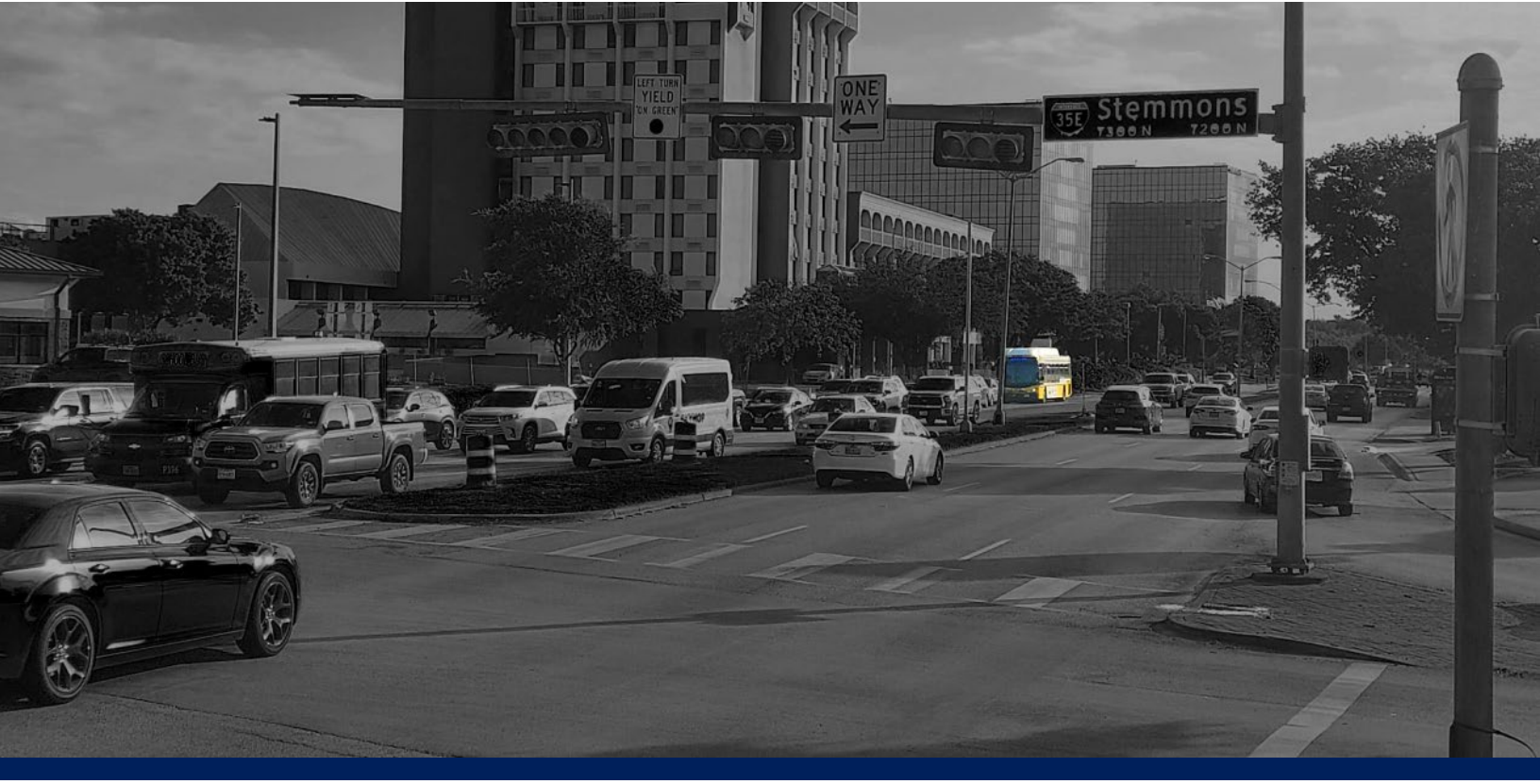

CORE
Corridor Optimization + Rider Experience

DART®

Bus Corridor Improvement Program
Phase 1 Summary Report

NOVEMBER 2023

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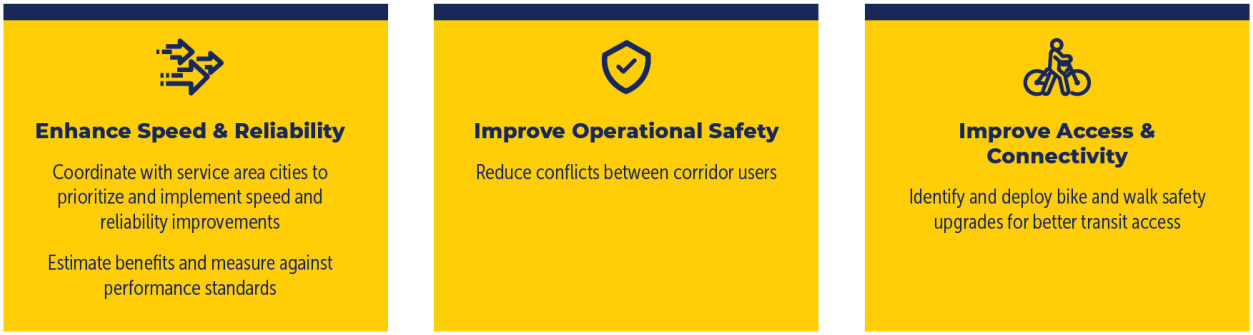
1 Introduction

DART bus service is a key component of the local and regional mobility network, linking residents to jobs, medical services, shopping, and education opportunities. It has the potential to play a larger role in supporting the mobility, land use, and economic objectives of DART Service Area cities. To fully realize the benefits of bus-based mobility, there is a need to invest in streets to enhance the role of transit and move buses and people more effectively.

To address this need, DART has developed a bus corridor improvement program, referred to as CORE (Corridor Optimization + Rider Experience). The CORE program provides the framework for collaboration with DART Service Area cities to promote transit priority within key bus corridors, enhance operational efficiency, and improve customer experience. DART provides three levels of bus service: Express, Shuttle, and Local, all of which are supplemented by GoLink microtransit. This report discusses the potential capital improvements along Local bus route corridors, with an initial focus on the most frequent 21 routes established in the DARTZoom bus network redesign effort.

Goals of the CORE program are highlighted in **Figure 1-1**:

Figure 1-1: CORE Program Goals



1.1 Local and Regional Benefits

By aligning DART and Service Area cities' goals and objectives for mobility to emphasize speed and reliability as a priority, CORE provides a responsive approach to enhancing bus service. Through the advancement of the CORE program and projects, DART and service area cities can make a real difference in the lives of DART riders, enhance communities, and address regional growth by:

- Enhancing the attractiveness and competitiveness of public transit as a mode of transportation, which can encourage more people to use it instead of driving alone.
- Reducing vehicle miles traveled (VMT) and greenhouse gas emissions by shifting trips from private cars to buses, which have lower per capita environmental impacts.
- Improving mobility and accessibility for all, but with an emphasis on transit-dependent individuals who rely on buses for their daily needs.

- Supporting economic development and social equity by connecting people to jobs, education, health care, and other opportunities across the region.

1.2 DART Transit System Plan and Strategic Plan

DART's 2045 Transit System Plan (TSP) was adopted by the DART Board of Directors in January 2022.The 2045 TSP looks beyond day-to-day operations and focuses on opportunities that leverage the already extensive transit system through strategic improvements and investments to create a more accessible, sustainable, and resilient system. Plan opportunities are built around five key themes with associated goals and actions:

1. **Rider Experience** – Focus on access, safety/security, customer information, and system enhancements to improve rider experience.
2. **Mobility and Innovation** – Advance mobility through innovation, technology, and customer initiatives.
3. **Service and Expansion** – Target service improvements and system expansion to support an equitable and sustainable network.
4. **Land Use and Economic Development** – Integrate land use and transit planning to grow ridership and create transit-oriented development (TOD).
5. **Collaboration** – Collaborate with public and private partners on transit supportive programs, policies, and projects.

The CORE program touches on each of these five themes, but the advancement of the CORE program is specifically related to Service and Expansion Goal 3 as shown below in **Figure 1-2**.

Figure 1-2: 2045 Transit System Plan Service & Expansion Goal 3

Service & Expansion

● LEAD ○ SUPPORT

What	When Timeframe				Who Responsible			
GOALS AND ACTIONS	ON-GOING	SHORT-TERM (1-5 yrs)	MID-TERM (6-10 yrs)	LONG-TERM (10+ yrs)	DART	DART CITIES*	AGENCY PARTNERS	PRIVATE SECTOR
GOAL 3: Promote transit priority within key bus corridors to enhance operational efficiency and increase ridership								
ACTION 3.1 Develop a Corridor Improvement Program for core frequent bus routes to document benefits and define capital investment needs		■			●			
ACTION 3.2 Work with Service Area cities to prioritize and implement infrastructure and signal improvements to enhance transit operations	■				●	○	○	
ACTION 3.3 Leverage funding opportunities through private and public sources		■	■		●		○	○

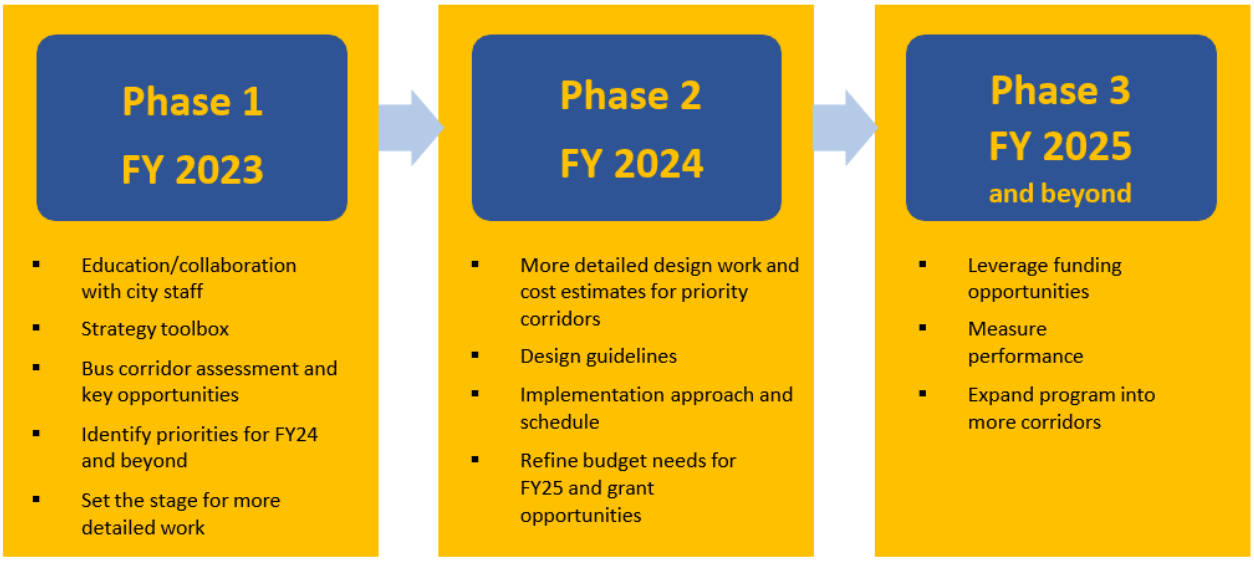
DART is also in the process of developing a new Strategic Plan to guide priorities over the next 5 to 10 years. Two goals focused on the customer include Quality and Seamless. The CORE program is integral to advancing these goals by promoting quality service, improving reliability, and enhancing the total journey experience for customers.

1.3 Phased Approach

The CORE program is built around three primary phases illustrated in **Figure 1-3**. This report documents Phase 1. Within this initial phase, DART defined the CORE program goals, gathered, and documented best practices, determined methodology and criteria, and completed the initial phase of evaluation. Guidance

regarding the implementation approach, including monitoring performance and assessing outcomes is also discussed.

Figure 1-3: CORE Phased Approach



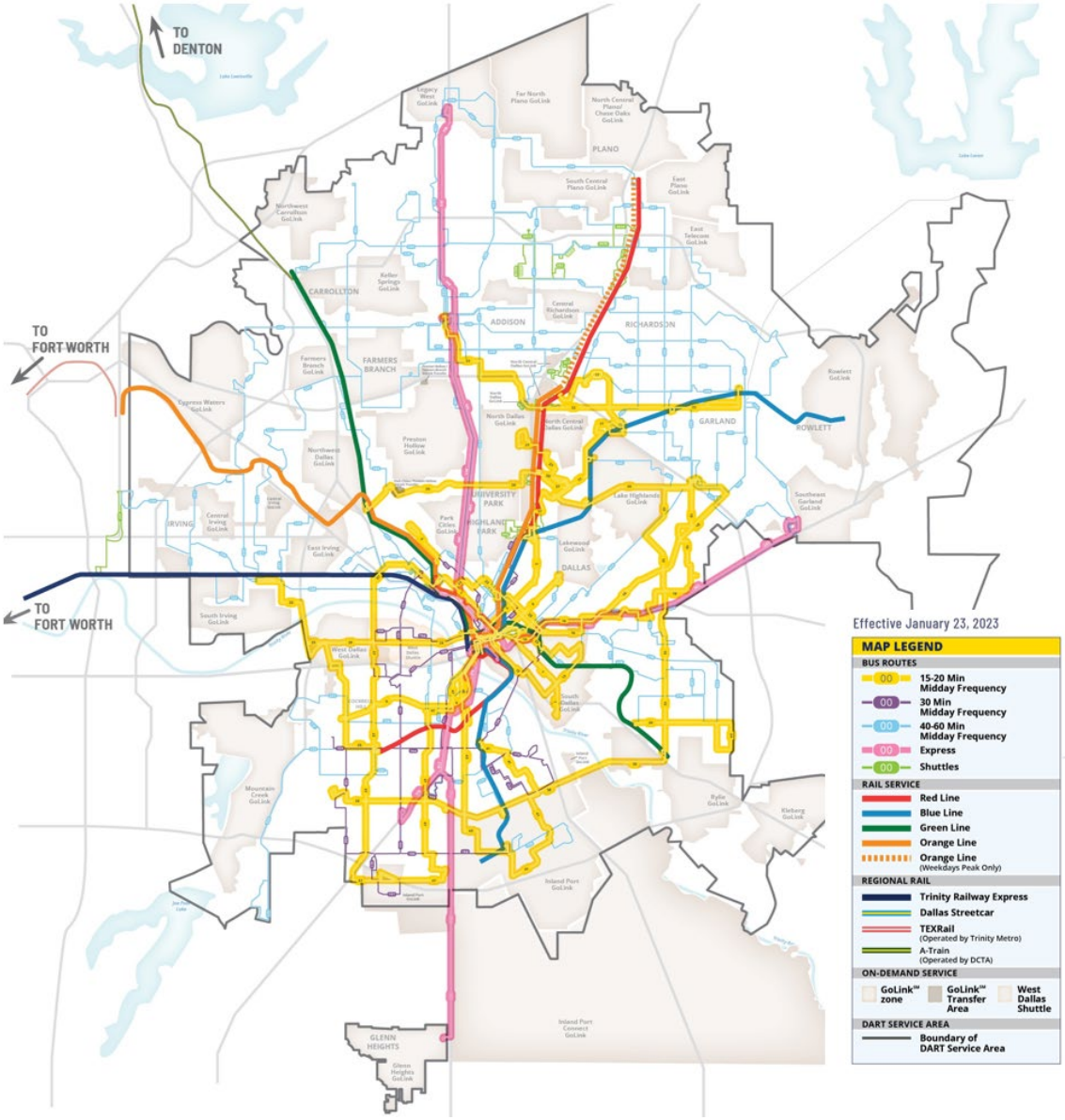
CORE Phase 1 focuses on DART's 21 most frequent Local service routes established in January 2022 through the DARTZoom Bus Network Redesign effort. **Table 1-1** lists the 21 routes that were analyzed as part of Phase 1, noting route length and weekday service frequency. These 21 routes are illustrated on **Figure 1-4** as the gold local routes with midday frequency of 15-20 minutes. The project team employed a data-driven approach to complete the corridor assessment, while sharing information, goals, and best practices with technical staff of DART Service Area cities. The process also included input from DART bus operators, Service Planning and Technology staff, benefitting from first-hand knowledge of operating conditions along bus routes. While only 21 routes were evaluated as part of Phase 1, the process can be applied to all Local routes across the service area.

Table 1-1: Study Corridors

Route No.	Route Name	Route Length (Miles)	Weekday Service Frequency (Peak/Midday/Off Peak)
1	Malcolm X-Maple	8.7	15/15/30
3	Ross	6.5	15/15/30
5	Love Field Shuttle	2.1	15/15/30
9	Jefferson-Gaston	12.2	15/15/30
13	Ervay	8.7	15/20/20-30
15	Buckner	12.4	15/20/20-30
16	Ferguson	14.0	15/20/20-30
17	Skillman	14.6	15/20/20-30
18	Samuell	17.0	15/20/20-30
20	Northwest Highway	17.0	15/20/20-30
22	Forest Lane	15.4	15/20/20-30
23	Haskell	7.1	15/20/20
25	Cockrell Hill North	11.0	15/20/30
27	Ridgecrest	5.2	15/20/30
28	Singleton	8.2	15/20/30
30	Lake June	5.3	15/20/30
38	Ledbetter	15.4	15/20/20-30
41	Bonnie View	9.9	15/20/30
45	Marsalis	13.1	15/20/30
47	Polk	15.1	15/20/30
57	Westmoreland	17.5	15/20/20-30

Note: *Route length represents one direction, not a round trip.*

Figure 1-4: DART System Map



Source: DART

1.4 Report Organization

This summary report is organized into three chapters following this introduction. Chapter 2 documents the evaluation approach and methodology, including the best practices toolbox, criteria, data sources, and stakeholder input. Chapter 3 presents the corridor assessment findings and recommendations. The assessment is presented in a series of Route Assessment Profile maps. These route profiles provide an overview of the route, an evaluation of each route segment by direction, and illustrate opportunities for CORE toolbox applications along the route based on the evaluation.

Chapter 4 discusses next steps for Phase 2, which will further advance priority recommendations. Implementation strategies are also discussed.

2 Approach and Methodology

As described in Chapter 1, the goals of the CORE program are to:

- Enhance Speed and Reliability
- Improve Operational Safety
- Improve Access and Connectivity

Advancing these goals can help elevate the role of DART bus services in mobility network, promote transit priority and consideration of bus in city street or development projects, grow ridership, and move more people more efficiently.

The study approach and methodology considered these goals along with industry best practices and is described in the following sections.

2.1 Best Practices Toolbox

The study approach started with a review of industry best practices to leverage the experiences and lessons learned of cities and transit agencies in other metropolitan areas that are leading the way in enhancing their bus transit systems. This review helped DART to understand and organize the range of tools and actions that can help achieve program goals. This industry scan found a range of approaches with strong collaboration between the transit agency and cities being the most essential common ingredient.

The project team reviewed the following systems:

- King County Metro / Seattle
- Regional Transit District (RTD) / Denver
- Tri-Met / Portland
- Pace Suburban Bus / Chicago
- New York Metropolitan Transportation Authority (NYMTA) / New York City
- Charlotte Area Transit System (CATS) / Charlotte
- TransLink / Vancouver, BC

Although these agencies are not similar in size, they are on the leading edge of bus speed and reliability initiatives within the transit industry. Reports, guidelines, and other documentation were reviewed for potential application to the CORE program, and informed the development of the *Best Practices Toolbox* found in **Appendix A**.

The DART CORE Program *Best Practices Toolbox* organizes the various bus corridor improvement tools and strategies into four major areas as shown in **Figure 2-1**. Within each category, specific treatments or tools are identified and rated based on their ability to achieve program goals. The toolbox also notes considerations related to estimated level of coordination, the cost range, and whether the treatment is more appropriate for a spot level improvement, or application along a route segment or corridor. Each tool is described in terms of its typical application, expected benefits, and potential challenges. Examples are also included. While the toolbox documents the predominant tools recommended for this effort, there may be variations or other situation-specific treatments needed at some locations.

The draft toolbox was reviewed with DART Service Area city technical staff and provided for their review. As CORE is implemented the toolbox may be refined or updated based on local experience.

Figure 2-1: CORE Toolbox Categories

*Categories derived from King County Metro Transit Speed and Reliability Guidelines and Strategies, August 2021.

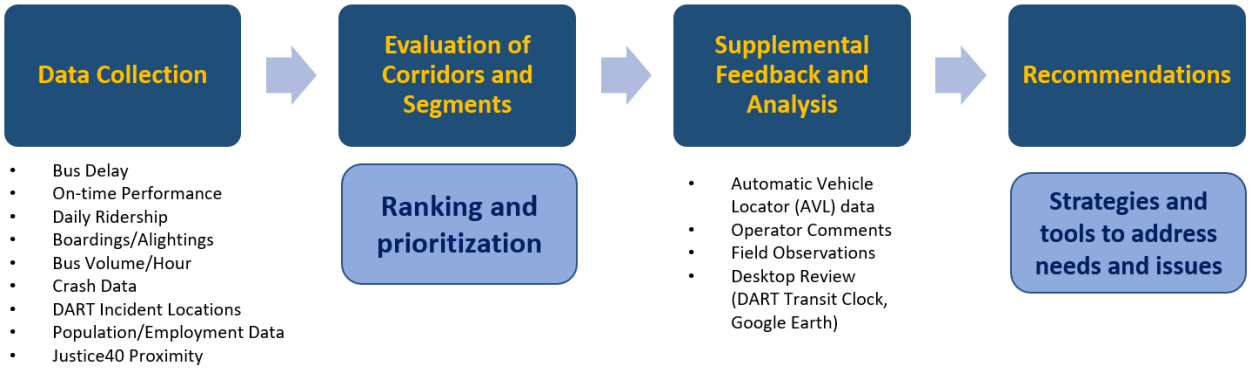
2.2 Evaluation Methodology

The Phase 1 effort focused on two key evaluation objectives:

1. Generate a prioritized ranking of bus route corridors and segments based on need, and
2. Develop recommendations for tools along each corridor to address identified issues.

The first objective makes use of a comprehensive set of evaluation criteria to score segments within each corridor and develop a corridor-level summary rating. The second objective used supplemental data and feedback to develop recommendations for tools that could address, resolve, eliminate, or mitigate operational issues. **Figure 2-2** illustrates the process, which is further described in the following sections.

Figure 2-2: Phase 1 Evaluation Process



2.2.1 Corridor and Segment Evaluation

With potentially hundreds of locations across the 21 bus routes that could benefit from CORE improvements, the task of scoring and ranking the different bus corridors and route segments was important to understand the level of need. The process included the development of criteria, data collection, and metrics to form the basis of the evaluation and scoring. Because this corridor assessment is a high-level analysis, more detailed work in Phase 2 is necessary to further define each potential project. This will need to be done in collaboration with city staff to determine constructability, challenges, and opportunities to combine bus corridor or access improvements with other planned city improvements – all of which may shift the order of implementation.

In this initial phase, each of the frequent service routes underwent an analysis using a set of criteria and metrics both at the full route level and at the segment level. Each route was split into segments to better understand locations of need and deficiency. Typically, these segments were defined at pre-existing time points established for DART's bus schedules.

Based on the program goals, the criteria summarized in **Table 2-1** were used for screening the routes and segments. A description of each of the criteria and associated metric(s) follows. The evaluation approach was set up such that higher scores indicate a greater need for CORE program investments.

Evaluation criteria were developed and weighted based on significance of impact and potential for highest level of benefit. Criteria given higher weights include criteria with the highest level of travel time delays impacting transit performance, and criteria with the highest degree of benefit (i.e., highest transit ridership and transit trip volume). The primary focus of each criterion is described below.

- **Transit Performance (50%)** – focused on areas that experience the greatest degree of delay and variability of travel time delays.
- **Transit Intensity & Ridership (30%)** – focused on impact significance or how many riders and bus trips (intensity) are impacted by travel delays.
- **Population & Employment Density (10%)** – focused on the significance or volume of community-based impacts resulting from travel delays (includes riders and non-riders).
- **Safety (5%)** – focused on areas with the highest number of injuries.
- **Equity / Ridership Profile (5%)** – focused on the degree in which disadvantaged communities are impacted by travel delays.

Table 2-1: Evaluation Criteria

Criteria	Weight	Metric	Scoring	Max Score
Transit performance (50%)	25%	Bus Delay (ratio of weekday avg. bus speed to speed limit in segment)	Quintile Scoring Relative to Peers (Higher delay% = more points)	25
	25%	Travel time variance- (10th percentile divided by 90th percentile) by Route	Quintile Scoring Relative to Peers (Higher variance = more points)	25
Transit intensity & ridership (30%)	10%	Avg. Bus Volume/Hr. (weekday)	Quintile Scoring Relative to Peers; where higher volumes = more points	10
	10%	Average Daily Ridership (Boarding only) in segment	Quintile; where higher ridership = more points	10
	10%	Maximum Average Passenger Load in segment	Quintile; where higher load = more points	10
Pop/Emp Density (10%)	10%	Combined existing population and employment through NCTCOG traffic area zones (TAZ) w/in ¼ mile buffer of segment	Quintile scoring Relative to Peers (top quantile=10 to lowest quantile=0) (TAZ with the largest overlap)	10
Safety (5%)	5%	Segment Overlap Percentage on High Injury Network (HIN)	Segment overlap percentage x 5	5
Equity/ Ridership Profile (5%)	5%	Justice40 Census Tract Proximity	Segment fully in Justice40 tracts = 5 Partially in Justice40 tracts = 3 w/in ¼ mile of Justice40 tracts = 2 Beyond ¼ mile = 0	5
Summary Score	***100%***			***100***

A more detailed description of the criteria and metrics follows:

- **Transit Performance**: This criterion is scored based on a combination of two metrics. First, bus delay, which is at the heart of the CORE program, is measured by comparing average bus speeds relative to the speed limit within each segment. This provides an indication of the ability of the route to operate at similar speeds as automobile traffic. Second is travel time variance which can have major effects on DART's route scheduling and route efficiency as a route with highly variable travel times will generally require additional layover and recovery time to provide 'just in case' time for the route to recover when trips are especially delayed. Using the CORE tools to reduce run time variability is a key to maximizing the benefit of such investments.
- **Transit Intensity and Ridership**: Three metrics comprise this criterion. Average bus volume is simply the number of buses passing through a route segment each hour (note this measure includes all routes using the segment). Average daily ridership is gathered from the bus stops along each segment and consists of average boardings to provide an indication of passenger activity originating within the segment. Third, to also factor in riders passing through the segment without boarding or alighting, the average passenger load or number of passengers on an average bus trip is factored into the scoring. (October 2022 data)
- **Population and Employment Density**: This criterion is used because the relative density of population and employment represents the potential transit market that may benefit from CORE projects that improve transit service quality. It is derived using 2023 traffic analysis zone (TAZ) data for those areas within ¼ mile of the segment.

- **Safety**: Many of the CORE tools in the Best Practices Toolbox can enhance safety for all users within a segment by improving the pedestrian environment, better separating bus movements from general traffic, and by facilitating a mode switch from automobile travel to safer modes such as public transportation. In this case, segments were scored higher based on the degree of overlap with roadway sections that are identified as having high incidences of crashes and injuries.
- **Equity and Ridership Profile**: To take into consideration those riders more likely to be reliant on public transportation and to better align with priorities of the Federal Transit Administration that can affect DART's ability to secure federal grant funding, the fifth criterion accounts for equity considerations and ridership profiles by scoring the proximity of each route segment to Justice40[1] Census Tracts.

Each of the corridors and corridor segments are evaluated relative to each other to develop a prioritized list that can help to inform which of the locations may show higher need for improvement. Each segment received a score for each of the metrics, which was aggregated into a total index score for the route or segment by normalizing the score for each segment by its length.

[1] Justice40 initiative. U.S. Department of Transportation. https://www.transportation.gov/equity-Justice40

2.2.2 Supplemental Analysis and Feedback

The corridor and segment evaluation provided a high-level analysis of potential need and indicator of potential tools to apply within a segment. Another step in the evaluation process was to take the results of the corridor and segment evaluation and apply supplemental feedback and data review to identify and recommend the most appropriate CORE tools. This process made use of additional detailed operational data, bus operator input, field review, and study team discussions based on professional judgement. A description of these activities is summarized below.

Operational Data Assessment

Operational data and feedback focused on using DART Automatic Vehicle Location (AVL) data and getting bus operator feedback. AVL data is a highly detailed, granular dataset about each route that is used to develop Heat Maps and Speed Maps, both of which can help to isolate the causes for delay.

Heat Maps

With both time and location, average speeds across the entire network can be displayed on a heat map and offer a visual story of transit activity along each route across the entire service span. **Appendix B** contains a two heat maps for each route, one for each direction of service. The data used for Phase 1 was for one month (February 2023).

Speed Map/DART Transit Clock

This in-house DART software application also makes use of real-time and historic AVL data, and can provide information pertaining to real-time vehicle location, schedule adherence/on-time performance and run times. For the purposes of this effort, speed maps were produced for a limited set of routes to spot check potential issues. Parameters such as day(s) of the week, time of day, speed, and more can be adjusted to provide meaningful data.

Bus Operator Feedback

Bus operators are most familiar with the operating environment throughout the day and can provide valuable insight into issues along routes. Through the DART Route Monitoring Task Force, one-on-one discussion, and on-site division surveys, operator and supervisor feedback provides a valuable cross-check for comparison with the data.

As preliminary findings were being developed, DART staff conducted on-site surveys at DART's three bus operating divisions, including:

- South Oak Cliff (June 7, 2023)
- East Dallas (June 13, 2023)
- Northwest (June 14, 2023)

The surveys were designed to gather details regarding locations along frequent service routes where bus operators experience recurring delays, have safety issues or other concerns that could potentially be addressed by the CORE program. Approximately 80 comments were received through this process, a majority of which related to the frequent service routes in this study, and several related to other routes. Those relevant to this effort are included as **Appendix C**. A summary of key comments and issues is provided below:

- Delay-related issues made up 72% of the comments including issues related to traffic signals

(25%), bus stop locations (18%), and other issues such as construction, schedules, fare collections, and routing (29%).

- Safety-specific issues made up 4% of comments, mostly related to street maintenance (lane striping, potholes, landscape encroachment).
- Combined Delay/Safety related issues were 24%, largely split between roadway geometry issues or on-street parking constraints.

The two predominant delay issues mentioned by bus operators were at traffic stops and at bus stops. The most frequent issues at traffic stops were:

- **Stop Signs -** Most frequent routes operate on long stretches without turns. In a few instances, routes operate for a short stretch on minor roadways where stop signs force stops but where cross-traffic is not required to stop. This isn't an issue in off-peak periods when cross-traffic is light but during peak periods cross-traffic leaves few gaps for buses to accelerate and safely complete a left-turn or continue ahead.
- **Unprotected left-turn signal:** At multiple locations, operators make left-turns at signalized intersections that don't include a protected left-turn phase. In some instances, insufficient green time is available for queued left-turning vehicles to get through within a single signal cycle.
- **Insufficient green time on protected left-turn phase:** At a few locations where signalized intersections do include protected left-turn phases, there is insufficient green time for the left-turn signal phase for vehicles to get through the intersection within a single signal cycle.

For bus stop related delays, comments pertained primarily to the location of a bus stop too close to an intersection where a left-turn is required, creating challenges for operators to weave across other lanes to reach the left-turn lane. Operators also noted areas with an excessive number of bus stops within a short distance.

Other issues related to both delay and operational safety include roadway geometry and on-street parking. Right-turn movement constraints include instances where the intersection is less than 90 degrees for the turning movement, a tight corner radius, and narrow travel lanes. On-street parking, either parallel parking on narrow roadways or angle parking on major thoroughfares, can also impair smooth and efficient bus operations.

Fieldwork and Team Review

To augment the data-driven component of the CORE program, the project team also used a combination of field work and virtual field work using Google Earth to review each route in detail and develop recommendations regarding the application of bus speed and reliability and related transit improvements. This effort, conducted on a route and segment level, brought together the performance metrics and observations regarding right-of-way, land use, intersections, but stop locations and other parameters to develop specific recommendations for corridor, spot, and active transit zone locations (such as transit centers or rail stations) across the frequent route network.

The study team also held in person and virtual review meetings with other DART departments through the process, including Service Planning and Scheduling, Bus Operations, and Information Technology.

2.3 External Stakeholder Engagement

Service Area City Engagement

To build awareness of and support for the CORE program, DART introduced the initiative at a series of Service Area City staff meetings between March 15 and March 30, 2023. These meetings were pre-meetings for the subsequent Area Plan effort which included a tour and meeting at each City. The Area Plan development process will be important in working with cities to advance CORE improvements. DART also held a virtual "lunch and learn" session with Service Area city transportation and planning staff on May 9, 2023 to discuss the study approach, evaluation criteria and review the draft Best Practices Toolbox document.

Public Input

Customer input, gathered from DART's numerous Mobility Plus Community Meetings during the months of March and April 2023, is another important consideration to inform Phase 1 and Phase 2 of this effort. Input varied from evaluation criteria to consider, issues along bus trips, and recommendations for bus-related roadway improvements and service adjustments. The CORE effort can also draw from the extensive public outreach effort completed for DART Zoom to identify CORE related issues and concerns for application.

3 Corridor Assessment and Findings

This chapter presents the results of the analysis using the methodology described in Chapter 2. Evaluation results are presented at the corridor and the segment level and represented in a series of maps for each route that document recommended toolbox strategies to address identified issues. **Appendix D** contains the Route Evaluation and Toolbox Recommendations summaries for each route.

The evaluation covered a total of 246 route segments across the 21 frequent Local routes described in **Table 3-1**. With eight metrics on each of these segments, that resulted in more than 2,000 data points overall. Given the complexity of this analysis, there are several ways to dissect the data to glean the most relevant findings. The following sections highlight key findings that can help guide DART in terms of prioritizing locations for Phase 2 of this study and advancing the process towards funding and implementation.

3.1 Corridor Level Evaluation

Table 3-1 presents the corridor level results and summary score for each route based on points for each of the eight metrics. As described in Chapter 2, the evaluation weighted transit performance along with transit intensity and ridership more heavily to identify those areas that would benefit most from speed and reliability improvements. Scores are also based on position relative to other peer routes.

The corridor level score serves as an indicator that the route would benefit from a comprehensive set of CORE treatments along most of or the entire corridor. This is especially true of longer routes where there is a greater potential for travel time savings for riders, as well as for segments where multiple routes operate. Those routes scoring in the top 10 and with a route length over 10 miles include:

- Route 20 Northwest Highway (17 miles)
- Route 9 Jefferson-Gaston (12.2 miles via downtown Dallas)
- Route 57 Westmoreland (17.5 miles)
- Route 38 Ledbetter (15.4 miles)
- Route 15 Buckner (12.4 miles)
- Route 16 Ferguson (14 miles; 4.5 miles via freeway)

Four of these routes (20, 57, 38, 15) generally form an inner loop within Dallas with three of them using the Loop 12 corridor. These routes not only provide crosstown service but also important connections to the radial light rail network, allowing passengers to continue trips to other points in the DART Service Area. Route 16 Ferguson provides a direct connection to downtown Dallas from the South Garland Transit Center and uses IH 30 for a limited stop section. Route 9, while more than 12 miles long, operates a short non-stop segment along Jefferson Viaduct and connects through downtown Dallas, effectively functioning as two shorter routes. Further analysis in Phase 2 will be done with recent on-board rider survey data to understand average trip length, major transfer activity, and key origin-destination pairs along the corridors.

Route 23 also scored high across all metrics. While this is a shorter route at 7.1 miles, it does not operate through downtown and provides a critical link to major employment and activity centers like UTSW Medical District (connecting to the Green/Orange lines), Oak Lawn, West Village (connecting the M-Line Trolley and Red/Orange/Blue lines at CityPlace/Uptown Station), Baylor Medical Center, and Fair Park (Green Line).

Other routes in the top 10 include Route 1 Malcolm X-Ross (8.7 miles), Route 5 Love Field Shuttle (2.1 miles), and Route 27 Ridgecrest (5.2 miles). The Love Field Shuttle had the highest score but is only two miles long with one segment in each direction. This shuttle has limited opportunities to enhance travel time given the short distance and would require close coordination with the Love Field Airport as about half of the route operates on airport property. Other opportunities to enhance the bus stops, signage and wayfinding are being explored to promote its use. Route 1 links areas of south Dallas to Baylor Medical Center, downtown Dallas, Uptown, Oak Lawn and UTSW Medical District. Route 27 largely serves as more of a meandering feeder route linking neighborhoods in northeast Dallas to the Walnut Hill and Park Lanes stations.

These three routes, along with others outside of the top 10 may be more suited to segment or spot level improvements. One exception not listed in the top 10 is Route 22 Forest Lane. This crosstown route is long at 15.4 miles, and connects Downtown Garland Station to Addison Transit Center, using a long stretch of Forest Lane for much of the route through a densely populated area. Future service improvements being considered for this corridor as part of the Bus Network Redesign Phase 2 include the addition of another route that would branch off near Medical City to continue west toward Irving. This would effectively double frequency along a section of Forest Lane, increasing the need for a corridor level investment.

Table 3-1: Route Summary Scores

No.	Route	Criteria		Transit Performance		Transit Intensity & Ridership			Pop/Emp Density	Safety	Equity	Total Score
		Metric		Bus Delay	Travel Time Variance	Bus Volume	Daily Ridership	Passenger Load	Combined Density	High Injury Network	Justice 40 Proximity	
		Points Possible		25	25	10	10	10	10	5	5	100
		Length (Miles)	Number of Segments									
5	Love Field Shuttle	2.1	2	15.5	21.7	4.6	3.6	4.0	6.9	1.9	3.0	61.3
23	Haskell	7.1	10	19.8	11.2	6.3	3.1	5.8	6.8	2.8	2.8	58.7
20	Northwest Highway	17.0	14	13.7	15.2	5.7	6.3	5.3	5.9	3.4	1.9	57.4
9	Jefferson-Gaston	12.2	12	13.5	8.7	7.4	5.9	8.1	7.6	2.7	3.3	57.2
57	Westmoreland	17.5	16	11.2	11.2	6.7	8.1	5.1	5.3	3.9	4.8	56.3
38	Ledbetter	15.4	14	11.7	14.1	7.6	5.1	4.5	3.1	3.6	5.0	54.7
1	Malcolm X-Maple	8.7	14	12.6	14.2	4.0	3.3	7.4	5.7	3.7	3.6	54.3
15	Buckner	12.4	12	11.2	12.7	5.9	6.3	4.9	4.3	3.1	4.1	52.6
16	Ferguson	14.0	14	8.3	15.3	5.0	7.7	3.7	6.0	2.6	2.9	51.6
27	Ridgecrest	5.2	6	14.1	9.0	7.0	4.2	4.5	7.6	1.2	3.3	50.9
3	Ross	6.5	10	12.3	10.7	4.8	2.2	7.3	7.2	3.1	1.9	49.5
17	Skillman	14.6	16	10.7	12.9	5.7	4.1	5.0	6.6	1.2	2.6	49.0
13	Ervay	8.7	10	12.4	10.7	5.4	4.7	3.5	3.9	2.6	4.6	47.9
22	Forest Lane	15.4	12	13.2	7.0	6.9	6.4	2.1	7.7	1.6	2.8	47.8
25	Cockrell Hill North	11.0	10	9.1	11.7	5.5	5.0	6.2	4.1	0.9	5.0	47.6
18	Samuell	17.0	24	13.3	11.1	3.5	6.3	2.5	4.4	2.4	3.7	47.2
28	Singleton	8.2	12	9.4	13.7	3.7	4.6	3.2	4.3	1.2	3.8	43.9
30	Lake June	5.3	6	9.3	11.1	3.6	4.6	5.5	2.7	1.6	5.0	43.4
47	Polk	15.1	14	9.3	8.0	5.0	5.0	3.5	5.7	1.9	3.7	42.1
45	Marsalis	13.1	12	8.5	9.7	4.3	2.5	5.2	4.9	1.2	4.0	40.3
41	Bonnie View	9.9	10	8.0	5.6	4.2	3.6	3.3	1.8	2.2	5.0	33.6

3.2 Segment-Level Evaluation

Each route is made up of segments that were subject to the evaluation and combined to create the corridor-level scores discussed in **Section 3.1**. Segment limits are defined by established schedule timepoints along the route, and account for variances in approaches to signalized intersections, turning movements, stop locations and other factors that may differ based on direction. A total of 123 segments across the 21 routes were evaluated, for a total 246 total directional segments.

Using the evaluation methodology, a detailed matrix was developed with each segment receiving scores for the eight metrics as well as a total score similar to the corridors. At a segment level, scores are more precise given the shorter length and resulted in a wider range from high to low. The highest scoring segment within the 100-point scale was 89 for a segment of Route 16 Ferguson in downtown Dallas, to a low of 20 for a portion of Route 41 Bonnie View. The top quintile of segments ranged from 65 to 89 points. Of these 48 segments, about 40% are within the Dallas Central Business District (CBD), highlighting the need for speed and reliability improvements within downtown Dallas along major bus corridors and around the West and East Transfer Centers. CBD focused improvements can benefit multiple routes that operate within common corridors.

Table 3-2 presents the top 20 segment scores outside of the CBD. As shown, the majority of these are associated with routes scoring in the top 10 at a corridor-level. In addition, nearly all of the segments have an end point at a transit facility, either a bus facility or a rail station. **Figure 3-1** gives a sense of the overall location and ranking of segments across the frequent bus route network, with red, orange and yellow locations indicating a higher level of need.

One overarching finding based on the segment scores and a corresponding review of the heat maps in **Appendix B** is that the network experiences consistent delay at high-volume intersections such as where arterials cross other highways, and in and around DART off-street passenger facilities where speeds are slower due to a higher number of turn movements or intersections to access the facilities, along with the internal circulation through a facility.

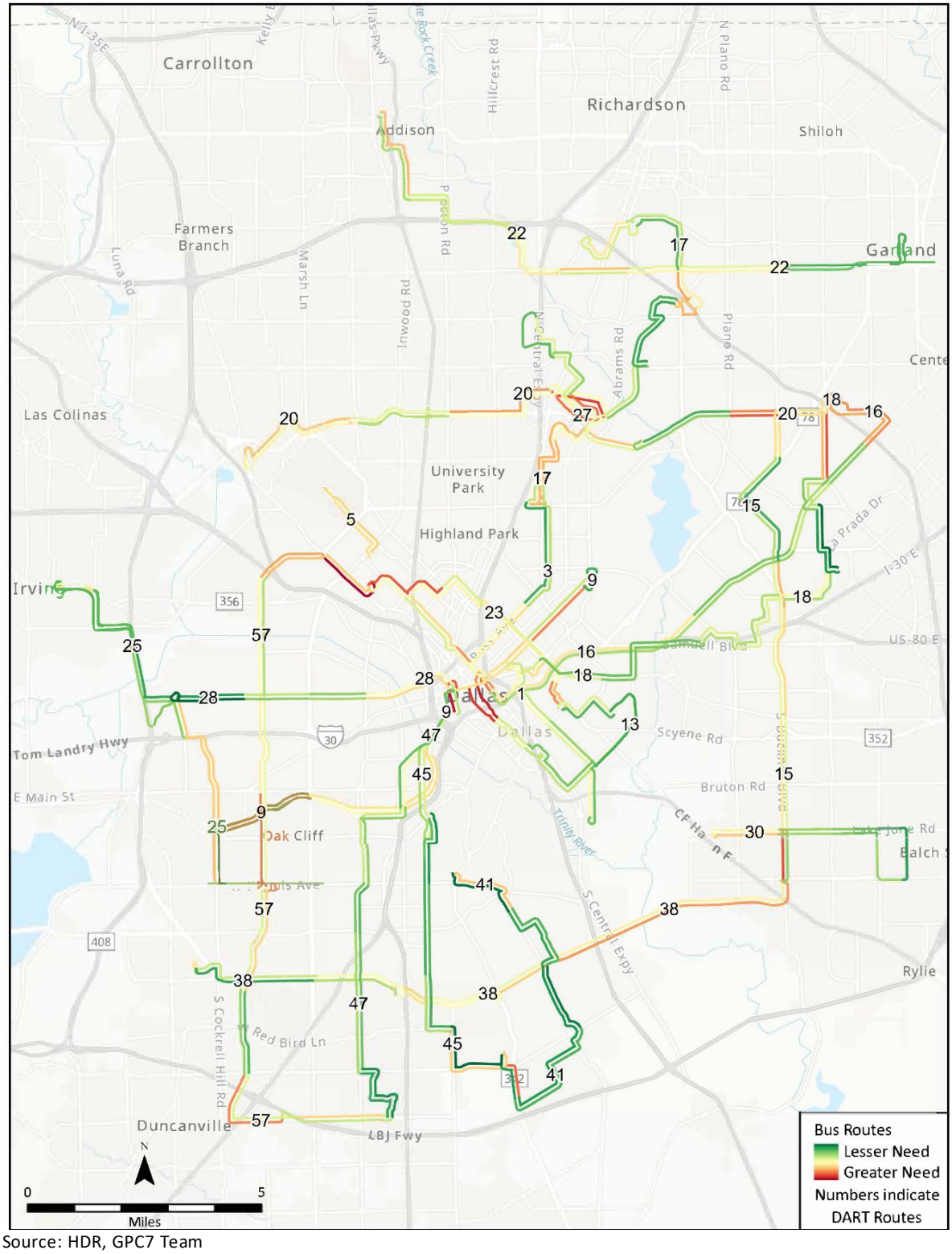
Table 3-2: Top 20 Segments Outside of CBD

Route No.	Route Name	Direction	Segment Start	Segment End	Length	Transit Performance			Transit Intensity & Ridership		Pop/ Emp	Safety	Equity	Total Score
						Bus Delay	Travel Time Variance	Bus Volume	Daily Ridership	Passenger Load	Combined Density	High Injury Network	Justice 40 Proximity	
					Miles	25	25	10	10	10	10	5	5	100
57	Westmoreland	SB	Parkland Station	Mockingbird/Harry Hines	1.5	24.6	23.4	9.9	9.0	8.5	6.3	1.5	0.0	83.2
20	Northwest Hwy	WB	Skillman/Larmanda	Park Lane Station	1.6	21.1	20.6	8.7	8.5	7.7	7.6	2.5	5.0	81.8
9	Jefferson-Gaston	EB	Cockrell Hill PTL	Jefferson/Hampton	2.3	22.3	21.0	9.5	4.6	8.2	5.5	4.2	5.0	80.4
1	Malcolm X-Maple	SB	Parkland Station	Maple/Wycliff	1.1	23.3	23.0	9.3	4.3	9.5	4.9	1.7	3.0	78.9
17	Skillman	NB	Southwestern/ Amesbury	Skillman/Abrams	1.7	21.4	20.1	6.1	4.8	8.3	7.2	4.3	5.0	77.2
27	Ridgecrest	SB	Ridgecrest/Park Ln	Park Ln Station	2.2	22.4	21.3	7.2	5.2	6.6	7.8	0.0	5.0	75.7
23	Haskell	SB	Parkland Station	Lemmon/Oak Lawn	2.2	22.0	19.6	9.1	2.3	9.3	7.9	4.9	0.0	75.1
18	Samuell	WB	South Garland TC	Centerville/Shiloh	1.9	23.9	24.3	8.2	1.9	8.4	3.7	1.8	3.0	75.1
57	Westmoreland	NB	Westmoreland Station	Westmoreland/Davis	2.4	21.2	15.7	8.9	8.9	6.9	5.7	3.8	3.0	74.1
15	Buckner	NB	Buckner Station	Buckner/Lake June	1.3	23.4	22.2	9.6	7.3	6.7	0.9	0.9	3.0	73.9
23	Haskell	NB	MLK Station	Parry/First	0.8	24.5	23.3	7.0	0.7	8.7	0.3	4.0	5.0	73.5
17	Skillman	NB	SMU/Mockingbird Station	Southwestern/ Amesbury	2.3	19.9	20.7	8.8	4.8	6.6	8.2	3.5	0.0	72.6
16	Ferguson	EB	Woodmeadow/ Ferguson	South Garland TC	2.3	22.1	23.7	3.5	1.5	6.5	5.3	4.4	5.0	72.0
17	Skillman	SB	Southwestern/ Amesbury	SMU/Mockingbird Station	2.0	21.3	22.9	2.0	3.1	6.1	8.0	3.1	5.0	71.5
20	Northwest Hwy	EB	NW Hwy/Plano	South Garland TC	2.5	17.0	24.8	1.2	6.5	9.1	4.8	4.9	3.0	71.3
16	Ferguson	WB	South Garland TC	Woodmeadow/ Ferguson	2.3	21.7	20.4	9.0	1.1	8.1	5.4	2.4	3.0	71.3
20	Northwest Hwy	WB	South Garland TC	NW Hwy/Plano	2.4	15.0	22.4	6.3	7.8	8.7	4.7	2.6	3.0	70.6
9	Jefferson-Gaston	WB	Gaston/Paulus	Gaston/Peak	1.7	16.0	21.6	9.4	5.4	7.0	5.9	0.0	5.0	70.3

Route No.	Route Name	Direction	Segment Start	Segment End	Length	Transit Performance			Transit Intensity & Ridership		Pop/ Emp	Safety	Equity	Total Score
						Bus Delay	Travel Time Variance	Bus Volume	Daily Ridership	Passenger Load	Combined Density	High Injury Network	Justice 40 Proximity	
					Miles	25	25	10	10	10	10	5	5	100
41	Bonnie View	NB	Camp Wisdom Station	Lancaster/Plaza	1.2	24.1	24.0	7.3	2.3	9.0	0.1	0.4	3.0	70.2
17	Skillman	NB	LBJ Skillman Station	Audelia/Forest	1.0	20.3	19.0	6.8	7.4	4.3	6.1	2.2	3.0	69.2

NOTE: Gray shading indicates segment is located on a route that scored in Top 10.

Figure 3-1: Segment-Level Evaluation Results Map



Source: HDR, GPC7 Team

3.3 Toolbox Recommendations

The initial tools and strategies recommended for each route took into consideration the corridor-level evaluation, more detailed segment-level scores, and supplemental and location specific analysis such as heat maps, field review, and bus operator feedback. **Appendix D** contains the Route Evaluation and Toolbox Recommendations summaries for each route.

These recommendations are represented in a series of maps for each route that document recommended toolbox strategies to address identified issues. The route maps consist of three parts:

- A route overview and profile map
- A route and segment evaluation summary
- Map(s) illustrating the type and location of recommended CORE tools along the route.

Figure 3-2a through Figure 3-4c show an example for Route 22, noting the content of each part and how to read the information. Recommendations for each route will be further developed during Phase 2 of the CORE effort in collaboration with City staff.

3.4 System Level Observations and Recommendations

This Phase 1 effort along with field observations also resulted in high level recommendations applicable to the entire system. These include:

1. Bus stop consolidation and amenities enhancements
2. Transit Signal Priority (TSP) as a baseline element for all frequent Local routes
3. Downtown Dallas bus corridors as a priority for CORE improvements
4. Level of service improvements

These system level recommendations are further described below along with anticipated outcomes. Further evaluation of these recommendations could result in changes to the DART Service Standards as well.

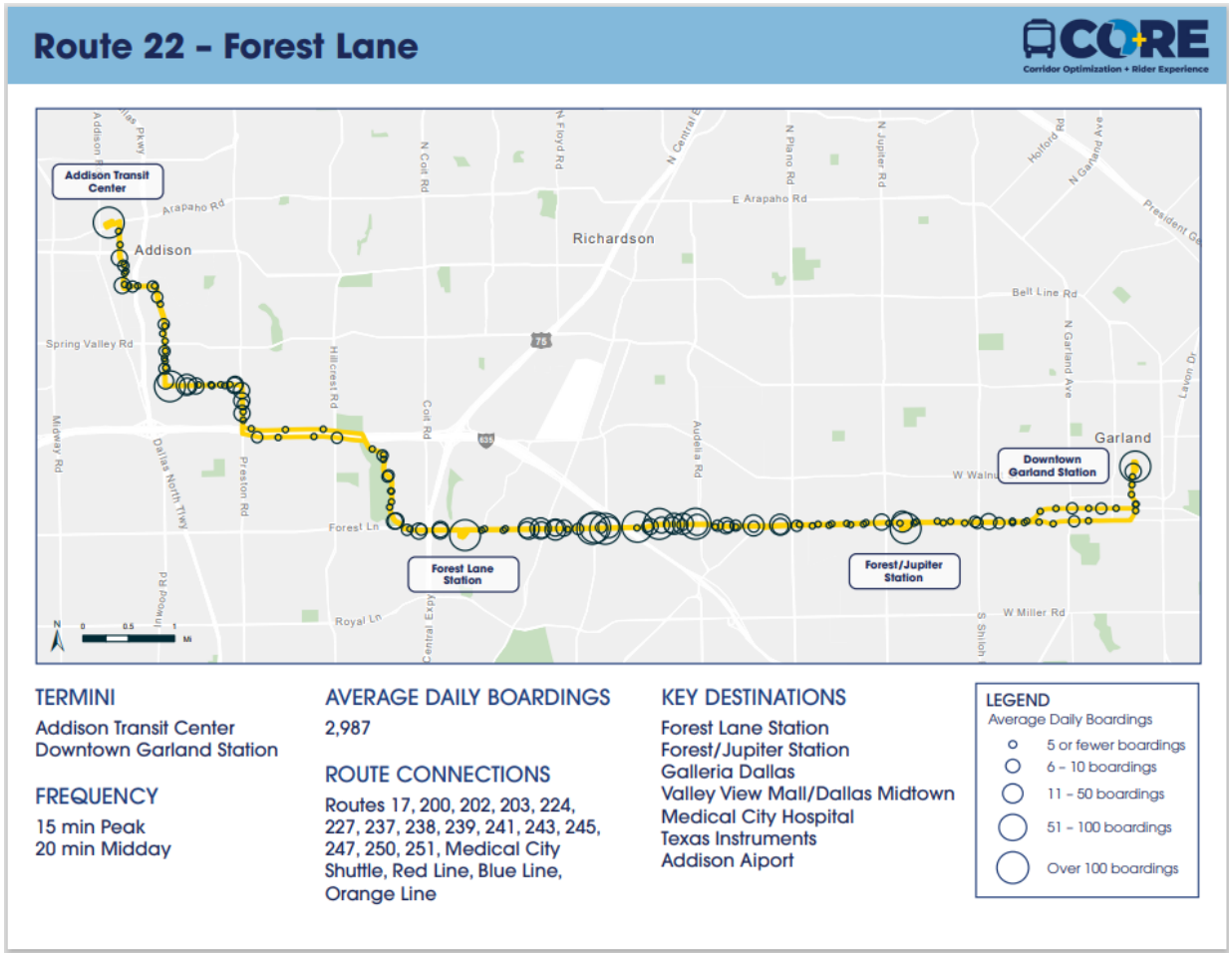
3.4.1 Bus Stop Consolidation and Enhancement

There are a substantial number of bus stops that should be evaluated for:

- ADA compliance, and modified where feasible
- Opportunities for improved access to the stops from nearby origins and destinations
- Amenities enhancements beyond a basic pole and sign blade
- Potential relocations of stops that are away from signalized intersections or located mid-block where pedestrian crosswalks are not available
- Consolidation in cases where 7 or more bus stops per mile are provided, especially on the frequent route network

Focusing on access points to the system and the customer experience at the bus stop level can result in enhanced customer safety and comfort, consistency with DART Service Standards, and improved accessibility for all to transit.

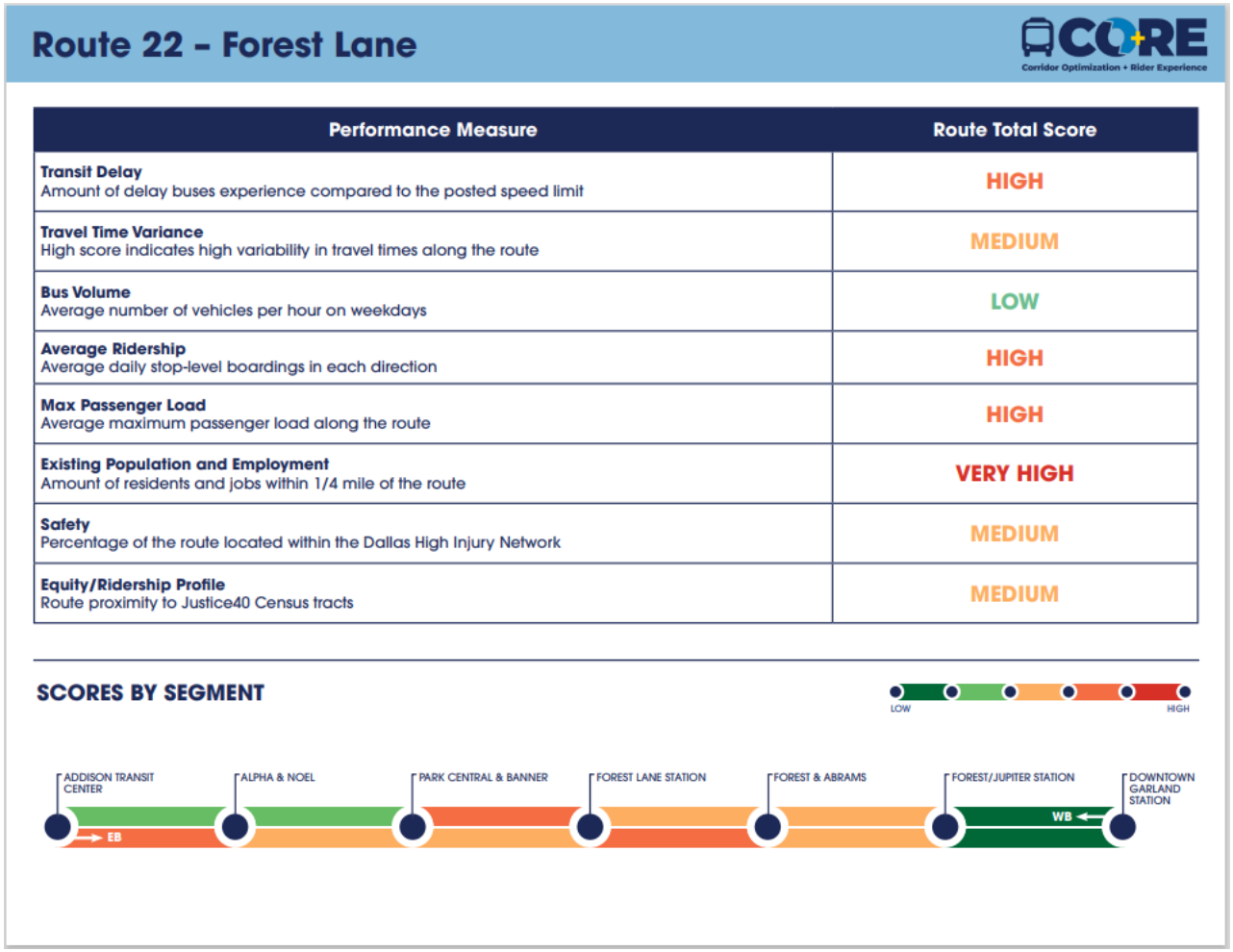
Figure 3-2a: Route Overview/Profile Example (Route 22 – Forest Lane)



Route Overview/Profile: The first part of the Route Evaluation and Toolbox Recommendation summary contains a basic route overview showing the route termini, weekday peak and midday service frequencies, average daily boardings, intersecting routes (bus, rail), key destinations and major transit facilities along the route, as well as a graphical depiction of daily boardings by stop along the route.

In this example, high boarding locations are at major transit facilities, but also for a segment along Forest Lane between Greenville Avenue and Plano Road.

Figure 3-3b: Route and Segment Evaluation Summary Example (Route 22 – Forest Lane)



Route 22 – Forest Lane

CORE Corridor Optimization + Rider Experience

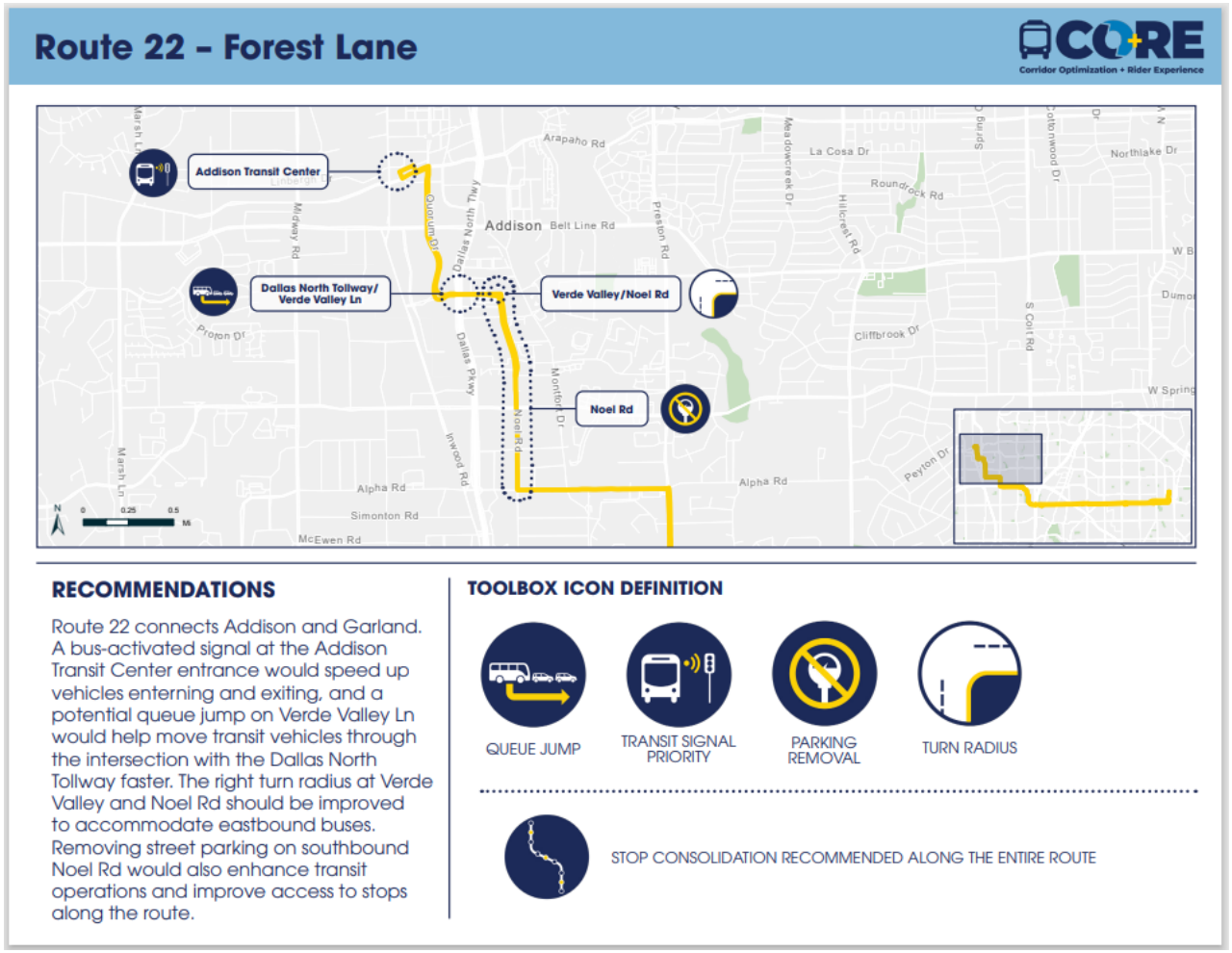
Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	LOW
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	VERY HIGH
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route and Segment Evaluation Summary: The second part of the summary contains multiple pieces of information, including: 1) At the top, the scores (low to high) of the eight individual evaluation metrics (transit delay, ridership, etc.) represented by color for the entire route; and 2) at the bottom, a linear representation of the score for each route segment by direction.

In this example, the overall route scored high for transit delay, ridership, passenger load and combined population and employment along the route. For segment scores, the middle two segments along with the EB segment from Addison show the greatest need for improvement.

Figure 3-4c: Toolbox Recommendations Example (Route 22 – Forest Lane)



Recommended Tools: The third part contains location-specific recommendations from the Best Practices toolbox. These are shown on multiple pages, depending on how many of the segments contain recommendations.

The recommendations are represented by Toolbox icons on the map, and further described in the recommendations box. More detailed descriptions of the various tools are included in the Best Practices Toolbox in **Appendix A**.

3.4.2 Transit Signal Priority (TSP) Improvements

Work with cities to encourage TSP as a baseline element along key routes throughout the service area and along all frequent Local service routes to improve DART bus speed and reliability. Intersection locations should consider issues such as:

- Cross street vehicular volumes
- Signal phasing
- Intersection level of service
- Intersection with other frequent Local routes

3.4.3 Downtown Dallas as a Priority for CORE Treatments

Expand the existing limited sections of dedicated bus-only lanes to a more comprehensive system that incorporates TSP and other tools, particularly on streets and segments where the current 18 routes accessing or passing through the CBD result in a very frequent combined headway, such as Elm, Commerce, Harwood, Houston, Griffin, Lamar, San Jacinto, and Ross.

While these corridors were excluded from this study in terms of recommendation development, stakeholder input (including bus operators and Service Planning staff), field observations and data suggest a strong need and opportunity for CORE program treatments to be implemented. This should be a focus of the Phase 2 effort. Key benefits will include enhanced reliability and travel time through congested areas of downtown Dallas, improved visibility of transit to support increased use, and a decrease in issues related to curb use and enforcement that hinder bus operations at certain locations.

3.4.4 Level of Service Improvements

As part of the Bus Network Redesign Phase 2 efforts, continue to improve service headways on key bus corridors throughout the service area to grow the frequent Local network. DART should also continue to look for opportunities to support even more frequent service where feasible. This will reduce the need for customers to consult schedules and make DART bus service more useful for more people.

These frequent service corridors are most suitable for the CORE toolbox application of dedicated bus lanes, which provide the highest level of bus speed and reliability improvements. DART could advance corridor level improvements under FTA programs; however, service improvements and/or at least 50 percent of the route in a dedicated right-of-way would be needed to qualify.

The FTA Capital Investment Grant program defines both fixed guideway BRT and corridor-based BRT under Small Starts. These are nearly identical other than the requirement that most of the route be in a fixed guideway and the need for weekend service, FTA requires corridor-based BRT projects to include all of the same characteristics defined for fixed guideway BRT except the separated right-of-way for the exclusive use of public transportation along 50 percent or more of the route during peak periods and the weekend service.

Corridor-based BRT projects must contain the following elements: 1) The route must have defined stations that offer shelter from the weather and provide information on schedules and routes. 2) The route must provide faster passenger travel times through congested intersections by using active signal priority in separated guideway if it exists, and either queue-jump lanes or active signal priority in non-separated guideway. 3) The route must provide short headway, bidirectional service for at least a fourteen-hour span of service on weekdays. Short headway service on weekdays consists of either a) fifteen-minute

maximum headways throughout the day, or b) ten-minute maximum headways during peak periods and twenty-minute maximum headways at all other times. 4) The provider must apply a separate and consistent brand identity to stations and vehicles.

FTA also has project justification warrants that allow projects to move through the process faster and receive automatic medium ratings in some evaluation categories. This includes minimum ridership levels based on project cost. The lowest warrant is 3,000 riders per day for projects up to $50 million.

4 Summary and Next Steps

The DART CORE program supports the goals in 2045 Transit System Plan and Strategic Plan by promoting transit priority and other treatments within key bus corridors to enhance operational efficiency, increase ridership and create a quality, seamless travel experience. It also enables DART to support the DARTZoom bus network redesign implemented in January 2022.

This Phase I effort provides DART with the framework to advance CORE and establish an ongoing program of improvements to the bus network. While the focus for this initial evaluation was on the 21 frequent Local routes, the Best Practices Toolbox includes strategies that can be applied systemwide to all bus routes. For most of these tools, jurisdictional collaboration and funding resources will be key to success. The result will be a stronger, more reliable bus network to complement and connect with the extensive LRT system, as well as create a stronger network accessible from GoLink zones throughout the service area. Reporting out on progress and the benefits will be important to demonstrate benefits to the region, DART, cities, and our riders.

The following sections outline the implementation strategy and next steps.

4.1 Policy and Program Development

One the first steps recommended is development of a DART Board of Directors Policy to formalize support for the CORE program and outline criteria and guidelines for funding and cost-sharing approaches with key partners, including DART cities, NCTCOG, TxDOT and other federal programs.

Given that improvements will primarily be within city or state rights-of-way, their support for the CORE program is critical to its success. As such, program strategies should include guidance for how to leverage funding at various levels to achieve mutual objectives. For example, one of the goals of CORE is improved access and connectivity to transit. A CORE program policy could outline a cost-sharing strategy that leverages DART and/or other external funds to improve city sidewalks within a certain distance of bus stops or to support completion of bike trail connections near key transit facilities, which would be beneficial for DART in terms of supporting access and use of the system, but also enhance the customer journey to and from transit through improvements to city infrastructure.

It is recommended that the program also include the development of Bus Corridor Design Guidelines that can be used by both city staff and private developers to better accommodate bus service and amenities within a corridor or at new development sites. These design guidelines could be integrated as an element of the existing DART Service Standards.

4.2 Implementation Strategy and Key Considerations

Next steps for Phase 2 of this CORE effort include development of a program of bus corridor improvements using the information within this Phase 1 evaluation to prioritize corridors, segments and spot or area improvements. While the outcomes of this report can be used to identify and advance priority projects, CORE improvements can also emerge in several other ways, including through the identification of opportunities with DART cities for other key routes that provide important connections across the service area.

4.2.1 Key Considerations

As DART advances projects into Phase 2 and continues to advance the CORE program, key considerations include the following:

- Equitable allocation of investments across the DART Service Area
- Opportunity-based investments vs. programmatic approach
- Leveraging funds to support projects

First, with bus routes serving most of the 13-city service area, the CORE program should consider an allocation of investments that aligns with both DART and city needs. For some cities, corridor investments may be critical to move a more people faster and more reliably to major job centers, in others access or safety improvements may be needed to enhance pedestrian access to a major bus stop or station.

Concentrating on specific routes or route segments can provide tangible, quantifiable speed and reliability benefits. Starting with a priority set of locations or corridors has the benefit of reducing complexity in terms of coordination and is more likely to result in a positive "proof of concept". A balanced investment strategy that implements a set of focused investments while also enabling a range of improvements across the route network should be advanced. This approach can help build support and provide a solid foundation upon which the CORE program can grow.

This allows DART to build on collaboration with local jurisdictions to identify opportunity-based projects at locations or segments that may have City projects already planned and programmed. These opportunities can be identified as cities respond to pressing infrastructure needs, develop bond programs, or as part of multi-agency grant applications where a transit component can strengthen an application. By staying in regular contact and being on the lookout for projects and programs within bus corridors, or that coincide with locations where DART has identified a need for transit speed and reliability improvements, projects can be advanced strategically, often with cost- and time-savings.

Lastly, DART will consider opportunities to leverage grants and other funds to help advance the CORE program. Aligning projects and funding opportunities with outcomes related to climate, pollution reduction, innovation, and equity benefits to Justice40 communities should be a priority as the program is developed. Combining projects into a comprehensive and compelling program can also be beneficial. While projects do not always have to be 'shovel-ready', it is important to have a ready queue of CORE projects with sufficient project development completed such that they can be packaged in a way that maximizes their competitiveness for grants. This includes having support across internal departments and city staff. Given DART's current focus on improving service and the rider experience, establishing a 5-year program of CORE projects is recommended to facilitate quick-turnaround on these types of opportunities.

4.2.2 Phase 2 Focus

Phase 1 of this CORE effort highlighted key corridors, segments and spot locations that have the highest level of need and made recommendations for tools and strategies along more than 230 miles of frequent Local bus routes. For Phase 2, it is recommended that the focus be refining recommendations in collaboration with city staff and advancing development of projects and cost estimates for the following elements.

Corridor-Level Improvements

Corridors provide an opportunity to bundle a series of segment and spot improvements along one route or a corridor used by multiple routes. Focusing speed and reliability improvements on corridors is an

effective strategy to improve transit performance and experience noticeable travel time savings, with the potential to increase ridership. A corridor-based project can also be competitive for grants and allow multiple jurisdictions to benefit from a coordinated set of improvements.

Based on the Phase 1 evaluation, corridors (in order of corridor-evaluation score but not necessarily implementation priority) for further development in Phase 2 include:

- Route 23 Haskell (7.1 miles)
- Route 20 Northwest Highway (17 miles)
- Route 9 Jefferson/Gaston (12.2 miles via Downtown Dallas)
- Route 57 Westmoreland (17.5 miles)
- Route 38 Ledbetter (15.4 miles)
- Route 15 Buckner (12.4 miles)
- Route 16 Ferguson (14 miles; 4.5 miles via freeway)
- Route 22 Forest Lane (15.4 miles)

Further analysis will consider recent on-board rider survey data to understand average trip length, major transfer activity, and key origin-destination pairs along the corridors. In some cases, spot or segment improvements may be more appropriate. Phase 2 will focus on identifying the most competitive route(s) for Corridor-based BRT, or potentially fixed-guideway BRT, as defined by FTA. To qualify for the FTA corridor-based BRT programs, routes need to have the maximum headway (15-minutes all day; which only four routes have right now), and can also meet FTA warrants if cost is under $50 million with at least 3,000 riders a day. Only Routes 57 and 22 have daily ridership over 3,000 as of mid-2023.

In addition to the frequent Local routes evaluated in this Phase 1 report, it is recommended that Phase 2 include a high-level assessment of other major corridors in the service area, especially those under consideration for frequency improvements in Bus Network Redesign Phase 2, or that may serve longer trips and connect residents throughout the service area to activity nodes such as major employment, medical or education facilities.

Segment/Spot Improvements

Spot and segment improvements are projects that target specific points, intersections, or short segments along a bus route. They are typically less complex improvements that generate quick fixes to transit speed and reliability issues that have emerged over time or have been identified by operators. The identification and addressing of spot improvements is generally a less formal process than the corridor development process. Phase 2 will focus on a detailed review of high scoring segments to develop a prioritized list of smaller-scale projects.

Active Transit Zones

Active Transit Zones are areas where multiple routes converge, presenting an opportunity for speed and reliability, as well as access and safety-related, improvements that can have broad benefits across multiple routes. These centers of activity, such as transfer centers, transit centers, rail stations, or other major destinations, provide an opportunity to bundle improvements in a specific zone to enable the movement of many people to and from a busy location. The zone approach provides an opportunity to improve bus flow where there are high passenger loads and many converging routes, allowing benefits to extend to multiple routes. Examples include South Garland Transit Center, Park Lane Station, and SWMD/Parkland Station

Downtown Dallas Bus Priority Corridors

With multiple routes passing through or destined to downtown, Phase 2 should focus on defining bus priority treatments for major streets such as Elm, Commerce, Harwood, Griffin, Lamar, Houston, San Jacinto, and Ross. This can improve travel time through some of the most congested locations along routes and support greater use of transit.

4.3 Monitoring and Progress Reporting

Phase 2 of the CORE effort will outline procedures for monitoring and reporting on the program as well. This is needed not only to track the results of CORE improvements but also to gauge internal and external conditions as they affect route performance and service quality. New developments, signal timing changes, roadway modifications, changes in traffic and travel patterns and other variables can lead to changes in service quality, speed, and reliability within the DART bus network. Periodic route reviews can keep the CORE program up to date and focused on areas with the greatest need for improvement.

Measuring and reporting outcomes should be an integral part of the program and be used to promote and market CORE and the role and benefits of bus service in the overall network. Increased awareness and recognition of the practical gains in speed, reliability and on-time performance can help to drive the continued expansion and success of CORE systemwide. This may include an annual report or interactive webpage on planned or completed projects documenting the background, issue, project or improvement, benefits and funding partners.

APPENDIX A

Best Practices Toolbox

DART

CORE

Corridor Optimization + Rider Experience

Enhancing streets for transit and people

BEST PRACTICES TOOLBOX

JUNE 2023

CONTENTS

1

INTRODUCTION

INTRODUCTION

DART
CORE
Corridor Optimization + Rider Experience
Enhancing streets for transit and people

DART bus riders, many of whom rely on the service for their daily needs, often experience delays and unreliable travel times as a result of their bus being stuck in traffic or delayed at an intersection.

DART bus service is not just essential for the daily needs of riders, but plays a critical role in supporting the mobility plans, comprehensive plans, and safety plans of service area cities. By providing access to opportunity and supporting a healthy economy and quality of life, bus service is a vital component of the local and regional mobility network.

However, to fully realize the benefits of bus-based mobility, we need to recognize its value and invest in streets to enhance the role of transit and move buses and people more effectively. The Bus Corridor Improvement Program, referred to as CORE (Corridor Optimization + Rider Experience), is designed to promote transit priority within key bus corridors, enhance operational efficiency, and increase ridership by improving the customer experience.

The initial phase of the CORE program focuses on DART's 22 Frequent Routes and leverages a data-driven, stakeholder-informed, and partnership-oriented methodology. By aligning with DART and partner goals and objectives and drawing on best practices from other metropolitan areas that have made bus speed and reliability a priority, CORE provides a powerful approach to enhancing bus service.

By taking action and supporting the development and implementation of CORE, we can help make a real difference in the lives of DART riders and the communities we serve. With buses capable of carrying over 40 passengers at any given time, let's ensure that this critical mode of transportation reaches its full potential and continues to support the needs of our growing service area.

What are Bus Corridor Improvements?

The CORE program includes these three primary focus areas:

TRANSIT PRIORITY TREATMENTS

Traffic management strategies that allow buses to bypass traffic congestion and improve their travel time and reliability. Examples of transit priority treatments include bus lanes, signal priority, and queue jump lanes.

CONNECTIVITY AND SAFETY

Improving access to bus stops, reducing conflicts and enhancing safety for cyclists and pedestrians along bus corridors.

ADDITIONAL MOBILITY IMPROVEMENTS

Corridor enhancements that align with and support local jurisdictions and community goals and objectives.

Why Make Bus Corridor Improvements?

To make transit service on DART's busiest corridors faster and more reliable, and to offer an improved customer experience that will attract more riders. In addition, these improvements will:

Enhance the attractiveness and competitiveness of public transit as a mode of transportation, which can encourage more people to use it instead of driving alone.

Reduce vehicle miles traveled (VMT) and greenhouse gas emissions by shifting trips from private cars to buses, which have lower per capita environmental impacts.

Improve mobility and accessibility for all, but with an emphasis on transit-dependent individuals who rely on buses for their daily needs.

Support economic development and social equity by connecting people to jobs, education, health care, and other opportunities across the region.

To benefit not only transit riders but also drivers, pedestrians, cyclists, businesses, and the environment by supporting more livable, sustainable, and inclusive communities.

DESIRED OUTCOME

Promote transit priority within key corridors to improve the rider experience, enhance efficiency and increase ridership

- Help DART buses get 'unstuck' from traffic
- Maximize person throughput on DART's busiest corridors
- Improve the rider experience

CORE GOALS

Enhance Speed & Reliability

Coordinate with service area cities to prioritize and implement speed and reliability improvements

Estimate benefits and measure against performance standards

Improve Operational Safety

Reduce conflicts between corridor users

Improve Access & Connectivity

Identify and deploy bike and walk safety upgrades for better transit access

IDENTIFYING BEST PRACTICES

To identify the most appropriate actions DART and service area cities can take to develop and implement transit priority treatments, a nationwide scan of best practices was completed. This scan found a range of approaches with strong collaboration between the transit agency and service area cities being the most essential common ingredient.

Best Practice Examples include:

King County METRO — Seattle

MTA New York City Transit — NYC

CATS Charlotte Area Transit System — Charlotte

pace — Chicago

RTD — Denver

TRIMET — Portland

TRANSLINK — Vancouver BC

2

TRANSIT PRIORITY TREATMENTS

POTENTIAL TRANSIT PRIORITY TREATMENTS

Based on the nationwide best practices review, four categories of potential transit priority treatments are recommended, including:

Source: NYC DOT

STREET AND INTERSECTION DESIGN

Tools that improve speed, safety, access and reliability through the physical design of streets and intersections.

BUS STOPS AND ROUTING

Tools that improve speed and reliability through stop location and spacing.

Source: LA Metro

TRAFFIC REGULATIONS

Transit-beneficial operational modifications that require minimal capital investment, including, when necessary, enforcement.

TRAFFIC SIGNALS

Tools that modify signal timing, phasing, and indications to improve bus speed and reliability.

*Categories derived from King County Metro Transit Speed and Reliability Guidelines and Strategies, August 2021.

POTENTIAL TREATMENTS OVERVIEW

Low	Medium	High
◆	◆◆	◆◆◆

	GOALS			CONSIDERATIONS		
	Enhance Speed & Reliability	Improve Safety	Improve Access & Connectivity	Coordination Level (estimated)	Cost Range (estimated)	Spot or Segment
STREET AND INTERSECTION DESIGN						
Dedicated Bus Lane	◆◆◆	◆◆	◆	◆◆	◆◆	Segment
Queue Bypass (Short Bus Lane)	◆◆◆	◆◆	◆	◆◆	◆◆	Segment
Roadway Channelization	◆	◆◆	◆	◆◆	◆◆	Segment
Turn Radius Improvements	◆	◆		◆◆	◆	Spot
Speed Hump Modifications	◆			◆	◆	Segment
BUS STOPS & ROUTING						
Bus Stop Location Optimization	◆◆	◆◆	◆	◆	◆	Spot
Route Design	◆◆			◆◆	◆	Segment
Bus Stop Lengthening	◆◆	◆◆	◆◆	◆◆	◆◆	Spot
Bus Bulbs	◆◆	◆◆	◆◆	◆◆	◆◆	Spot
Boarding Islands	◆◆	◆◆	◆	◆◆	◆◆	Spot
TRAFFIC REGULATIONS						
Turn Restrictions/Exemptions	◆	◆◆		◆◆	◆	Spot
Parking Removal/Alterations	◆	◆		◆◆	◆	Spot/Segment
TRAFFIC SIGNALS						
Passive Traffic Signal Retiming	◆◆◆			◆◆	◆◆	Segment
Transit Signal Priority (Active)	◆◆◆			◆◆	◆◆	Segment
Signal Modifications	◆◆			◆◆	◆	Spot
New Signal Installation	◆◆			◆◆	◆◆◆	Spot
Queue Jumps	◆◆			◆◆	◆◆	Spot

3

STREET AND INTERSECTION DESIGN

Tools that improve speed and reliability through the physical design of streets and intersections

DEDICATED BUS LANE

Dedicated bus lanes are a portion of the street designated by signs and markings for the preferential or exclusive use of transit vehicles, sometimes permitting limited use by other vehicles.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆

Figure 1: Dedicated Bus Lane Example from NACTO

TYPICAL APPLICATION

Downtown settings or streets with high motor vehicle traffic and transit vehicle volume and congestion.

POTENTIAL BENEFITS

Reduce delays due to traffic congestion and help raise the visibility of high-quality bus service.

CHALLENGES

Strict enforcement is necessary to maintain their use and integrity. Subject to encroachment due to double-parking, deliveries, or taxicabs. Ongoing maintenance of colored markings.

DEDICATED BUS LANE EXAMPLE

Houston METRO has implemented dedicated bus lanes that improve transit speed and reliability. They have also included an additional lane that promotes ridesharing by dedicating the lane to buses and high-occupant-vehicles (HOV).

- Implemented on Travis Street from Gray St. to Commerce St. in Downtown Houston
- Implemented in 2005

- The red striping and markings provide visual instruction to road users. These red lanes improve traffic flow by having designated lanes for public transit vehicles, and they can also improve safety for drivers, cyclists, and pedestrians.

QUEUE BYPASS (SHORT BUS LANE)

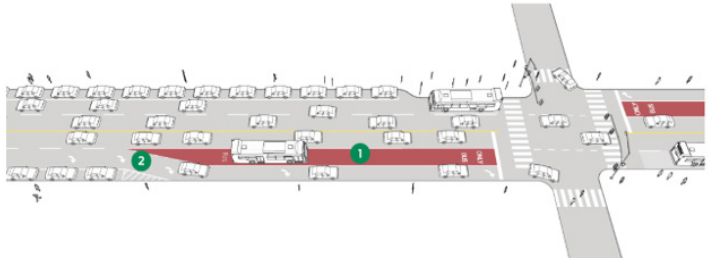
Queue Bypass or short bus lanes, allow transit vehicles to bypass long queues that form at major cross streets.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆

Figure 2: Queue Bypass Example from NACTO



TYPICAL APPLICATION

At the approaches to signalized intersections via separate lane and transit signal.

POTENTIAL BENEFITS

Allow transit vehicles to bypass general vehicle queues and right-turn queues.

CHALLENGES

Subject to encroachment due to double-parking, deliveries, or taxicabs. Strict enforcement is necessary to maintain their use and integrity.

QUEUE BYPASS (SHORT BUS LANE) EXAMPLE

MTA in New York City initiated the Better Buses Restart initiative in 2020 which resulted in over 16 miles of new dedicated bus lanes.

Queues along W 86th Street approaching Central Park West during peak hours often prevented the bus from accessing the stop.

The queue jump lane at E 86th Street at the approach to 5th Avenue provides a better positioning for buses. The design of the lane created channelization that reduced the general travel lanes to a single lane to further prioritize bus movements.

86th Street is part of MTA's Select Bus Service, their bus rapid transit (BRT) network. Customer travel times typically improve 10-20% along corridors with priority treatments.

Photo 1: Queue Jump Lane on Eastbound E 86th Street at Central Park West

ROADWAY CHANNELIZATION

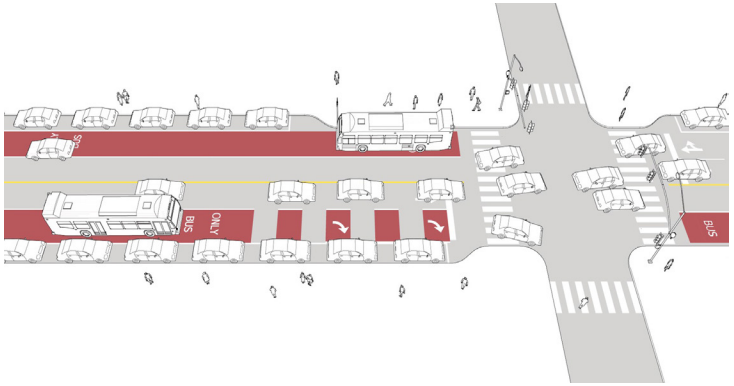
Roadway channelization for buses helps by having different lanes serve a specific purpose, such as having bus-only lanes.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆
Improve Safety	◆◆
Improve Access & Connectivity	◆

Figure 3: Transit Corridor Example from NACTO



TYPICAL APPLICATION

Can be implemented on any transit corridor served by bus or other forms of transit such as streetcars.

POTENTIAL BENEFITS

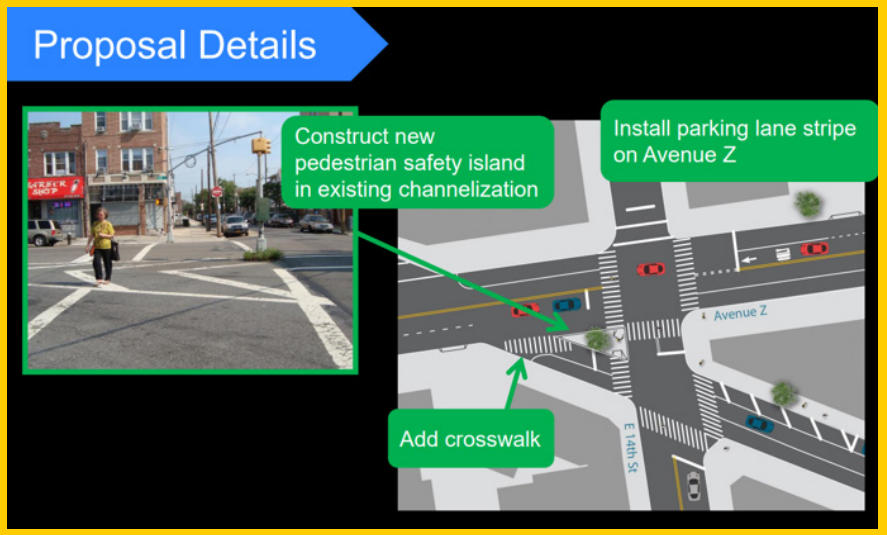
Allows buses to safely and conveniently move into specific lanes.

CHALLENGES

Conflicts with other road users can occur causing delay.

ROADWAY CHANNELIZATION EXAMPLE

New York City implemented several improvements to the Sheepshead Bay Road Corridor to improve safety. Some of the improvements will also aid bus services such as creating channelized roadways to increase bus reliability.



TURN RADIUS IMPROVEMENTS

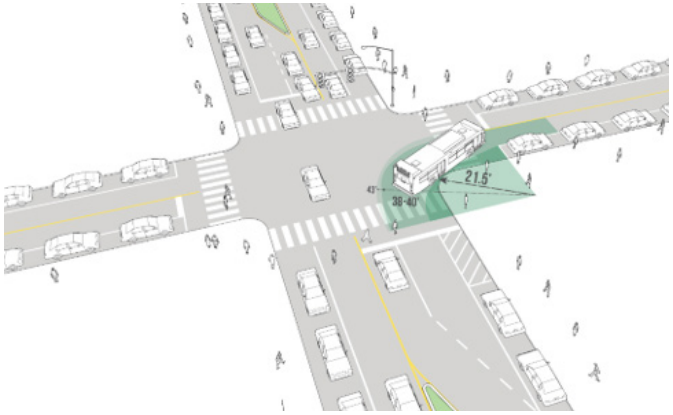
Transit vehicles typically require an effective turning radius of approximately 20–30 feet depending on lane width and presence of curbside parking lanes.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆
Improve Safety	◆
Improve Access & Connectivity	

Figure 4: Turn Radius Improvement Example from NACTO



TYPICAL APPLICATION

At the approaches to signalized intersections.

POTENTIAL BENEFITS

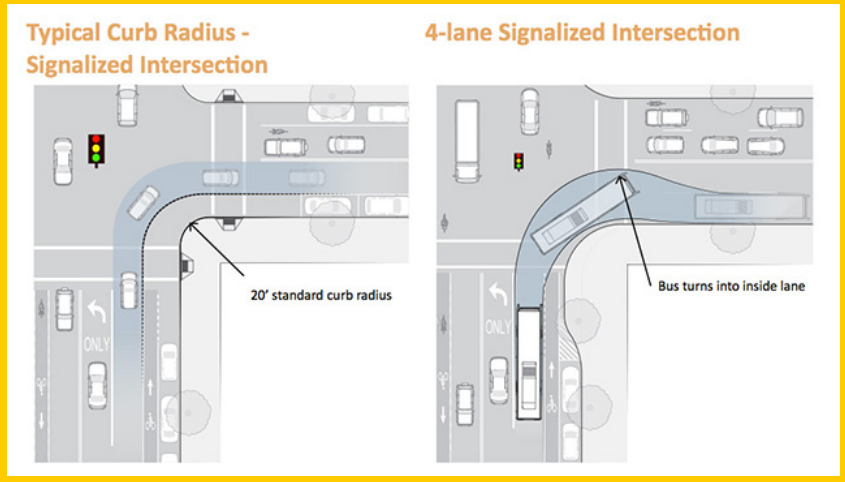
Curb extensions typically reduce pedestrian crossing distances.

CHALLENGES

May have to use part of the oncoming travel lane and/or move stop bar to accommodate for the wide turn.

TURN RADIUS IMPROVEMENTS EXAMPLE

The City of St. Paul has developed a new streets design manual that calls out specific designs for curb radii that considers turning movements of buses and how to effectively design turns that won't impede on bus travel.



SPEED HUMP MODIFICATIONS

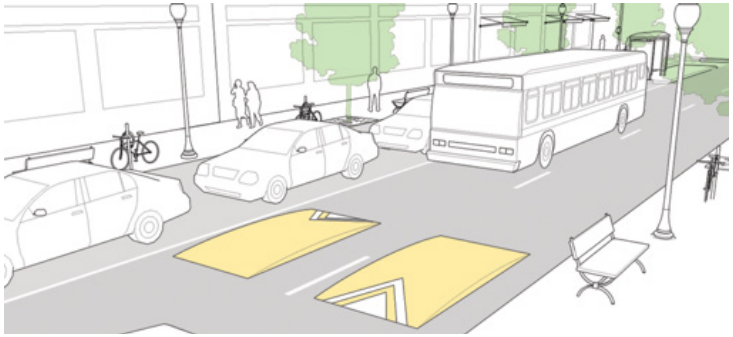
Modifications to speed humps include speed humps that have wheel cut-out openings to allow large vehicles like buses to pass unaffected while continuing to reduce car speeds.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆
Improve Safety	
Improve Access & Connectivity	

Figure 5: Speed Hump Modification Example from NACTO



TYPICAL APPLICATION

On roadways that have or need traffic-calming measures.

POTENTIAL BENEFITS

Reduces speeds for vehicles while minimizing impacts and reducing wear and tear on buses.

CHALLENGES

Requires coordination with city to construct.

SPEED HUMP MODIFICATIONS EXAMPLE

The City of Cincinnati installed temporary speed cushions on Winneste Avenue as a pilot project. The speed cushions help reduce traffic speed and increase pedestrian safety while having minimal delay to transit operations.

	Before	After
Percentage of Vehicles Speeding	95%	11%
Average Speed	37 mph	20 mph
Percentage of Vehicles Exceeding 40 mph	25%	0%

4

BUS STOPS AND ROUTING

Tools that improve speed and reliability through stop location and spacing

BUS STOP LOCATION OPTIMIZATION

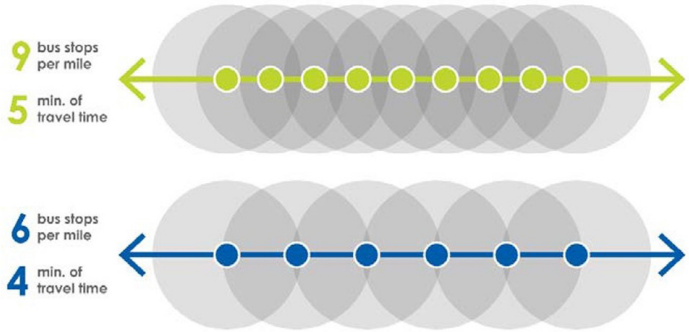
Relocation or consolidation of bus stops to optimize placement and minimize delay while considering pedestrian accessibility.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆

Figure 6: Example of very close bus stop spacing from Transit Center



TYPICAL APPLICATION

On bus corridors where very close stop placement results in excessive bus delay.

POTENTIAL BENEFITS

Improve bus flow, speed and reliability.

CHALLENGES

Bus stop siting and relocation can raise rider and neighborhood concerns.

BUS STOP LOCATION OPTIMIZATION EXAMPLE

Chicago Transit Authority (CTA) conducted a study on bus stop spacing for corridors where transit service was modified.

Stop consolidation and the introduction of the express routes led to time savings of 5-7% for both local and express routes.*

*Source: https://dimnioras.gitlab.io/documents/research-projects/StopSpacing_Study_DimitrisNioras.pdf

ROUTE DESIGN

Simple, direct routing on arterials without major deviations or loops simplifies the system and reduces travel times, may be paired with first/last mile improvements for accessibility.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	
Improve Access & Connectivity	

Figure 7: Bus Route Example from NACTO

TYPICAL APPLICATION

Systemwide where feasible.

POTENTIAL BENEFITS

Fewer turning movements improves travel times and makes the system more legible for customers.

CHALLENGES

High ridership locations may not be along arterials, requiring route deviations.

ROUTE DESIGN EXAMPLE

Dallas Area Rapid Transit (DART) completed a major restructuring of their entire bus network, and made it operational in January 2022. Overall DART streamlined routes, and significantly expanded on-demand service (Go Link). By making the new bus routes more direct, focusing on major transit corridors, and reducing the number of bus stops, DART bus service is faster, ensuring passengers get to their destinations quicker and improving connections.

- With the implementation of this new service, 74% of DART service-area residents have access to transit services within walking distance.
- The new service increases the number of jobs that an average resident of the DART Service Area can reach in one hour by 34% compared to the prior bus network

BUS STOP LENGTHENING

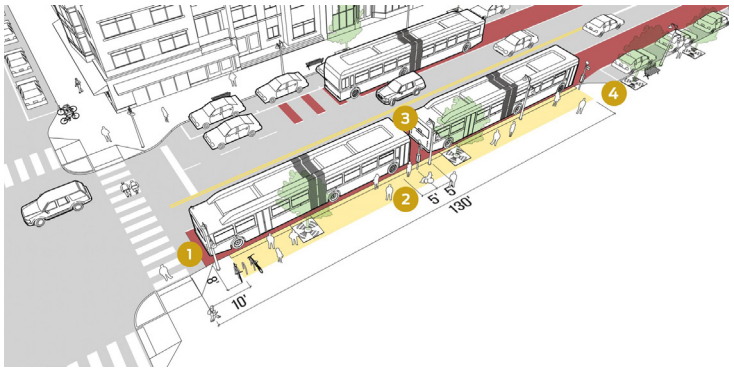
Short transition distances into bus stop areas or pullouts add delay to transit service and require sharper transitions to the curb.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆◆

Figure 8: Bus Stop Lengthening Example from NACTO



TYPICAL APPLICATION

Applicable where sharp entry/exit angles slow entry or exit.

POTENTIAL BENEFITS

Longer stops ease transitions into and out of stops. Can be used to distribute queuing riders along the sidewalk.

CHALLENGES

Require more curb length, reduces curbside parking spots.

BUS STOP LENGTHENING EXAMPLE

New York MTA removed several bus stops along its B38 route to accommodate the transition to longer buses. With this they also updated some of the stops to be longer to accommodate the longer buses. The longer buses will make the route more efficient by carrying more people.

BUS BULBS

Bus bulbs are permanent sidewalk extensions that allow buses to pull up to the curb without leaving the travel lane, saving valuable time.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆◆

Figure 9: Bus Bulb Example from NACTO

TYPICAL APPLICATION

Applicable in both dedicated and mixed-traffic conditions for locations where buses are delayed re-entering travel lanes.

POTENTIAL BENEFITS

Reduces travel delay and boarding delay, by eliminating transition movements into and out of bus stop areas. This also also acts as a curb extension to shorten pedestrian crossings.

CHALLENGES

Traffic buildup behind transit vehicles.

BUS BULB EXAMPLE

A study conducted by the City of New Jersey looked at the benefits a bus bulb would have on transit travel times. The study concluded that bus travel time savings as a result of the bus bulbs ranged between 15 and 30 seconds per bus stop.

BOARDING ISLANDS

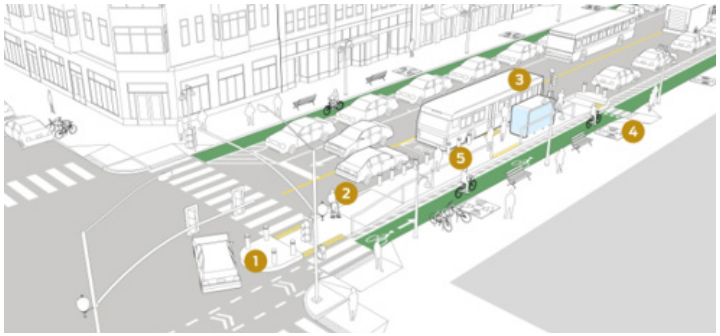
Boarding island stops provide dedicated space for transit passengers and amenities while maintaining a clear pedestrian path on the sidewalk, and/or bicycle lane behind the island.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	◆◆
Improve Access & Connectivity	◆

Figure 10: Bus Boarding Island Example from NACTO



TYPICAL APPLICATION

Applicable on streets with center-running transit, or on routes where high-volume bike lanes are in place.

POTENTIAL BENEFITS

Reduces transit vehicle dwell times, provides a refuge area for pedestrians crossing the street, and minimizes bus/bike conflicts at stops.

CHALLENGES

Right-of-way limitations can restrict feasibility.

BOARDING ISLANDS EXAMPLE

In partnership with TriMet, PBOT installed two types of temporary platforms. The first platform removes the conflict with the bike lane making it safer for bicyclist traveling in the bike lane. They also installed a temporary asphalt platform to assist in boarding of buses.

5

TRAFFIC REGULATIONS

Transit-beneficial operational modifications that require minimal capital investment, including, when necessary, enforcement.

TURN RESTRICTIONS/EXEMPTIONS

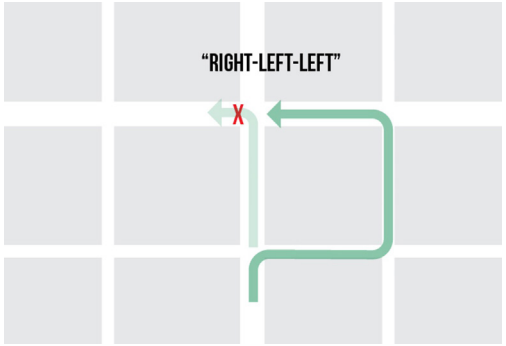
Prohibiting automobile turns (primarily left-turns) where there are no dedicated turn lanes that would present issues to efficient bus movement or pedestrian access, and shifting turn volume to the intersections where they can be best accommodated using signal phases and turn lanes.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆
Improve Safety	◆◆
Improve Access & Connectivity	

Figure 11: Turn Restriction Example from NACTO



TYPICAL APPLICATION

Urban roadways, gridded road networks.

POTENTIAL BENEFITS

Improve transit performance, general traffic performance, and walking and bicycling safety.

CHALLENGES

May be viewed as an inconvenience by motorists.

TURN RESTRICTIONS/ EXEMPTIONS EXAMPLE

As part of the Geary Blvd. Improvement Project, SFMTA proposed left-turn restrictions at some intersections to reduce conflicts between vehicles and people walking and improve traffic safety by increasing driver visibility and providing space for larger center median pedestrian refuges.

PARKING REMOVAL/ALTERATIONS

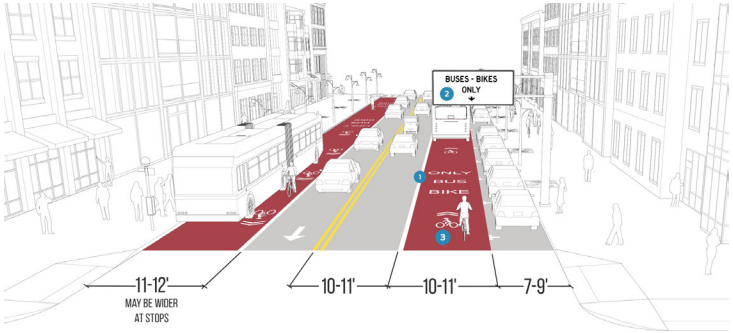
The removal of parking completely or removal of parking spots is sometimes necessary to implement transit measures such as bus lanes.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆
Improve Safety	◆
Improve Access & Connectivity	

Figure 12: Parking Removal/Alterations Example from NACTO



TYPICAL APPLICATION

Urban roadways where bus lanes or transit lanes are planned.

POTENTIAL BENEFITS

Allow spaces for bus lanes and transit lanes as well as bus stop improvements.

CHALLENGES

Stakeholder perceptions regarding loss of parking.

PARKING REMOVAL/ ALTERATIONS EXAMPLE

San Francisco and SFMTA have implemented a project throughout the city to remove over 1,000 on-street parking spots to improve the safety and speed of bus boarding.

6

TRAFFIC SIGNALS

Tools that modify signal timing, phasing, and indications to improve bus speed and reliability.

PASSIVE TRAFFIC SIGNAL RETIMING

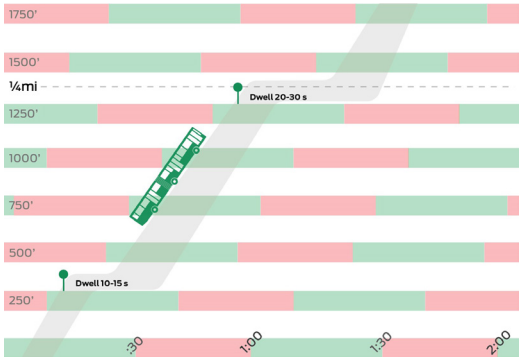
Traffic signal modification to create “green wave” for buses.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆◆
Improve Safety	
Improve Access & Connectivity	

Figure 13: Passive Traffic Signal Retiming Example from NACTO



TYPICAL APPLICATION

Urban roadways with frequent signalized intersections.

POTENTIAL BENEFITS

Reduces dwelling time stopped at signalized intersections and bus delay.

CHALLENGES

Signal timing without consideration of dwell times at bus stops can further cause bus dwell time at intersections.

PASSIVE TRAFFIC SIGNAL RETIMING EXAMPLE

Metropolitan Transportation Commission in California has created the Program for Arterial System Synchronization (PASS) to coordinate with the city on signal timing to improve traffic flow, address safety concerns, prevent stop delays and cut down on air pollution.

PASS BENEFITS

Travel time savings	23%, or more than 3.2 million hours	**Total project costs**	$1.4 million
Fuel consumption savings	16%, or over 3.1 million gallons	**Total lifetime benefits**	$86.2 million
Average auto speed increase	38%	**Overall benefit-cost ratio**	61:1
Total emissions reduction	124 tons		

TRANSIT SIGNAL PRIORITY (ACTIVE)

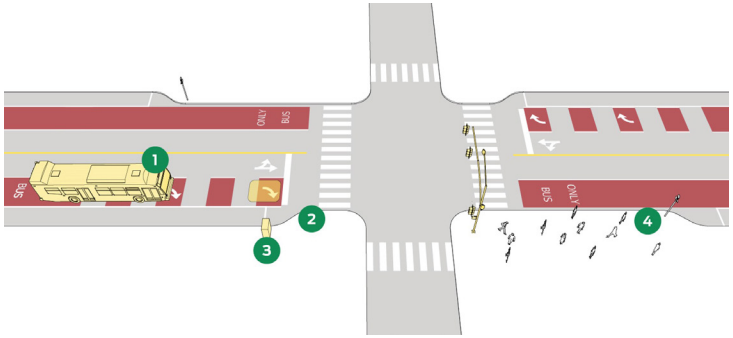
Transit Signal Priority (TSP) tools modify traffic signal timing or phasing when transit vehicles are present, and can work on thru, left-, and right-turning movements.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆◆
Improve Safety	
Improve Access & Connectivity	

Figure 13: Transit Signal Priority Example from NACTO



TYPICAL APPLICATION

Urban roadways with significant traffic and transit volumes.

POTENTIAL BENEFITS

Reduces bus delay and enhances service reliability.

CHALLENGES

Requires coordination with city and bus and signal technology integration.

TRANSIT SIGNAL PRIORITY (ACTIVE) EXAMPLE

SamTrans (California) is implementing a TSP project on its El Camino Real transit route. This project will improve SamTrans' on-time performance by reducing bus delays at intersections in order to provide more reliable service. This project will also have negligible impacts to cross streets.

Combined with other measures, 15 to 20 minutes in travel time savings could result from implementing TSP as one of the measures.

In NYC, TSP has reduced bus travel times about 14% during weekday peak morning and evening commuting periods.

SIGNAL MODIFICATIONS

Intersections updated with shorter signal cycles reduce net delay to transit vehicles, especially at near-side stop locations, or across freeway corridors where frontage roads exist, may also include protected left-turn movements at signalized intersections where they are currently unprotected.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	
Improve Access & Connectivity	

Figure 14: Intersection Update Example from NACTO

TYPICAL APPLICATION

On signalized streets with frequent transit service, in mixed-traffic or dedicated lanes.

POTENTIAL BENEFITS

Reduce delay at intersection for buses and other users such as pedestrians.

CHALLENGES

Need to accommodate pedestrian clearance times and crossing distance.

SIGNAL PHASE MODIFICATION EXAMPLE

NYC has created a program to implement shorter traffic signal phases to reduce delay to transit buses. In addition to these shorter phases, the city has also installed other traffic signal measures such as the leading pedestrian signal to promote pedestrian safety.

NEW SIGNAL INSTALLATION

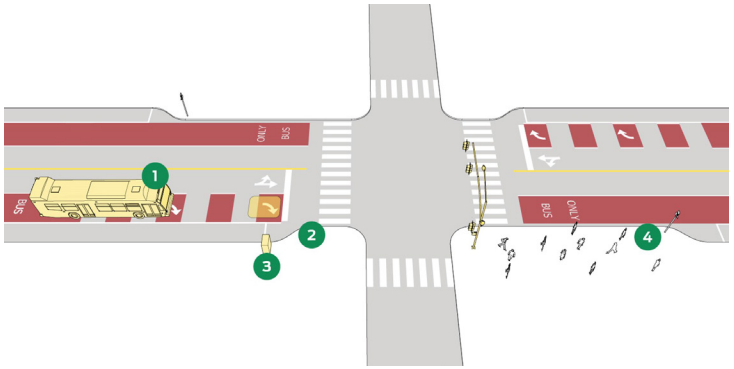
New signal installation can help in phasing out older signals with new modern traffic signals to promote Transit Signal Progression.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

Enhance Speed & Reliability	◆◆
Improve Safety	
Improve Access & Connectivity	

Figure 15: TSP signal Example from NACTO



TYPICAL APPLICATION

Typically, when intersections are reconstructed.

POTENTIAL BENEFITS

Improve bus reliability, reduce delay.

CHALLENGES

Can be competing priorities for signal 'share'.

NEW SIGNAL INSTALLATION EXAMPLE

Nashville MTA completed several intersection upgrades along Murfreesboro Pike, one of its busiest corridors. The improvements included technology enabled to help smooth traffic flow and allow WeGo (Nashville's transit system) buses to improve their on-time performance.

QUEUE JUMPS

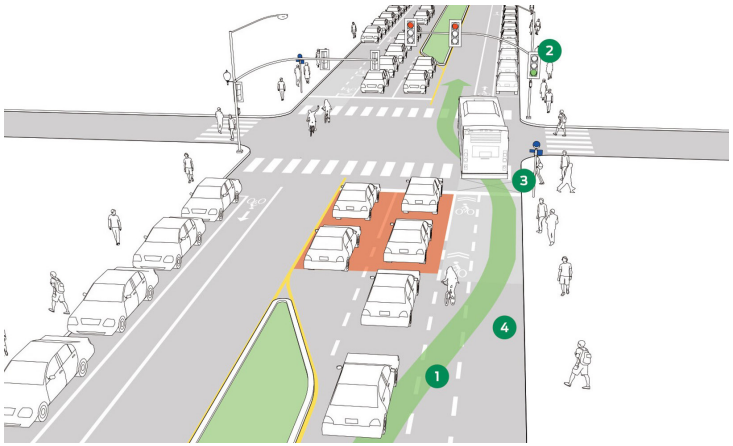
Queue Jumps allow buses to easily enter traffic flow in a priority position.

Low	Medium	High
◆	◆◆	◆◆◆

BUS CORRIDOR TREATMENT RATING

- Enhance Speed & Reliability ◆◆
- Improve Safety
- Improve Access & Connectivity

Figure 16: Queue Jump Example from NACTO



TYPICAL APPLICATION

On signalized streets with moderately frequent bus routes.

POTENTIAL BENEFITS

Significantly reduce bus delay at signalized intersections.

CHALLENGES

Right-turn lanes can pose an issue.

QUEUE JUMPS EXAMPLE

To keep buses moving, King County Metro added a queue jump at the intersection at Interurban Ave. S. and 52nd Ave. S.

Buses and right-turning vehicles now share the right lane. Just before southbound traffic gets a green light, the queue jump signal is activated, and buses can go through the intersection before other vehicles.

- Morning commute times saw a 5% improvement in on-time performance
- Morning and afternoon commute trips saw up to an 8-second travel time improvement

7

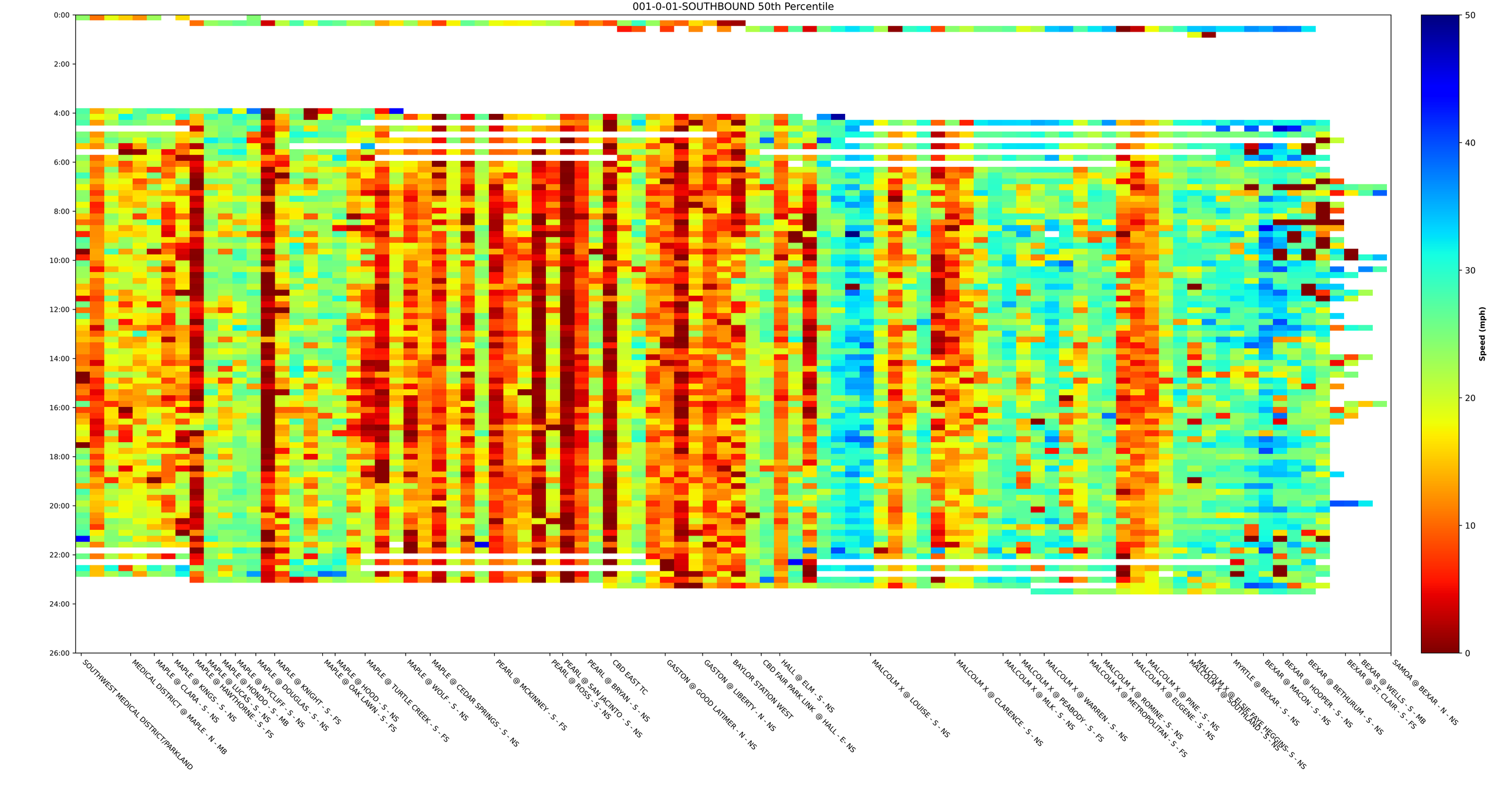
SUMMARY

SUMMARY

- National scan of transit priority treatments indicates a wide range of methods exist to improve bus speed and reliability and enhance the customer experience.
- Case study examples demonstrate benefits and cost-effectiveness of transit priority treatments when well-planned and implemented.
- Careful analysis of bus corridors and 'hot spots' needed to identify most promising alternatives.
- Pilots and demonstration projects can help build support and demonstrate efficacy.

APPENDIX B

Route Heat Maps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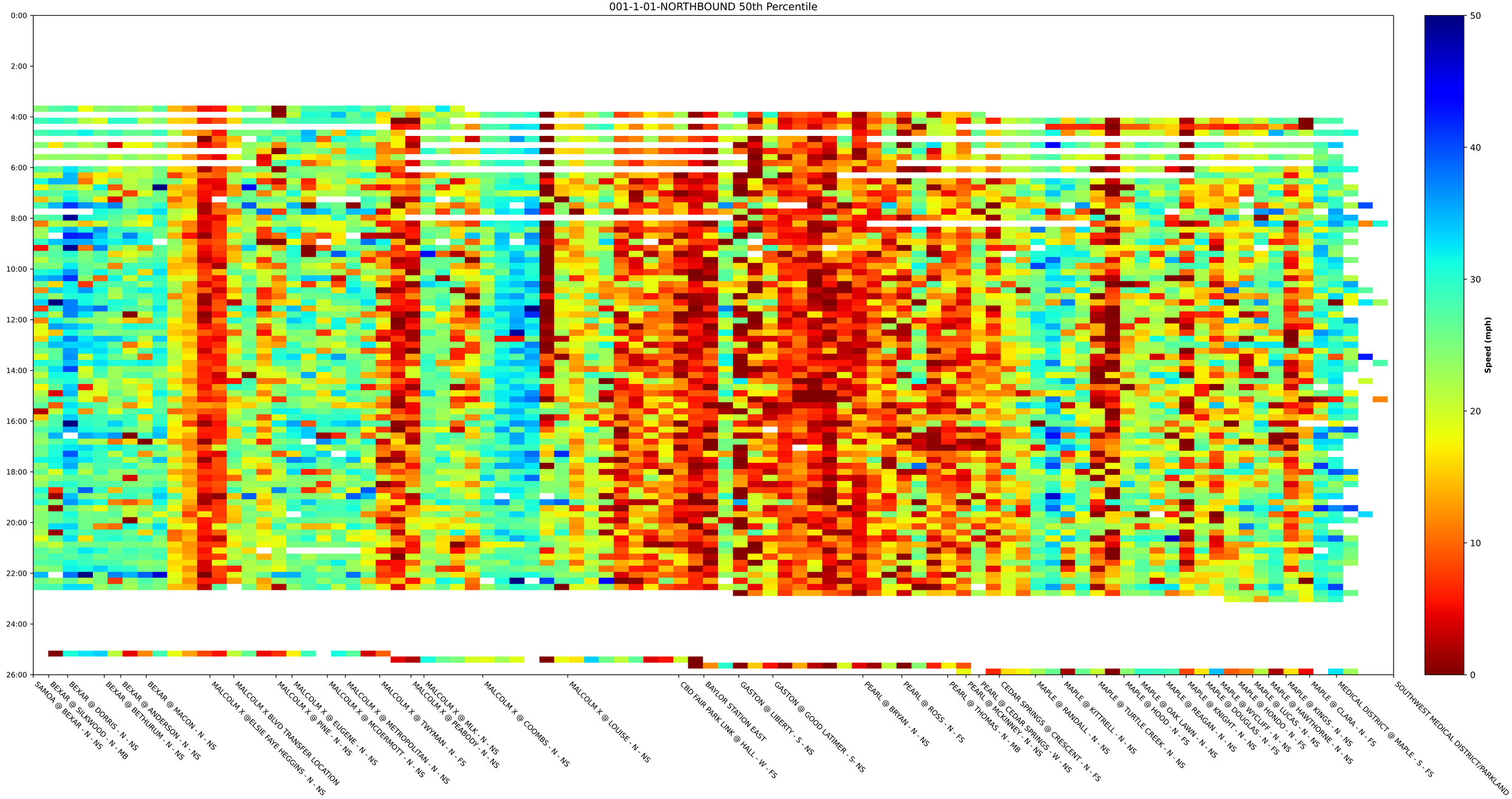
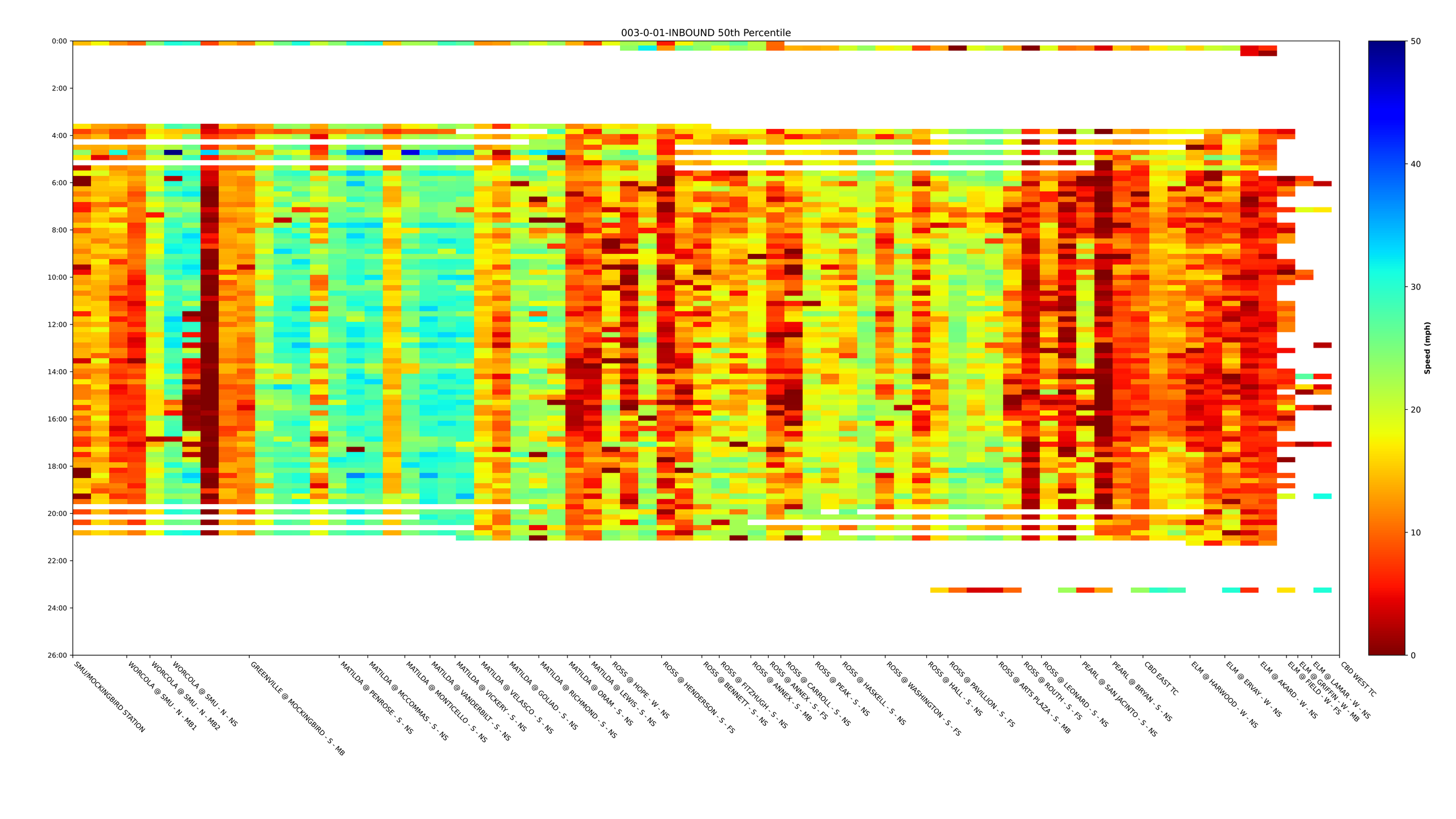
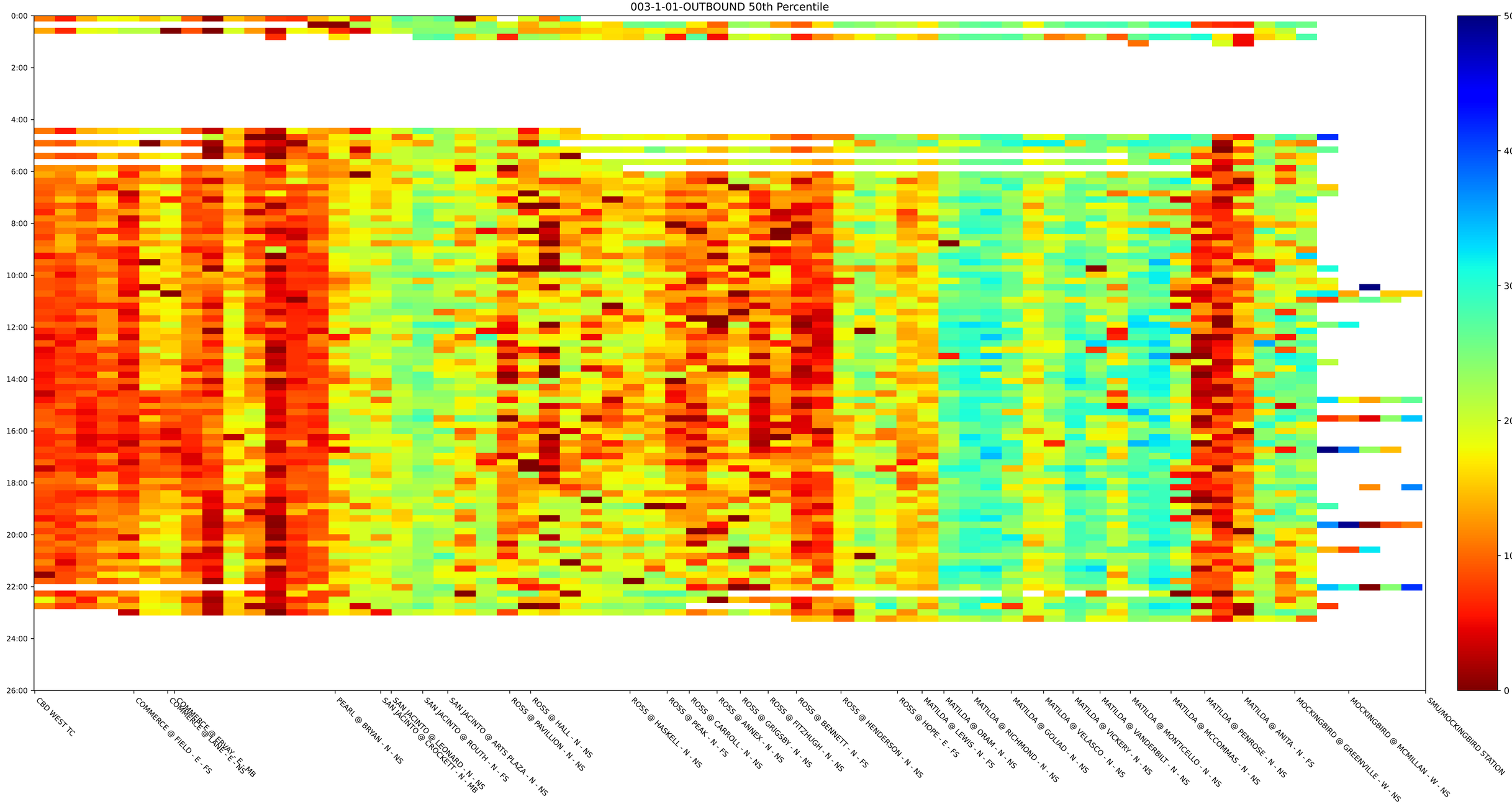
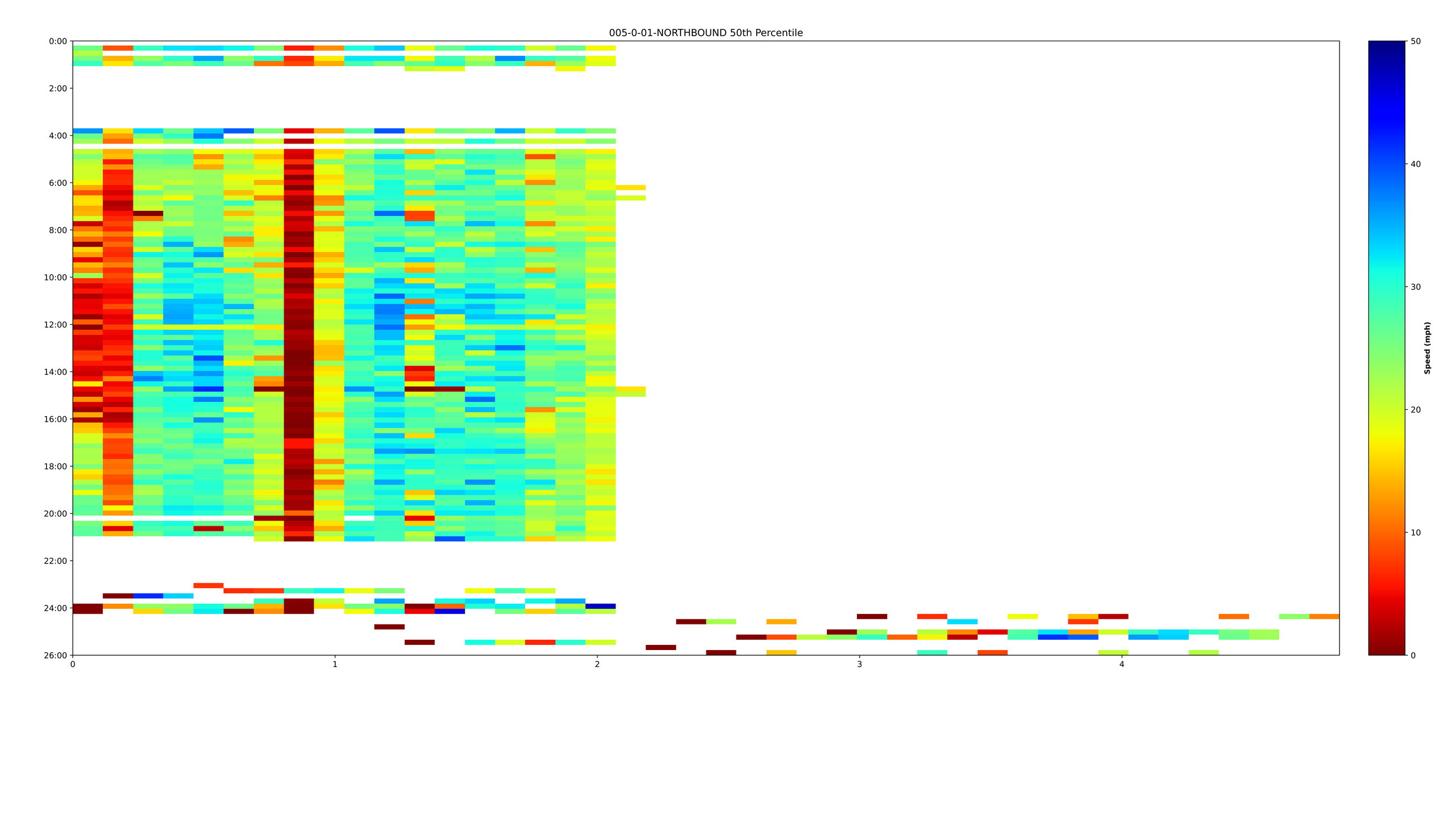
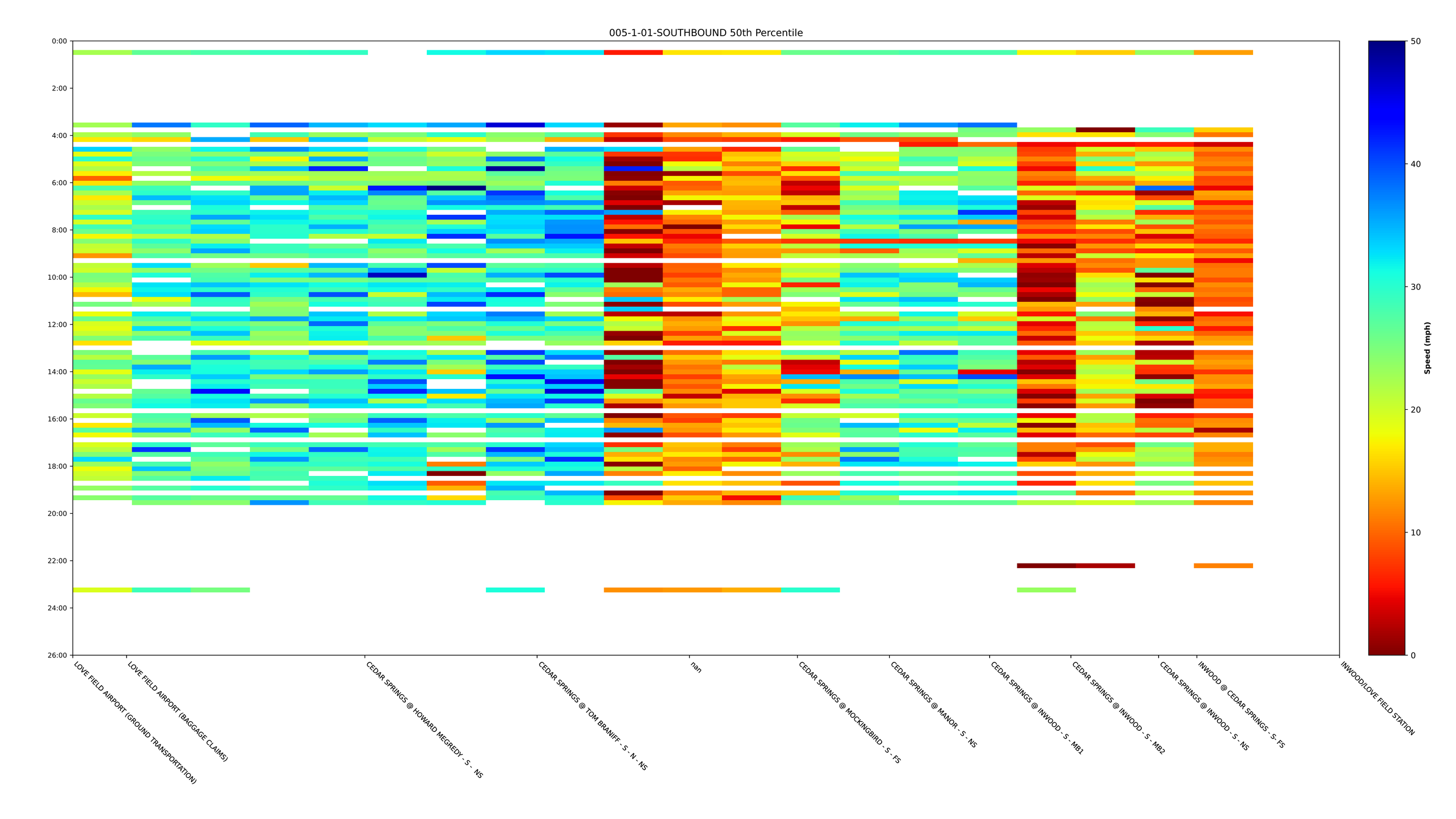
SOUTHWEST MEDICAL DISTRICT/PARKLAND
MEDICAL DISTRICT @ MAPLE - N - MB
MAPLE @ CLARA - S - NS
MAPLE @ KINGS - S - NS
MAPLE @ LUCAS - S - NS
MAPLE @ HAWTHORNE - S - FS
MAPLE @ HONDO - S - MB
MAPLE @ WYCLIFF - S - NS
MAPLE @ DOUGLAS - S - NS
MAPLE @ KNIGHT - S - FS
MAPLE @ OAK LAWN - S - FS
MAPLE @ HOOD - S - NS
MAPLE @ TURTLE CREEK - S - FS
MAPLE @ WOLF - S - NS
MAPLE @ CEDAR SPRINGS - S - NS
PEARL @ MCKINNEY - S - FS
PEARL @ ROSS - S - NS
PEARL @ SAN JACINTO - S - NS
PEARL @ BRYAN - S - NS
CBD EAST TC
GASTON @ GOOD LATIMER - N - NS
GASTON @ LIBERTY - N - NS
BAYLOR STATION WEST
CBD FAIR PARK LINK - @ HALL - E - NS
HALL @ ELM - S - NS
MALCOLM X @ LOUISE - S - NS
MALCOLM X @ CLARENCE - S - NS
MALCOLM X @ MLK - S - NS
MALCOLM X @ PEABODY - S - FS
MALCOLM X @ WARREN - S - NS
MALCOLM X @ METROPOLITAN - S - FS
MALCOLM X @ ROMINE - S - NS
MALCOLM X @ EUGENE - S - NS
MALCOLM X @ PINE - S - NS
MALCOLM X @ SOUTHLAND - S - NS
MALCOLM X @ ELSIE FAYE HEGGINS - S - NS
MYRTLE @ BEXAR - S - NS
BEXAR @ MACON - S - NS
BEXAR @ HOOPER - S - NS
BEXAR @ BETHURUM - S - NS
BEXAR @ ST. CLAIR - S - FS
BEXAR @ WELLS - S - MB
SAMOA @ BEXAR - N - NS
Speed (mph)
0
10
20
30
40
50

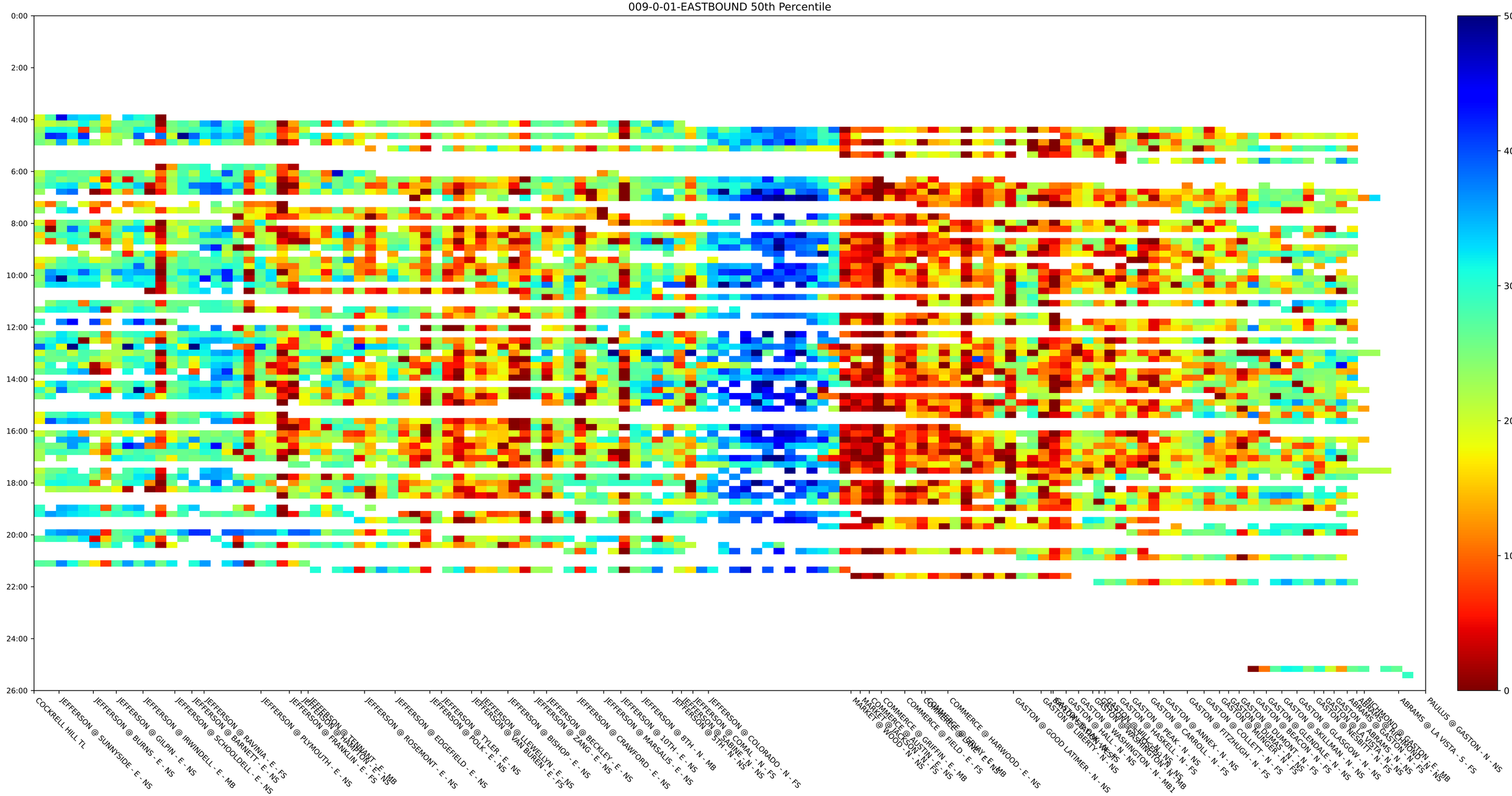

001-1-01-NORTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
SAMOA @ BEXAR - N - NS
BEXAR @ SILKWOOD - N - MB
BEXAR @ DORRIS - N - NS
BEXAR @ BETHURUM - N - NS
BEXAR @ ANDERSON - N - NS
BEXAR @ MACON - N - NS
MALCOLM X @ELSIE FAYE HEGGINS - N - NS
MALCOLM X BLVD TRANSFER LOCATION
MALCOLM X @ PINE - N - NS
MALCOLM X @ EUGENE - N - NS
MALCOLM X @ MCDERMOTT - N - NS
MALCOLM X @ METROPOLITAN - N - NS
MALCOLM X @ TWYMAN - N - FS
MALCOLM X @ PEABODY - N - NS
MALCOLM X @ MLK - N - NS
MALCOLM X @ COOMBS - N - NS
MALCOLM X @ LOUISE - N - NS
CBD FAIR PARK LINK @ HALL - W - FS
BAYLOR STATION EAST
GASTON @ LIBERTY - S - NS
GASTON @ GOOD LATIMER - S- NS
PEARL @ BRYAN - N - NS
PEARL @ ROSS - N - FS
PEARL @ THOMAS - N - MB
PEARL @ MCKINNEY - N - NS
PEARL @ CEDAR SPRINGS - W - NS
PEARL @ CEDAR SPRINGS @ CRESCENT - N - FS
MAPLE @ RANDALL - N - NS
MAPLE @ KITTRELL - N - NS
MAPLE @ TURTLE CREEK - N - NS
MAPLE @ HOOD - N - FS
MAPLE @ OAK LAWN - N - NS
MAPLE @ REAGAN - N - NS
MAPLE @ KNIGHT - N - NS
MAPLE @ DOUGLAS - N - FS
MAPLE @ WYCLIFF - N - NS
MAPLE @ HONDO - N - FS
MAPLE @ LUCAS - N - NS
MAPLE @ HAWTHORNE - N - NS
MAPLE @ KINGS - N - NS
MAPLE @ CLARA - N - FS
MEDICAL DISTRICT @ MAPLE - S - FS
SOUTHWEST MEDICAL DISTRICT/PARKLAND
Speed (mph)
0
10
20
30
40
50

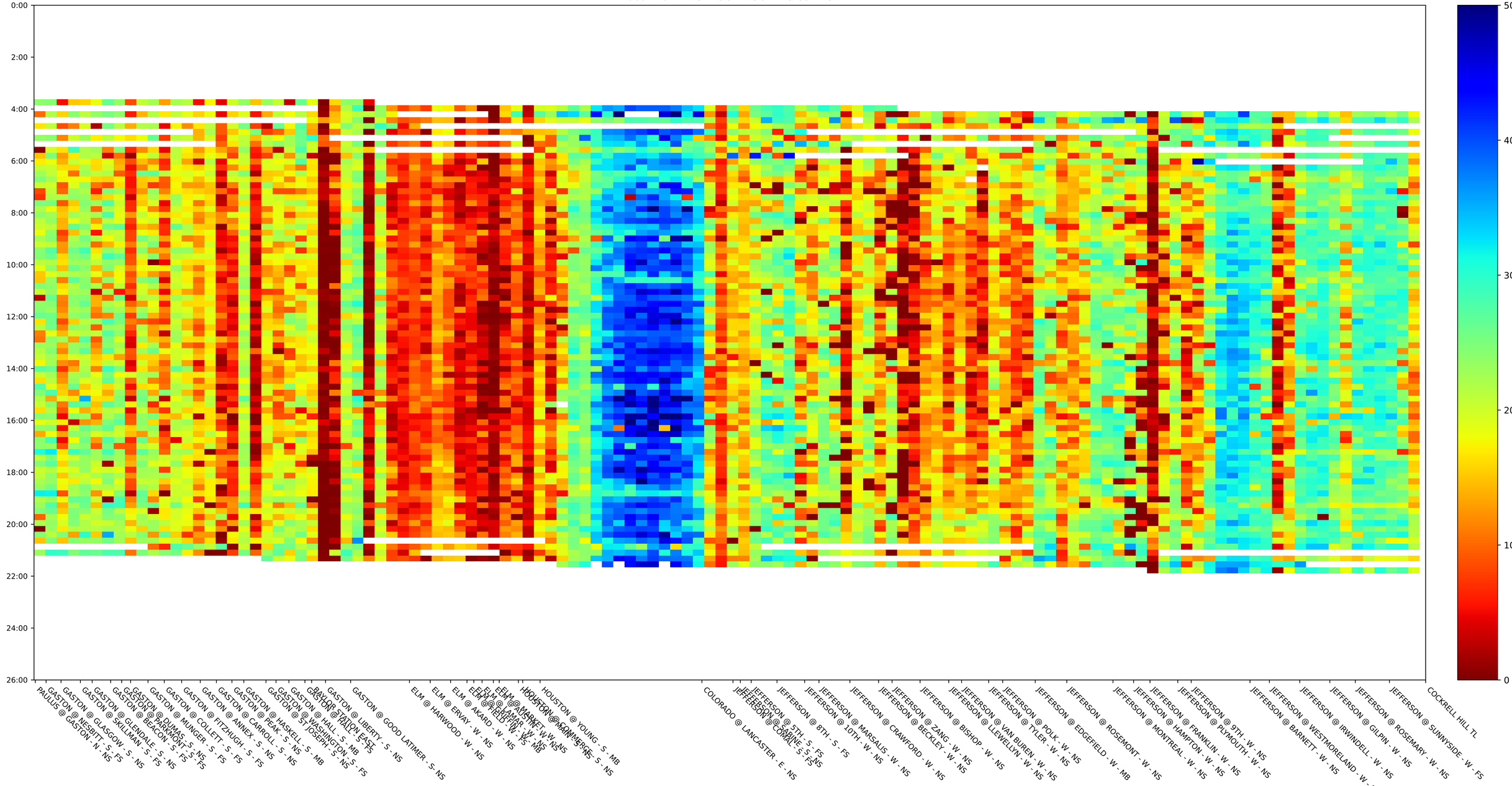

003-0-01-INBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
SMU/MOCKINGBIRD STATION
WORCOLA @ SMU - N - MB1
WORCOLA @ SMU - N - MB2
WORCOLA @ SMU - N - NS
GREENVILLE @ MOCKINGBIRD - S - MB
MATILDA @ PENROSE - S - NS
MATILDA @ MCCOMMAS - S - NS
MATILDA @ MONTICELLO - S - NS
MATILDA @ VANDERBILT - S - NS
MATILDA @ VICKERY - S - NS
MATILDA @ VELASCO - S - NS
MATILDA @ GOLIAD - S - NS
MATILDA @ RICHMOND - S - NS
MATILDA @ ORAM - S - NS
MATILDA @ LEWIS - S - NS
ROSS @ HOPE - W - NS
ROSS @ HENDERSON - S - FS
ROSS @ BENNETT - S - NS
ROSS @ FITZHUGH - S - NS
ROSS @ ANNEX - S - MB
ROSS @ ANNEX - S - FS
ROSS @ CARROLL - S - NS
ROSS @ PEAK - S - NS
ROSS @ HASKELL - S - NS
ROSS @ WASHINGTON - S - FS
ROSS @ HALL - S - NS
ROSS @ PAVILLION - S - FS
ROSS @ ARTS PLAZA - S - MB
ROSS @ ROUTH - S - FS
ROSS @ LEONARD - S - NS
PEARL @ SAN JACINTO - S - NS
PEARL @ BRYAN - S - NS
CBD EAST TC
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - FS
ELM @ GRIFFIN - W - MB
ELM @ LAMAR - W - NS
CBD WEST TC
Speed (mph)
0
10
20
30
40
50

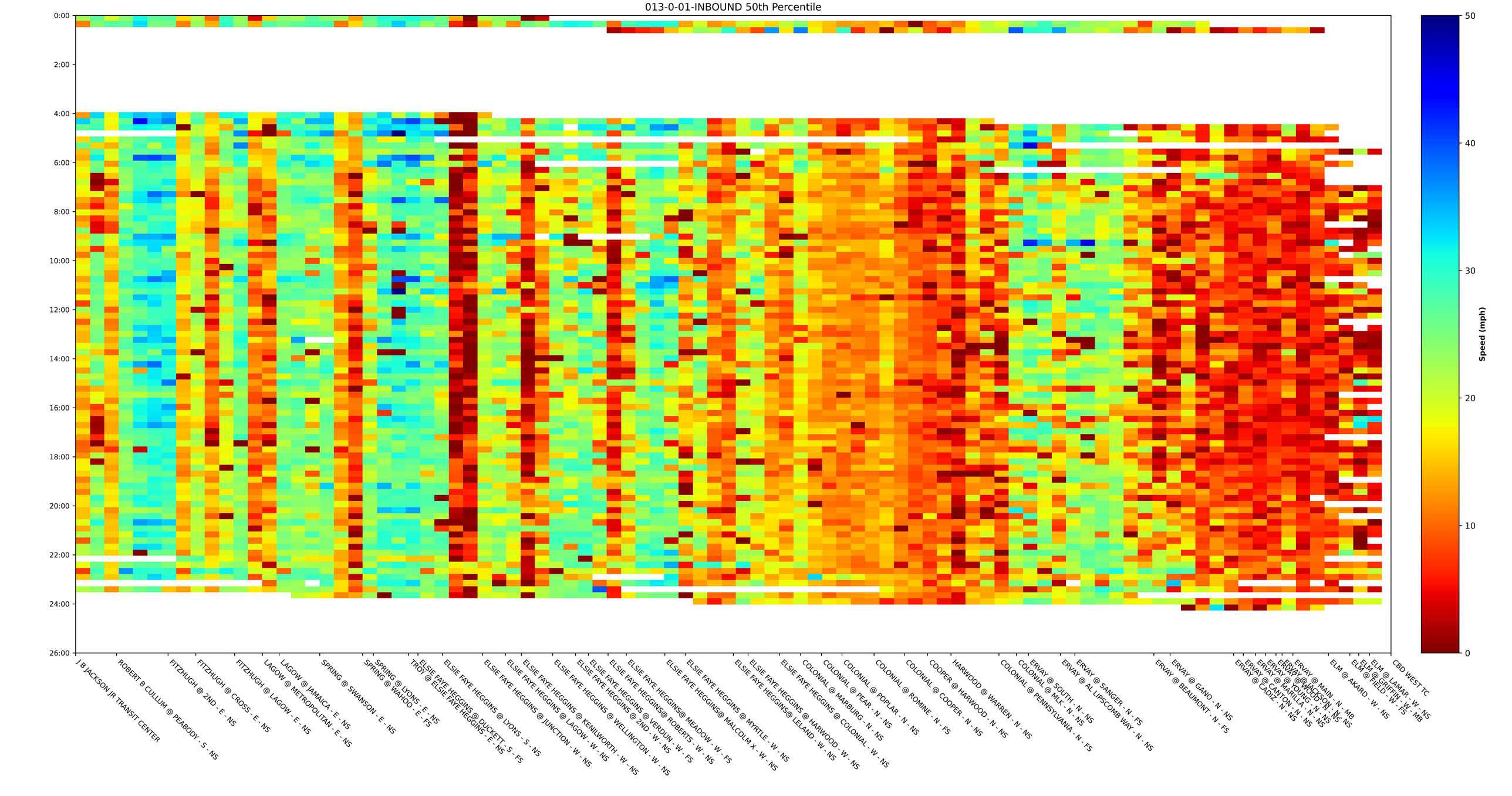

003-1-01-OUTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
CBD WEST TC
COMMERCE @ FIELD - E - FS
COMMERCE @ LAMAR - E - NS
COMMERCE @ ERWAY - E - MB
PEARL @ BRYAN - N - NS
SAN JACINTO @ CROCKETT - N - MB
SAN JACINTO @ LEONARD - N - NS
SAN JACINTO @ ROUTH - N - FS
SAN JACINTO @ ARTS PLAZA - N - NS
ROSS @ PAVILLION - N - NS
ROSS @ HALL - N - NS
ROSS @ HASKELL - N - NS
ROSS @ PEAK - N - FS
ROSS @ CARROLL - N - NS
ROSS @ ANNEX - N - NS
ROSS @ GRIGSBY - N - NS
ROSS @ FITZHUGH - N - NS
ROSS @ BENNETT - N - FS
ROSS @ HENDERSON - N - NS
ROSS @ HOPE - E - FS
MATILDA @ LEWIS - N - FS
MATILDA @ ORAM - N - NS
MATILDA @ RICHMOND - N - NS
MATILDA @ GOLIAD - N - NS
MATILDA @ VELASCO - N - NS
MATILDA @ VICKERY - N - NS
MATILDA @ VANDERBILT - N - NS
MATILDA @ MONTICELLO - N - NS
MATILDA @ MCCOMMAS - N - NS
MATILDA @ PENROSE - N - NS
MATILDA @ ANITA - N - FS
MOCKINGBIRD @ GREENVILLE - W - NS
MOCKINGBIRD @ MCMILLAN - W - NS
SMU/MOCKINGBIRD STATION
Speed (mph)
0
10
20
30
40
50

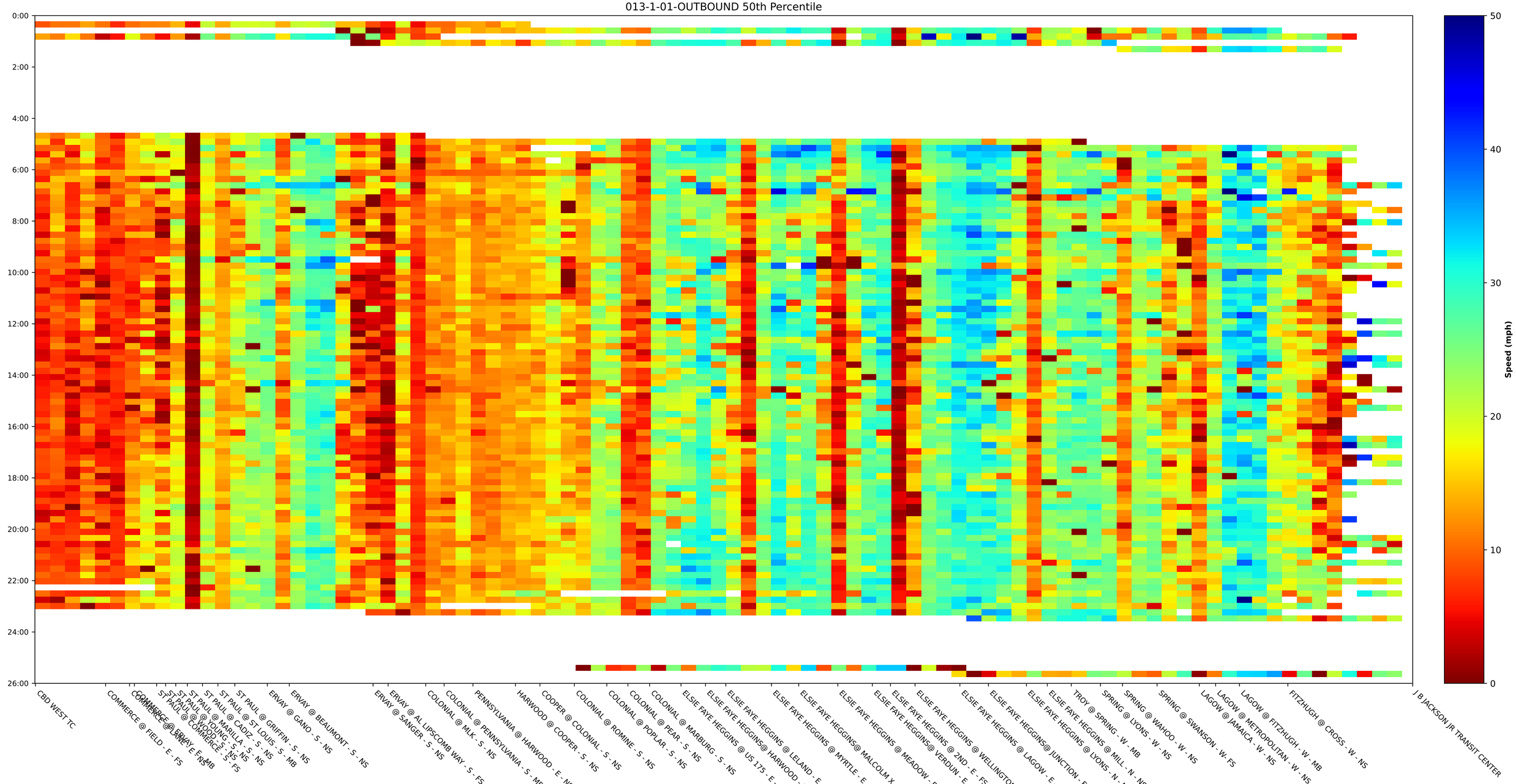

005-0-01-NORTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
0
1
2
3
4
Speed (mph)
50
40
30
20
10
0

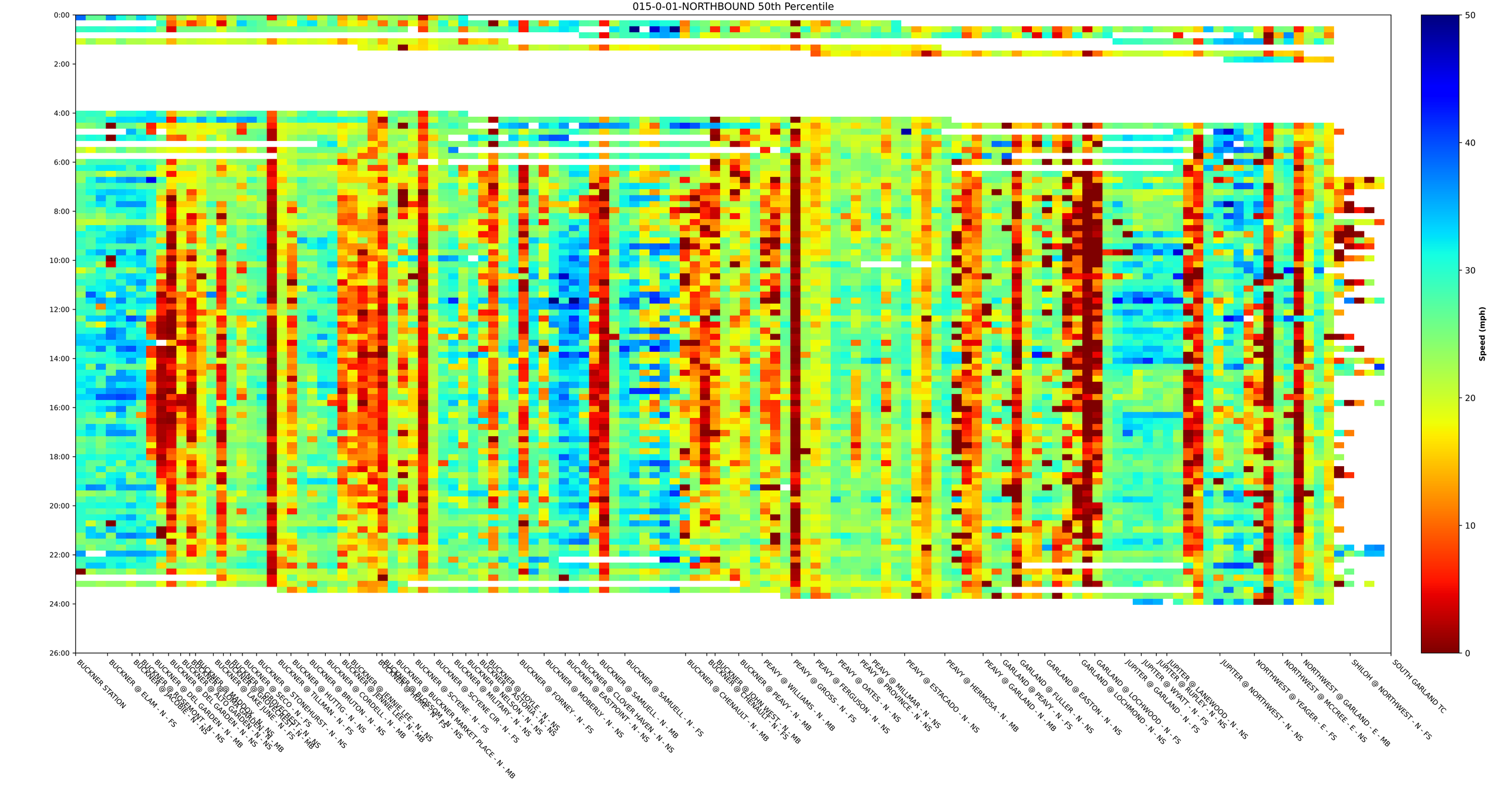

005-1-01-SOUTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
LOVE FIELD AIRPORT (GROUND TRANSPORTATION)
LOVE FIELD AIRPORT (BAGGAGE CLAIMS)
CEDAR SPRINGS @ HOWARD MEGREDY - S - NS
CEDAR SPRINGS @ TOM BRANIFF - S - N - NS
nan
CEDAR SPRINGS @ MOCKINGBIRD - S - FS
CEDAR SPRINGS @ MANOR - S - NS
CEDAR SPRINGS @ INWOOD - S - MB1
CEDAR SPRINGS @ INWOOD - S - MB2
CEDAR SPRINGS @ INWOOD - S - NS
INWOOD @ CEDAR SPRINGS - S - FS
INWOOD/LOVE FIELD STATION
Speed (mph)
0
10
20
30
40
50

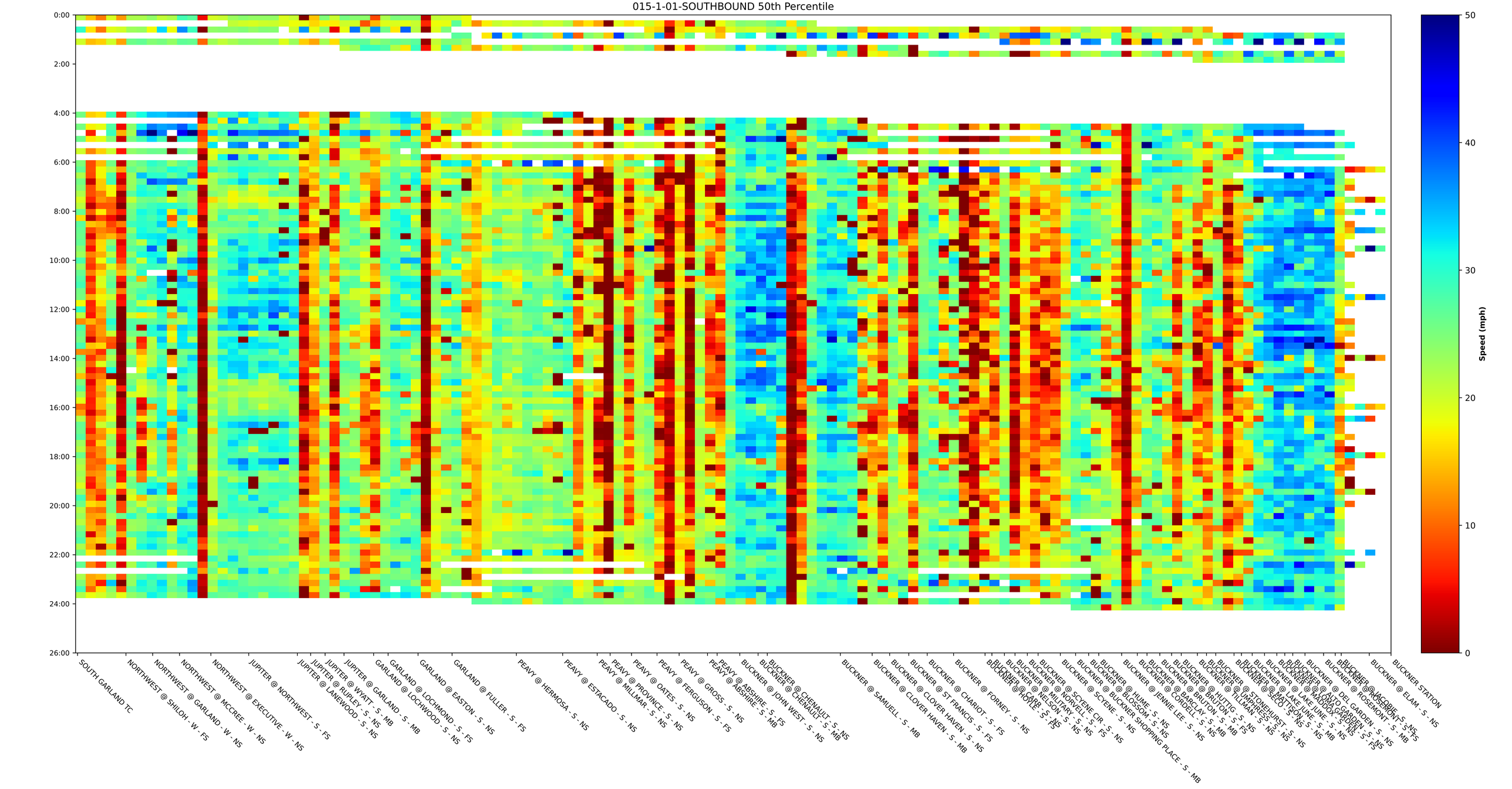

009-0-01-EASTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
COCKRELL HILL TL
JEFFERSON @ SUNNYSIDE - E - NS
JEFFERSON @ BURNS - E - NS
JEFFERSON @ GILPIN - E - NS
JEFFERSON @ IRWINDELL - E - MB
JEFFERSON @ SCHOOLDELL - E - NS
JEFFERSON @ BARNETT - E - NS
JEFFERSON @ RAVINIA - E - FS
JEFFERSON @ PLYMOUTH - E - NS
JEFFERSON @ FRANKLIN - E - FS
JEFFERSON @ TENNANT - E - MB
JEFFERSON @ ROSEMONT - E - NS
JEFFERSON @ EDGEFIELD - E - NS
JEFFERSON @ POLK - E - NS
JEFFERSON @ TYLER - E - NS
JEFFERSON @ VAN BUREN - E - FS
JEFFERSON @ LLEWELLYN - E - NS
JEFFERSON @ BISHOP - E - NS
JEFFERSON @ ZANG - E - NS
JEFFERSON @ BECKLEY - E - NS
JEFFERSON @ CRAWFORD - E - NS
JEFFERSON @ MARSALIS - E - NS
JEFFERSON @ 10TH - E - NS
JEFFERSON @ 8TH - N - MB
JEFFERSON @ 5TH - N - NS
JEFFERSON @ SABINE - N - FS
JEFFERSON @ COMAL - N - FS
JEFFERSON @ COLORADO - N - FS
MARKET @ WOOD - N - NS
COMMERCE @ JACKSON - N - FS
COMMERCE @ AUSTIN - E - NS
COMMERCE @ GRIFFIN - E - MB
COMMERCE @ FIELD - E - FS
COMMERCE @ CANAL - E - MB
COMMERCE @ HARWOOD - E - NS
GASTON @ GOOD LATIMER - N - NS
GASTON @ LIBERTY - N - NS
GASTON @ MUNGER - N - FS
GASTON @ HALL - N - NS
GASTON @ WASHINGTON - N - MB1
GASTON @ WASHINGTON - N - NS
GASTON @ HILL - N - NS
GASTON @ PEAK - N - NS
GASTON @ HASKELL - N - FS
GASTON @ CARROLL - N - NS
GASTON @ ANNEX - N - NS
GASTON @ FITZHUGH - N - FS
GASTON @ COLLETT - N - FS
GASTON @ MUNGER - N - FS
GASTON @ DUMAS - N - FS
GASTON @ BEACON - N - FS
GASTON @ GLENDALE - N - NS
GASTON @ SKILLMAN - N - NS
GASTON @ GLASGOW - N - NS
GASTON @ NESBITT - N - FS
GASTON @ LA VISTA - N - NS
ABRAMS @ GASTON - N - FS
ABRAMS @ RICHMOND - N - NS
RICHMOND @ GASTON - E - MB
ABRAMS @ LA VISTA - S - FS
PAULUS @ GASTON - N - NS


009-1-01-WESTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
PAULUS @ GASTON - N - NS
GASTON @ NESBITT - S - FS
GASTON @ GLASGOW - S - NS
GASTON @ SKILLMAN - S - FS
GASTON @ GLENDALE - S - NS
GASTON @ BEACON - S - FS
GASTON @ PARKMONT - S - NS
GASTON @ DUMAS - S - FS
GASTON @ MUNGER - S - NS
GASTON @ COLLETT - S - FS
GASTON @ FITZHUGH - S - FS
GASTON @ ANNEX - S - NS
GASTON @ CARROLL - S - FS
GASTON @ PEAK - S - NS
GASTON @ HASKELL - S - NS
GASTON @ ST JOSEPH - S - MB
GASTON @ WASHINGTON - S - NS
GASTON @ HALL - S - MB
BAYLOR STATION @ FALLON - E - FS
GASTON @ LIBERTY - S - MB
GASTON @ GOOD LATIMER - S - NS
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - FS
ELM @ AKARD - W - NS
ELM @ MARKET - W - NS
HOUSTON @ MAIN - S - MB
HOUSTON @ COMMERCE - S - NS
HOUSTON @ YOUNG - S - MB
COLORADO @ LANCASTER - E - NS
JEFFERSON @ CORINTH - S - NS
JEFFERSON @ CORAL - S - FS
JEFFERSON @ 5TH - S - FS
JEFFERSON @ 8TH - S - FS
JEFFERSON @ 10TH - W - NS
JEFFERSON @ MARSALIS - W - NS
JEFFERSON @ CRAWFORD - W - NS
JEFFERSON @ BECKLEY - W - NS
JEFFERSON @ ZANG - W - NS
JEFFERSON @ BISHOP - W - NS
JEFFERSON @ LLEWELLYN - W - NS
JEFFERSON @ VAN BUREN - W - NS
JEFFERSON @ TYLER - W - NS
JEFFERSON @ POLK - W - NS
JEFFERSON @ EDGEFIELD - W - MB
JEFFERSON @ ROSEMONT - W - NS
JEFFERSON @ MONTREAL - W - NS
JEFFERSON @ HAMPTON - W - NS
JEFFERSON @ FRANKLIN - W - NS
JEFFERSON @ PLYMOUTH - W - NS
JEFFERSON @ 9TH - W - NS
JEFFERSON @ BARNETT - W - NS
JEFFERSON @ WESTMORELAND - W - NS
JEFFERSON @ IRWINDELL - W - NS
JEFFERSON @ GILPIN - W - NS
JEFFERSON @ ROSEMARY - W - NS
JEFFERSON @ SUNNYSIDE - W - FS
COCKRELL HILL TL


013-0-01-INBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
J B JACKSON JR TRANSIT CENTER
ROBERT B CULLUM @ PEABODY - S - NS
FITZHUGH @ 2ND - E - NS
FITZHUGH @ CROSS - E - NS
FITZHUGH @ LAGOW - E - NS
LAGOW @ METROPOLITAN - E - NS
LAGOW @ JAMAICA - E - NS
SPRING @ SWANSON - E - NS
SPRING @ LYONS - E - NS
SPRING @ WAHOO - E - FS
TROY @ ELSIE FAYE HEGGINS - E - NS
ELSIE FAYE HEGGINS @ DUCKETT - S - FS
ELSIE FAYE HEGGINS @ LYONS - S - NS
ELSIE FAYE HEGGINS @ JUNCTION - W - NS
ELSIE FAYE HEGGINS @ LAGOW - W - NS
ELSIE FAYE HEGGINS @ KENILWORTH - W - NS
ELSIE FAYE HEGGINS @ WELLINGTON - W - NS
ELSIE FAYE HEGGINS @ 2ND - W - NS
ELSIE FAYE HEGGINS @ VERDUN - W - FS
ELSIE FAYE HEGGINS@ ROBERTS - W - NS
ELSIE FAYE HEGGINS@ MEADOW - W - FS
ELSIE FAYE HEGGINS @ MALCOLM X - W - NS
ELSIE FAYE HEGGINS @ MYRTLE - W - NS
ELSIE FAYE HEGGINS@ LELAND - W - NS
ELSIE FAYE HEGGINS @ HARWOOD - W - NS
COLONIAL @ MARBURG - N - NS
COLONIAL @ PEAR - N - NS
COLONIAL @ POPLAR - N - NS
COLONIAL @ ROMINE - N - FS
COOPER @ COOPER - N - NS
COOPER @ HARWOOD - N - NS
HARWOOD @ WARREN - N - NS
COLONIAL @ PENNSYLVANIA - N - FS
COLONIAL @ MLK - N - NS
ERVAY @ SOUTH - N - NS
ERVAY @ AL LIPSCOMB WAY - N - NS
ERVAY @ SANGER - N - FS
ERVAY @ BEAUMONT - N - FS
ERVAY @ GANO - N - NS
ERVAY @ CADIZ - N - NS
ERVAY @ CANTON - N - NS
ERVAY @ MARILLA - N - NS
ERVAY @ YOUNG - N - NS
ERVAY @ WOOD - N - NS
ERVAY @ JACKSON - N - NS
ERVAY @ MAIN - N - MB
ELM @ AKARD - W - NS
ELM @ FIELD - W - FS - MB
ELM @ GRIFFIN - W - MB
ELM @ LAMAR - W - NS
CBD WEST TC


013-1-01-OUTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
CBD WEST TC
COMMERCE @ FIELD - E - FS
COMMERCE @ LAMAR - E - NS
ST PAUL @ COMMERCE - S - FS
ST PAUL @ ERVAY E NS
ST PAUL @ WOOD - S - NS
ST PAUL @ MARILLA - S - NS
ST PAUL @ CADIZ - S - NS
ST PAUL @ ST LOUIS - S - MB
ST PAUL @ GRIFFIN - S - NS
ERVAY @ GANO - S - NS
ERVAY @ BEAUMONT - S - NS
ERVAY @ SANGER - S - NS
ERVAY @ AL LIPSCOMB WAY - S - FS
COLONIAL @ MLK - S - NS
COLONIAL @ PENNSYLVANIA - S - MB
PENNSYLVANIA @ HARWOOD - E - NS
HARWOOD @ COOPER - E - NS
COOPER @ COLONIAL - S - NS
COLONIAL @ ROMINE - S - NS
COLONIAL @ POPLAR - S - NS
COLONIAL @ PEAR - S - NS
COLONIAL @ MARBURG - S - NS
ELSIE FAYE HEGGINS @ US 175 - E - NS
ELSIE FAYE HEGGINS@ HARWOOD - E - NS
ELSIE FAYE HEGGINS @ LELAND - E - FS
ELSIE FAYE HEGGINS @ MYRTLE - E - NS
ELSIE FAYE HEGGINS@ MALCOLM X - E - FS
ELSIE FAYE HEGGINS @ MEADOW - E - NS
ELSIE FAYE HEGGINS@ VERDUN - E - NS
ELSIE FAYE HEGGINS @ 2ND - E - FS
ELSIE FAYE HEGGINS @ WELLINGTON - E - FS
ELSIE FAYE HEGGINS@ LAGOW - E - NS
ELSIE FAYE HEGGINS@ JUNCTION - E - FS
ELSIE FAYE HEGGINS @ LYONS - N - NS
ELSIE FAYE HEGGINS @ MILL - N - NS
TROY @ SPRING - W - MB
SPRING @ LYONS - W - NS
SPRING @ WAHOO - W - NS
SPRING @ SWANSON - W- FS
LAGOW @ JAMAICA - W - NS
LAGOW @ METROPOLITAN - W - MB
LAGOW @ FITZHUGH - W - NS
FITZHUGH @ CROSS - W - NS
J B JACKSON JR TRANSIT CENTER
Speed (mph)
0
10
20
30
40
50


015-0-01-NORTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
BUCKNER STATION
BUCKNER @ ELAM - N - FS
BUCKNER @ JACOBE - N - NS
BUCKNER @ ROSEMONT - N - NS
BUCKNER @ DEL GARDEN - N - MB
BUCKNER @ DEL GARDEN - N - NS
BUCKNER @ ALLOWAY - N - NS
BUCKNER @ MADDOX - N - NS
BUCKNER @ LAKE IVINE - N - FS
BUCKNER @ GROVEST - N - NS
BUCKNER @ SECO - N - FS
BUCKNER @ STONEHURST - N - FS
BUCKNER @ TILLMAN - N - NS
BUCKNER @ HUTTIG - N - FS
BUCKNER @ BRUTON - N - NS
BUCKNER @ CORDELL - N - NS
BUCKNER @ JENNIE LEE - N - MB
BUCKNER @ JENNIE LEE - N - NS
BUCKNER @ LAWSON - N - FS
BUCKNER @ HOME - N - FS
BUCKNER @ BUCKNER MARKET PLACE - N - MB
BUCKNER @ SCYENE - N - FS
BUCKNER @ SCYENE CIR - N - FS
BUCKNER @ MILITARY - N - NS
BUCKNER @ WELSON - N - NS
BUCKNER @ ASTORIA - N - NS
BUCKNER @ HOYLE - N - NS
BUCKNER @ FORNEY - N - FS
BUCKNER @ MOBERLY - N - NS
BUCKNER @ EASTPOINT - N - NS
BUCKNER @ CLOVER HAVEN - N - NS
BUCKNER @ SAMUELL - N - MB
BUCKNER @ SAMUELL - N - FS
BUCKNER @ CHENAULT - N - MB
BUCKNER @ CHENAULT - N - FS
BUCKNER @ JOHN WEST - N - MB
PEAVY @ PEAVY - N - MB
PEAVY @ WILLIAMS - N - MB
PEAVY @ GROSS - N - FS
PEAVY @ FERGUSON - N - NS
PEAVY @ OATES - N - NS
PEAVY @ PROVINCE - N - NS
PEAVY @ MILLMAR - N - NS
PEAVY @ ESTACADO - N - NS
PEAVY @ HERMOSA - N - MB
PEAVY @ GARLAND - N - MB
GARLAND @ PEAVY - N - FS
GARLAND @ FULLER - N - NS
GARLAND @ EASTON - N - NS
GARLAND @ LOCHMOND - N - NS
GARLAND @ LOCHWOOD - N - FS
JUPITER @ GARLAND - N - FS
JUPITER @ WYATT - N - FS
JUPITER @ RUPLEY - N - NS
JUPITER @ LANEWOOD - N - NS
JUPITER @ NORTHWEST - N - NS
NORTHWEST @ YEAGER - E - FS
NORTHWEST @ MCCREE - E - NS
NORTHWEST @ GARLAND - E - MB
SHILOH @ NORTHWEST - N - FS
SOUTH GARLAND TC
Speed (mph)
50
40
30
20
10
0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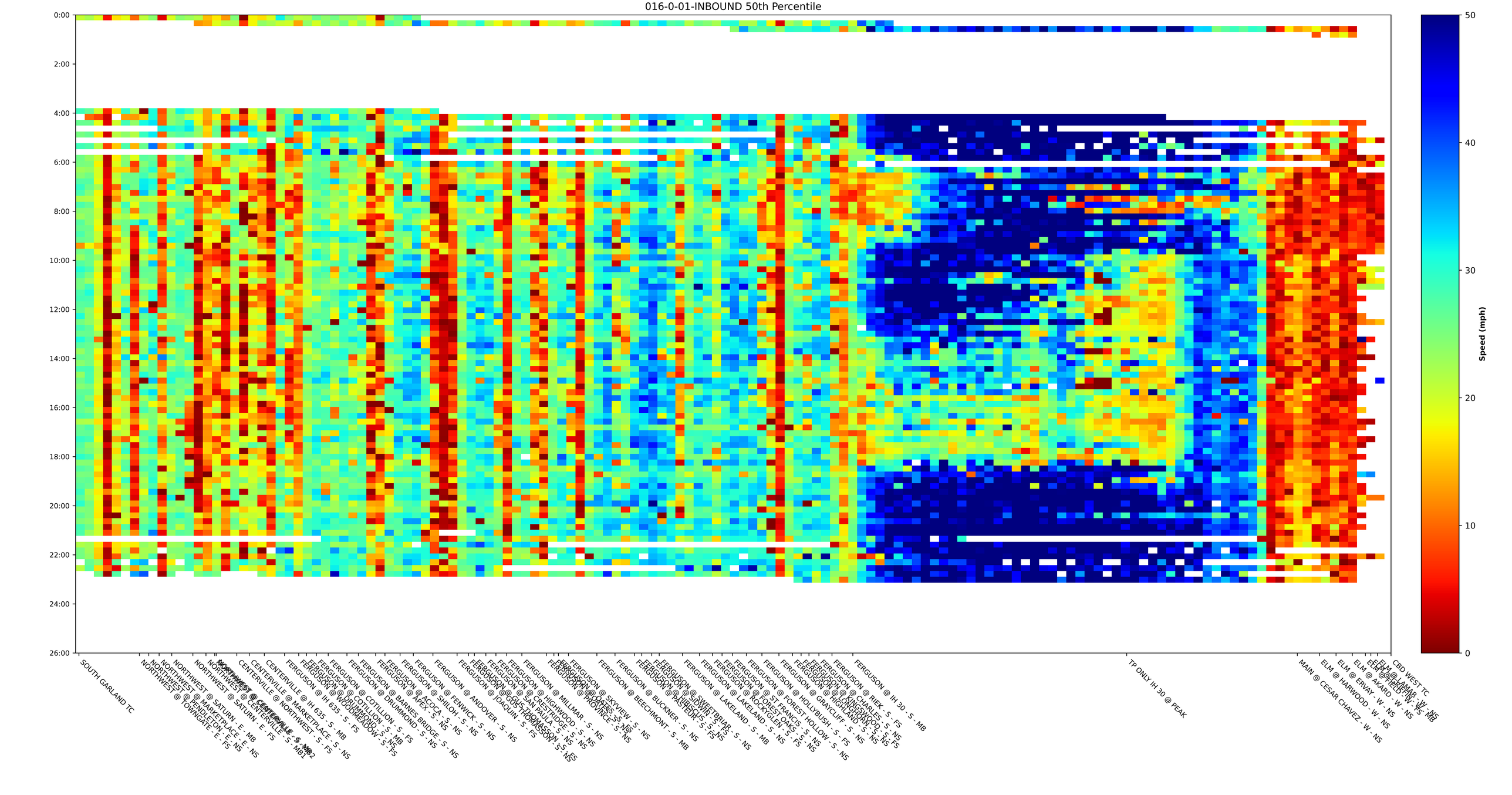
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
SOUTH GARLAND TC
NORTHWEST @ SHILOH - W - FS
NORTHWEST @ GARLAND - W - NS
NORTHWEST @ MCCREE - W - NS
NORTHWEST @ EXECUTIVE - W - NS
JUPITER @ NORTHWEST - S - FS
JUPITER @ LANEWOOD - S - NS
JUPITER @ RUPLEY - S - NS
JUPITER @ WYATT - S - MB
GARLAND @ GARLAND - S - MB
GARLAND @ LOCHMOND - S - NS
GARLAND @ LOCHWOOD - S - NS
GARLAND @ EASTON - S - FS
GARLAND @ FULLER - S - NS
PEAVY @ HERMOSA - S - FS
PEAVY @ ESTACADO - S - NS
PEAVY @ MILLMAR - S - NS
PEAVY @ PROVINCE - S - NS
PEAVY @ OATES - S - NS
PEAVY @ FERGUSON - S - NS
PEAVY @ GROSS - S - FS
PEAVY @ ABSHIRE - S - NS
PEAVY @ ABSHIRE - S - FS
BUCKNER @ JOHN WEST - S - MB
BUCKNER @ CHENAULT - S - NS
BUCKNER @ CHENAULT - S - MB
BUCKNER @ SAMUELL - S - MB
BUCKNER @ CLOVER HAVEN - S - MB
BUCKNER @ CLOVER HAVEN - S - NS
BUCKNER @ ST FRANCIS - S - FS
BUCKNER @ CHARIOT - S - FS
BUCKNER @ FORNEY - S - NS
BUCKNER @ HOBLE - S - FS
BUCKNER @ CRIS - S - NS
BUCKNER @ NELSON - S - NS
BUCKNER @ MILITARY - S - NS
BUCKNER @ NORVELL - S - FS
BUCKNER @ SCYENE CIR - S - NS
BUCKNER @ SCYENE - S - NS
BUCKNER @ BUCKNER SHOPPING PLACE - S - MB
BUCKNER @ HUME - S - NS
BUCKNER @ BLOSSOM - S - NS
BUCKNER @ JENNIE LEE - S - NS
BUCKNER @ CORDELL - S - NS
BUCKNER @ BARCLAY - S - NS
BUCKNER @ BRUTON - S - MB
BUCKNER @ BRUTON - S - NS
BUCKNER @ HUTTIG - S - NS
BUCKNER @ ILLINOIS - S - FS
BUCKNER @ STONEHURST - S - NS
BUCKNER @ MATTISON - S - NS
BUCKNER @ LAKE JUNE - S - NS
BUCKNER @ LAKE JUNE - S - MB
BUCKNER @ TAXIWAY - S - NS
BUCKNER @ ALTO GARDEN - S - NS
BUCKNER @ DEL GARDEN - S - NS
BUCKNER @ ROSEMONT - S - MB
BUCKNER @ ROSEMONT - S - NS
BUCKNER @ JACOBIE - S - FS
BUCKNER @ ELAM - S - NS
BUCKNER STATION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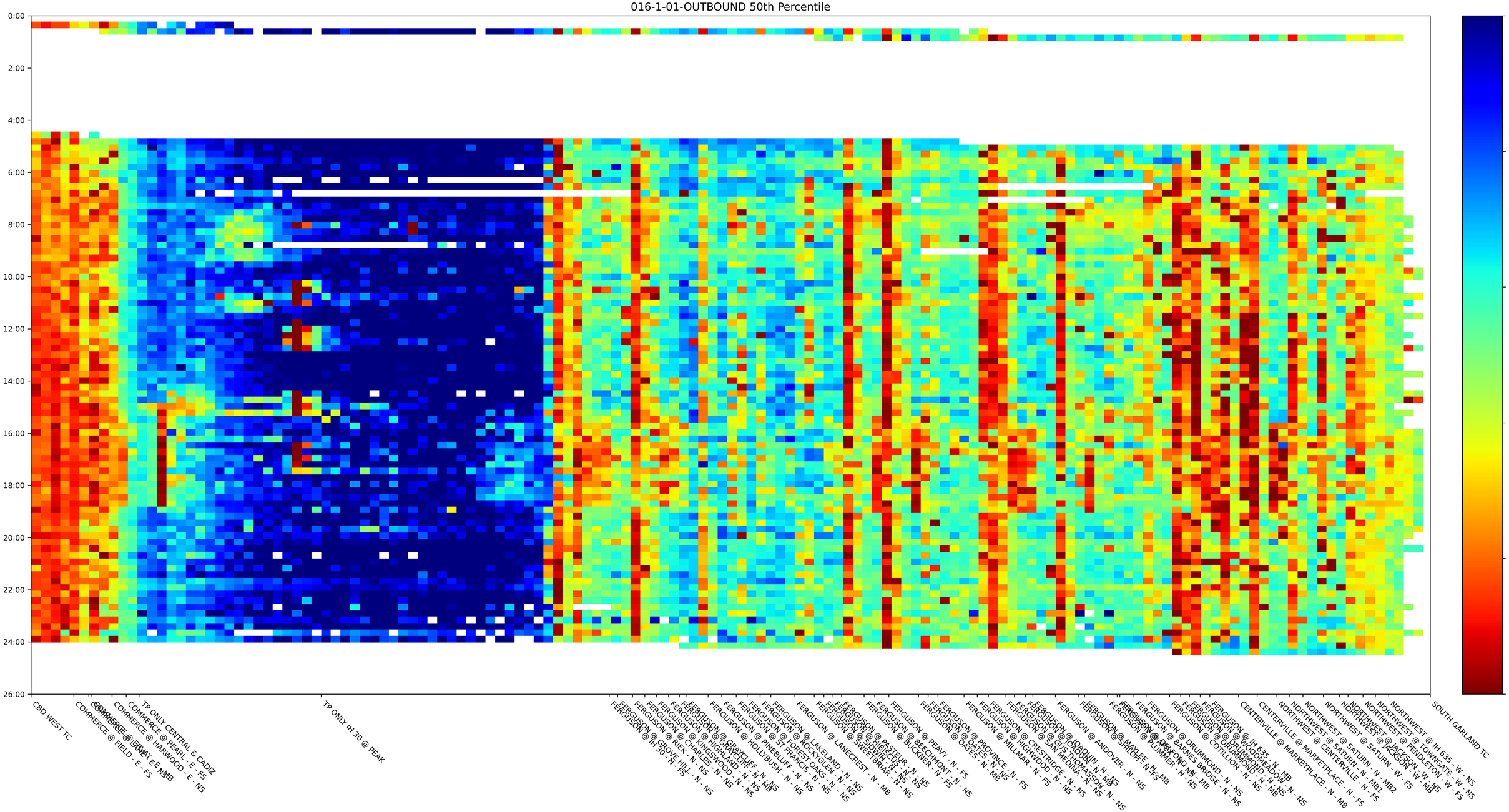
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
SOUTH GARLAND TC
NORTHWEST @ TOWNGATE - E - NS
NORTHWEST @ FINDLETON - E - FS
NORTHWEST @ MARKETPLACE - E - MB
NORTHWEST @ SATURN - E - NS
NORTHWEST @ CENTERVILLE - E - FS
CENTERVILLE @ NORTHWEST - S - MB2
CENTERVILLE @ MARKETPLACE - S - NS
FERGUSON @ IH 635 - S - FS
FERGUSON @ IH 635 - S - MB
FERGUSON @ WOODMEADOW - S - FS
FERGUSON @ DRUMMOND - S - NS
FERGUSON @ COTILLION - S - MB
FERGUSON @ DRUMMOND - S - FS
FERGUSON @ BARNES BRIDGE - S - NS
FERGUSON @ ACOCA - S - NS
FERGUSON @ APEX - S - NS
FERGUSON @ SHILOH - S - NS
FERGUSON @ FENWICK - S - NS
FERGUSON @ ANDOVER - S - NS
FERGUSON @ JOAQUIN - S - FS
FERGUSON @ GOLIAD - S - NS
FERGUSON @ SAN PAULA - S - NS
FERGUSON @ HOMESTON - S - NS
FERGUSON @ CRESTRIDGE - S - NS
FERGUSON @ HIGHWOOD - S - NS
FERGUSON @ MILLMAR - S - NS
FERGUSON @ PROVINCE - S - NS
FERGUSON @ OATES - S - NS
FERGUSON @ SKYVIEW - S - NS
FERGUSON @ BEECHMONT - S - NS
FERGUSON @ BUCKNER - S - NS
FERGUSON @ PASTEUR - S - MB
FERGUSON @ HUBBARD - S - FS
FERGUSON @ SIDWELL - S - FS
FERGUSON @ SWEETBRIAR - S - NS
FERGUSON @ LAKELAND - S - NS
FERGUSON @ LAKELAND - S - MB
FERGUSON @ ROCKYGLEN - S - NS
FERGUSON @ FOREST OAKS - S - NS
FERGUSON @ ST FRANCIS - S - NS
FERGUSON @ FOREST HOLLOW - S - NS
FERGUSON @ HOLLYBUSH - S - FS
FERGUSON @ GRAYCLIFF - S - NS
FERGUSON @ HIGHLAND - S - NS
FERGUSON @ KINGSWOOD - S - NS
FERGUSON @ CHARLES - S - NS
FERGUSON @ RIEK - S - FS
FERGUSON @ IH 30 - S - MB
TP ONLY IH 30 @ PEAK
MAIN @ CESAR CHAVEZ - W - NS
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - NS
ELM @ LAMAR - W - NS
CBD WEST TC


016-1-01-OUTBOUND 50th Percentile
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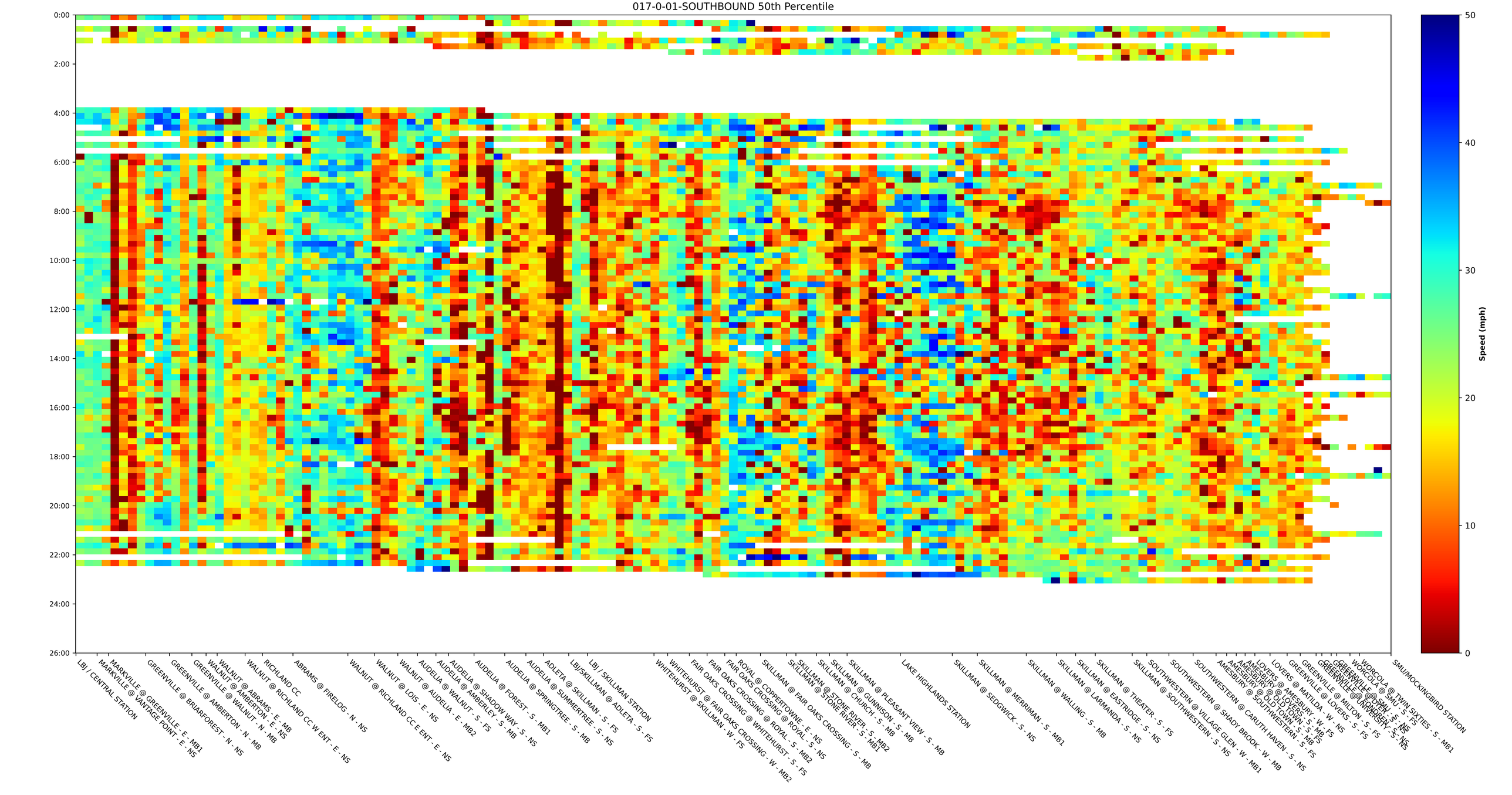
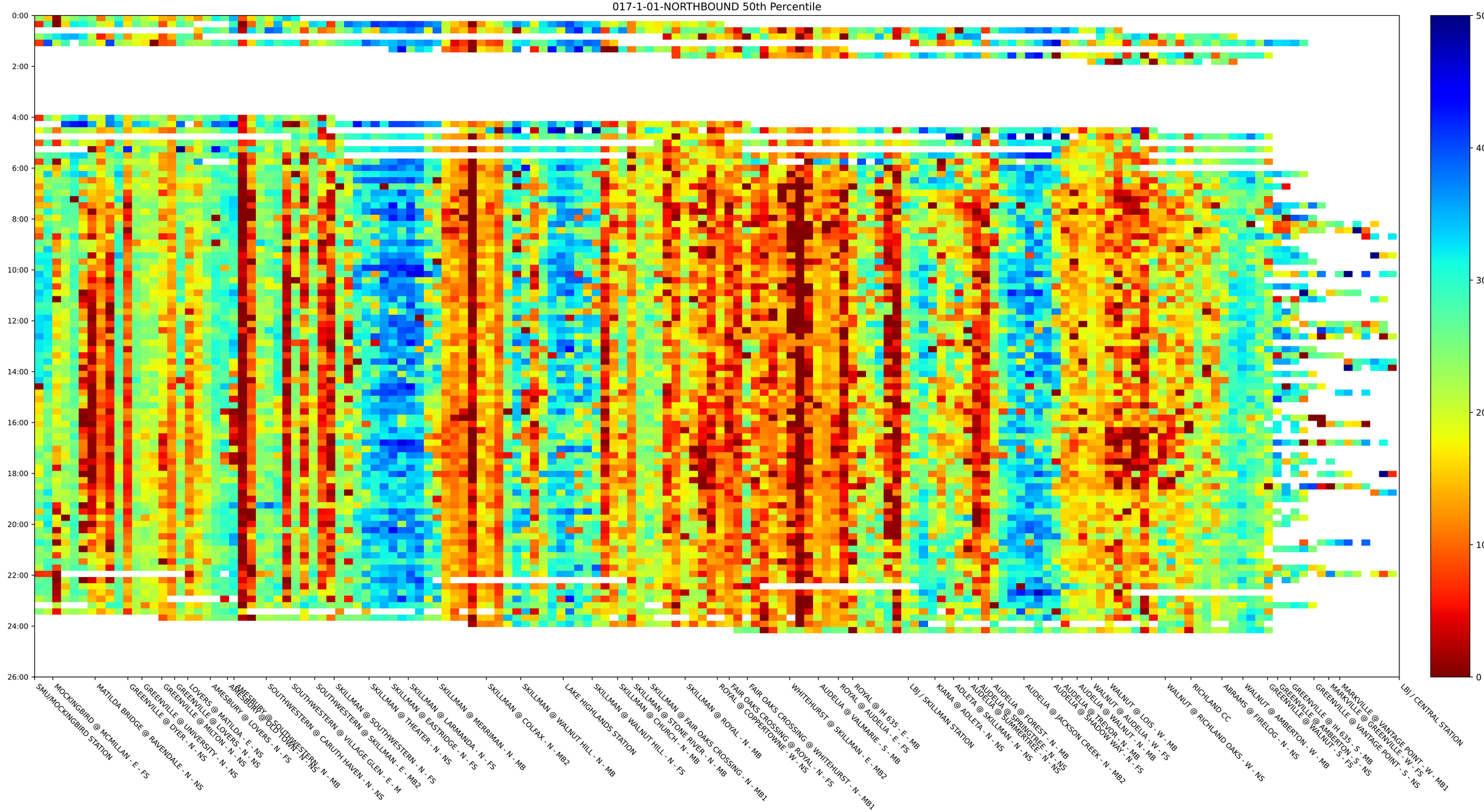
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
CBD WEST TC
COMMERCE @ FIELD - E - FS
COMMERCE @ HARWOOD - E - NS
TP ONLY CENTRAL & CADIZ
TP ONLY IH 30 @ PEAK
FERGUSON @ IH 30 - N - FS
FERGUSON @ GROVE HILL - N - NS
FERGUSON @ RIEK - N - NS
FERGUSON @ CHARLES - N - NS
FERGUSON @ KINGSWOOD - N - NS
FERGUSON @ HIGHLAND - N - NS
FERGUSON @ GRAYCLIFF - N - NS
FERGUSON @ HOLLYBUSH - N - NS
FERGUSON @ PINEBLUFF - N - NS
FERGUSON @ ST FRANCIS - N - NS
FERGUSON @ FOREST OAKS - N - NS
FERGUSON @ ROCKYGLEN - N - NS
FERGUSON @ LAKELAND - N - NS
FERGUSON @ LANECREST - N - MB
FERGUSON @ PASTEUR - N - NS
FERGUSON @ SWEETBRIAR - N - NS
FERGUSON @ BUCKNER - N - NS
FERGUSON @ BEECHMONT - N - NS
FERGUSON @ PEAVY - N - FS
FERGUSON @ OAKLEE - N - NS
FERGUSON @ PROVINCE - N - NS
FERGUSON @ MILLMAR - N - FS
FERGUSON @ HIGHWOOD - N - NS
FERGUSON @ CRESTRIDGE - N - NS
FERGUSON @ SAN REMO - N - NS
FERGUSON @ LOCKWOOD - N - NS
FERGUSON @ ST THOMAS - N - NS
FERGUSON @ ANDOVER - N - NS
FERGUSON @ MAYLEE - N - NS
FERGUSON @ STIRLIN - N - NS
FERGUSON @ PLUMMER - N - NS
FERGUSON @ ATKINSON - N - NS
FERGUSON @ DRUMMOND - N - MB
FERGUSON @ BARNES BRIDGE - N - NS
FERGUSON @ DRUMMOND - N - NS
FERGUSON @ COTILLION - N - NS
FERGUSON @ DRUMMOND - N - NS
FERGUSON @ IH 635 - N - MB
CENTERVILLE @ WOODMEADOW - N - NS
CENTERVILLE @ MARKETPLACE - N - MB
NORTHWEST @ MARKETPLACE - N - FS
NORTHWEST @ CENTERVILLE - N - FS
NORTHWEST @ SATURN - N - MB1
NORTHWEST @ SATURN - N - MB2
NORTHWEST @ SATURN - W - FS
NORTHWEST @ JACKSON - W - NS
NORTHWEST @ RENDLETON - W - FS
NORTHWEST @ TOWNGATE - W - NS
NORTHWEST @ IH 635 - W - NS
SOUTH GARLAND TC


017-0-01-SOUTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
LBJ / CENTRAL STATION
MARKVILLE @ VANTAGE POINT - E - NS
GREENVILLE - E - MB1
GREENVILLE @ BRIARFOREST - N - NS
GREENVILLE @ AMBERTON - N - MB
WALNUT @ AMBERTON - N - MB
WALNUT @ ABRAMS - E - MB
WALNUT @ RICHLAND CC - E - NS
RICHLAND CC W ENT - E - NS
ABRAMS @ FIRELOG - N - NS
WALNUT @ RICHLAND CC E ENT - E - NS
WALNUT @ LOIS - E - NS
WALNUT @ AUDELIA - E - MB2
AUDELIA @ WALNUT - S - FS
AUDELIA @ AMBERLEY - S - MB
AUDELIA @ SHADOW WAY - S - NS
AUDELIA @ FOREST - S - MB1
AUDELIA @ SPRINGTREE - S - MB
AUDELIA @ SUMMERTREE - S - NS
ADLETA @ SKILLMAN - S - FS
LBJ/SKILLMAN @ ADLETA - S - FS
LBJ / SKILLMAN STATION
WHITEHURST @ FAIR OAKS CROSSING @ WHITEHURST - W - MB2
WHITEHURST @ SKILLMAN - W - FS
FAIR OAKS CROSSING @ ROYAL - S - MB2
FAIR OAKS CROSSING @ ROYAL - S - NS
ROYAL @ COPPERTOWNE - E - NS
SKILLMAN @ FAIR OAKS CROSSING - S - MB
SKILLMAN @ STONE RIVER - S - MB2
SKILLMAN @ STONE RIVER - S - MB1
SKILLMAN @ CHURCH - S - MB
SKILLMAN @ GUNNISON - S - MB
SKILLMAN @ PLEASANT VIEW - S - MB
LAKE HIGHLANDS STATION
SKILLMAN @ SEDGWICK - S - NS
SKILLMAN @ MERRIMAN - S - MB1
SKILLMAN @ WALLING - S - MB
SKILLMAN @ LARMANDA - S - NS
SKILLMAN @ EASTRIDGE - S - NS
SKILLMAN @ THEATER - S - FS
SOUTHWESTERN @ SKILLMAN - S - NS
SOUTHWESTERN @ VILLAGE GLEN - W - MB1
SOUTHWESTERN @ SHADY BROOK - W - MB
AMESBURY @ SOUTHWESTERN - S - NS
AMESBURY @ CARUTH HAVEN - S - NS
AMESBURY @ OLD TOWN - S - MB
AMESBURY @ OLD TOWN - S - FS
LOVERS @ AMESBURY - S - NS
LOVERS @ MATILDA - W - MB
GREENVILLE @ LOVERS - W - NS
GREENVILLE @ LOVERS - S - FS
GREENVILLE @ MILTON - S - FS
GREENVILLE @ UNIVERSITY - S - NS
GREENVILLE @ SMU - S - FS
WORCOLA @ SMU - S - NS
WORCOLA @ TWIN SIXTIES - S - MB1
SMU/MOCKINGBIRD STATION


017-1-01-NORTHBOUND 50th Percentile
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6:00
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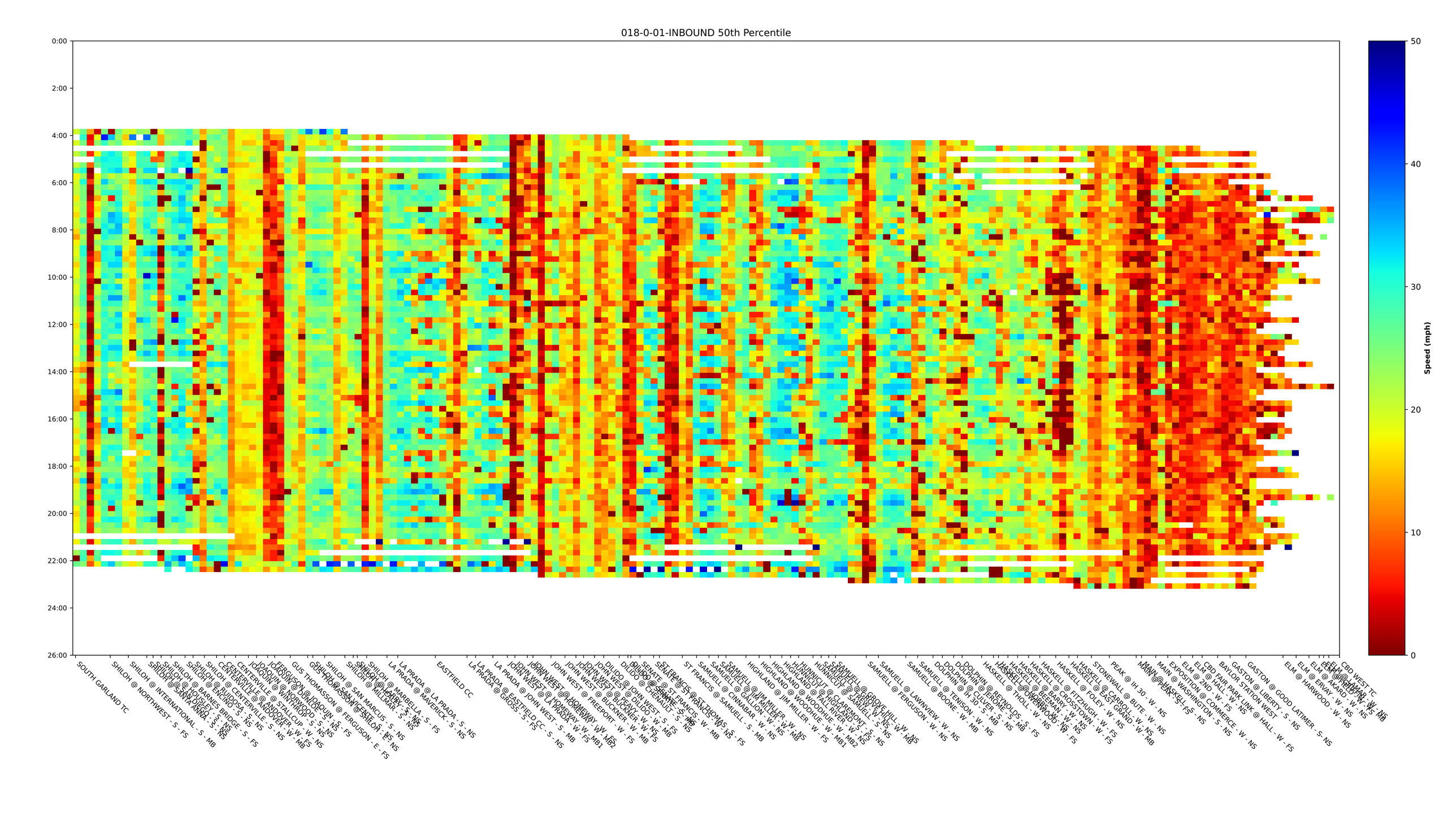
SMU/MOCKINGBIRD STATION
MOCKINGBIRD @ MCMILLAN - E - FS
MATILDA BRIDGE @ RAVENDALE - N - NS
GREENVILLE @ DYER - N - NS
GREENVILLE @ UNIVERSITY - N - NS
GREENVILLE @ MILTON - N - NS
LOVERS @ MATILDA - E - NS
AMESBURY @ LOVERS - N - NS
AMESBURY @ SOUTHWESTERN - OLD TOWN - N - FS
SOUTHWESTERN @ CARUTH HAVEN - N - NS
SOUTHWESTERN @ VILLAGE GLEN - E - M
SOUTHWESTERN @ SKILLMAN - E - MB2
SKILLMAN @ SOUTHWESTERN - N - FS
SKILLMAN @ THEATER - N - NS
SKILLMAN @ EASTRIDGE - N - FS
SKILLMAN @ LARMANDA - N - FS
SKILLMAN @ MERRIMAN - N - MB
SKILLMAN @ COLFAX - N - MB2
SKILLMAN @ WALNUT HILL - N - MB
LAKE HIGHLANDS STATION
SKILLMAN @ WALNUT HILL - N - FS
SKILLMAN @ CHURCH - N - MB
SKILLMAN @ STONE RIVER - N - MB
SKILLMAN @ FAIR OAKS CROSSING - N - MB1
ROYAL @ COPPERTOWNE - W - NS
FAIR OAKS CROSSING @ ROYAL - N - FS
WHITEHURST @ SKILLMAN - E - MB2
AUDELIA @ VALMARIE - S - MB
ROYAL @ AUDELIA - E - FS
ROYAL @ IH 635 - E - MB
LBJ / SKILLMAN STATION
KIANA @ ADLETA - N - NS
ADLETA @ SKILLMAN - N - NS
AUDELIA @ SUMMERTREE - N - NS
AUDELIA @ SPRINGTREE - N - MB
AUDELIA @ FOREST - N - MB
AUDELIA @ JACKSON CREEK - N - MB2
AUDELIA @ SHADOW WAY - N - FS
AUDELIA @ TREVOR - N - MB
WALNUT @ AUDELIA - W - FS
WALNUT @ AUDELIA - W - MB
WALNUT @ LOIS - W - MB
WALNUT @ RICHLAND OAKS - W - NS
RICHLAND CC
ABRAMS @ FIRELOG - N - NS
WALNUT @ AMBERTON - W - MB
GREENVILLE @ AMBERTON - W - FS
GREENVILLE @ WALNUT - S - FS
GREENVILLE @ IH 635 - S - MB
GREENVILLE @ AMBERTON - S - NS
GREENVILLE @ VANTAGE POINT - S - NS
MARKVILLE @ GREENVILLE - W - FS
MARKVILLE @ VANTAGE POINT - W - MB1
LBJ / CENTRAL STATION
Speed (mph)
50
40
30
20
10
0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20:00
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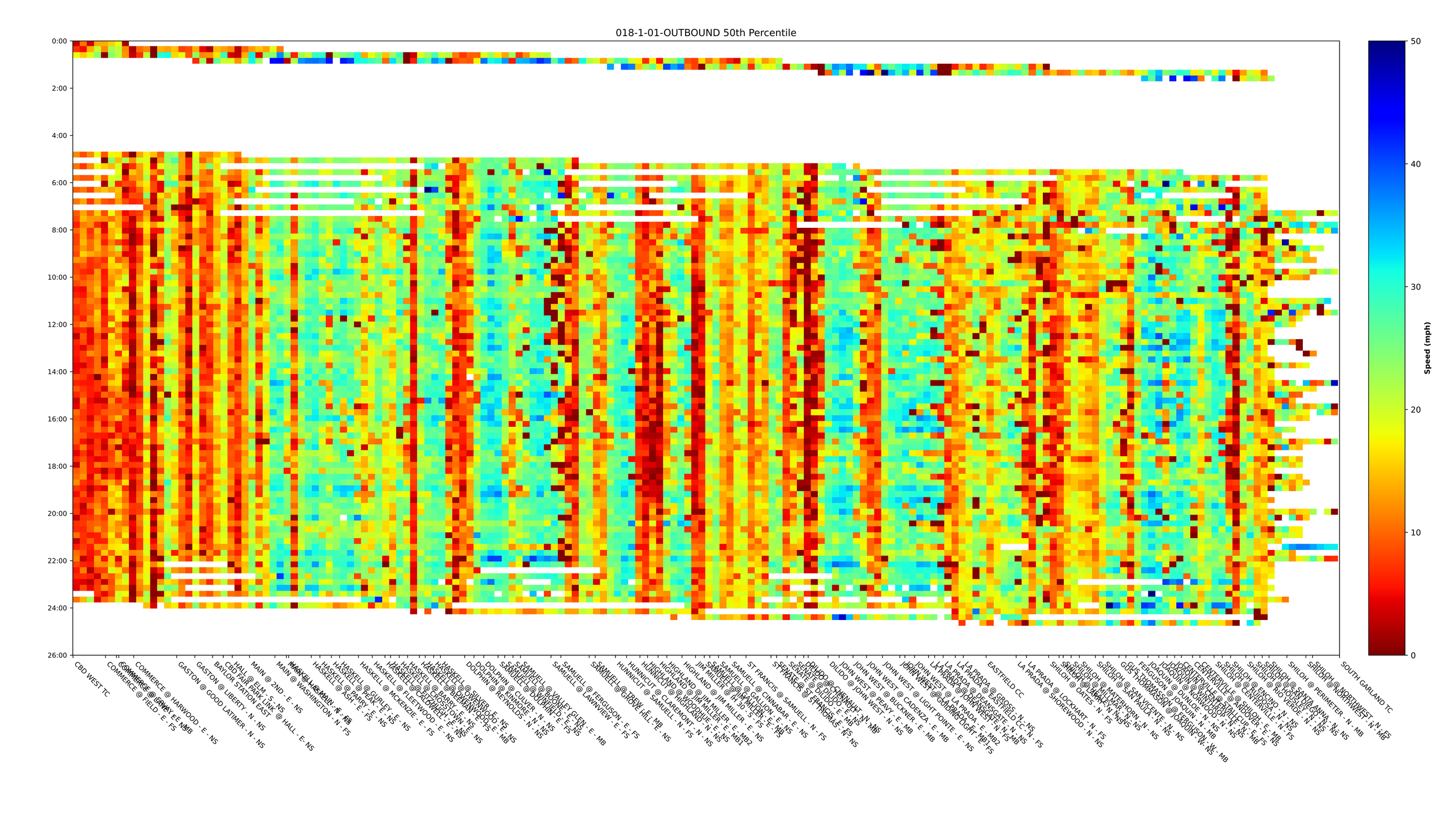
24:00
26:00
Speed (mph)
0
10
20
30
40
50
SOUTH GARLAND TC
SHILOH @ NORTHWEST - S - FS
SHILOH @ INTERNATIONAL - S - MB
SHILOH @ SANTA ANNA - S - NS
SHILOH @ BARNES BRIDGE - S - NS
SHILOH @ ROSELEY - S - NS
SHILOH @ RUIDOSA - S - FS
CENTERVILLE @ CENTERVILLE - S - NS
CENTERVILLE @ ANDOVER - S - NS
JOAQUIN @ ANDOVER W - W - MB
JOAQUIN @ WINTHROP - W - NS
FERGUSON @ NORWOOD - S - NS
GUS THOMASSON @ JOAQUIN - S - NS
GUS THOMASSON @ DUNLOP - S - NS
GUS THOMASSON @ FERGUSON - E - FS
SHILOH @ SAN MARCUS - S - NS
SHILOH @ MILLMAR - S - NS
SHILOH @ LARRY - S - NS
LA PRADA @ MAVERICK - S - NS
LA PRADA @ LA PRADA - S - NS
EASTFIELD CC
LA PRADA @ EASTFIELD CC - S - NS
LA PRADA @ GROSS - S - FS
JOHN WEST @ JOHN WEST - S - MB
JOHN WEST @ LA PRADA - W - FS
JOHN WEST @ HOMEWAY - W - MB1
JOHN WEST @ HOMEWAY - W - MB2
JOHN WEST @ FREEPORT - W - FS
JOHN WEST @ BUCKNER - W - MB
DILDO @ JOHN WEST - S - FS
DILDO @ PEAVY - W - NS
DILDO @ DILDO - W - MB
DILDO @ CHENAULT - S - NS
SENATE @ ST FRANCIS - S - MB
ST FRANCIS @ ST FRANCIS - S - NS
ST FRANCIS @ ST THOMAS - S - NS
SAMUELL @ SAMUELL - S - FS
SAMUELL @ CINNABAR - W - NS
SAMUELL @ GALLION - W - NS
SAMUELL @ JIM MILLER - W - NS
HIGHLAND @ JIM MILLER - W - MB
HIGHLAND @ WOODHUE - W - NS
HUNNICUT @ FALL RIVER - W - FS
HUNNICUT @ GLAREMONT - W - MB1
SAMUELL @ GLAREMONT - W - MB2
SAMUELL @ GROVE HILL - W - NS
SAMUELL @ LAWNVIEW - W - NS
SAMUELL @ FERGUSON - W - NS
SAMUELL @ BOONE - W - MB
DOLPHIN @ TENISON - W - NS
DOLPHIN @ IH 30 - S - MB
DOLPHIN @ CULVER - S - NS
HASKELL @ REYNOLDS - S - NS
HASKELL @ THOLL - W - NS
HASKELL @ CHERRYWOOD - S - FS
HASKELL @ BREMAN - W - NS
HASKELL @ BARRY - W - NS
HASKELL @ FITZHUGH - W - FS
HASKELL @ FOLEY - W - NS
HASKELL @ EAST GRAND - W - MB
STONEWALL @ CARROLL - W - NS
PEAK @ IH 30 - W - NS
MAIN @ BUTE - W - NS
MAIN @ HASKELL - W - FS
EXPOSITION @ WASHINGTON - S - NS
ELM @ 2ND - W - FS
CBD FAIR PARK LINK @ COMMERCE - W - NS
BAYLOR STATION WEST @ HALL - W - FS
GASTON @ LIBERTY - S - NS
GASTON @ GOOD LATIMER - S - NS
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - NS
CBD WEST TC


018-1-01-OUTBOUND 50th Percentile
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4:00
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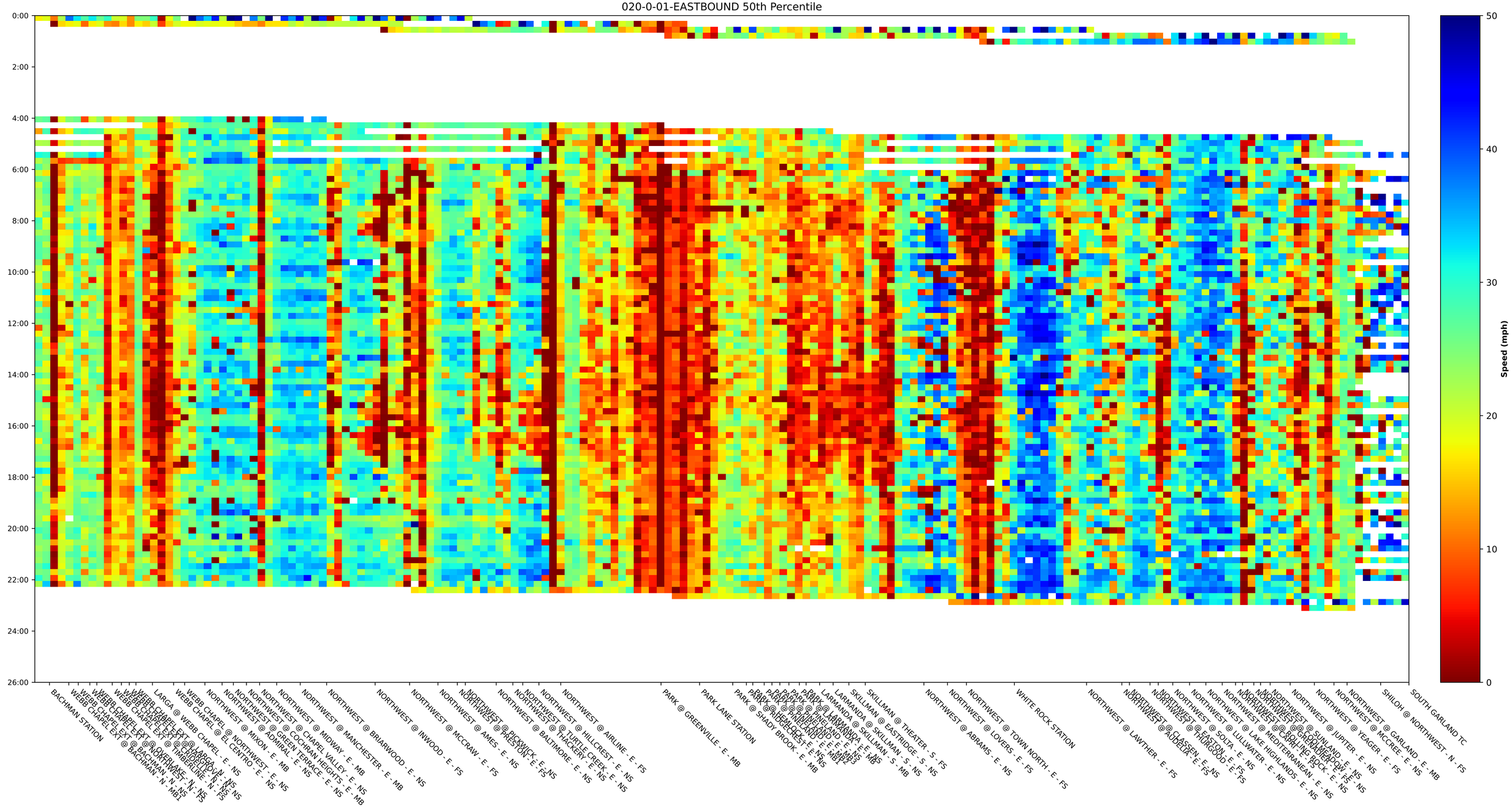
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
CBD WEST TC
COMMERCE @ FIELD - E - FS
COMMERCE @ HARWOOD - E - NS
GASTON @ GOOD LATIMER - N - NS
BAYLOR STATION EAST
CBD FAR PARK LINK
HALL @ ELM - S - NS
MAIN @ 2ND - E - NS
MAIN @ WASHINGTON - N - FS
HASKELL @ ASH - E - FS
HASKELL @ PARRY - E - NS
HASKELL @ PEAK - E - NS
HASKELL @ SURLEY - E - NS
HASKELL @ MCKENZIE - E - FS
HASKELL @ FLEETWOOD - E - NS
HASKELL @ CALTAMAR - E - NS
HASKELL @ BARRY - E - NS
HASKELL @ CROSSTOWN - E - NS
HASKELL @ BELMAR - E - NS
HASKELL @ SILVER - E - NS
DOLPHIN @ REYNOLDS - N - NS
DOLPHIN @ CULVER - N - NS
SAMUELL @ CULVER - N - NS
SAMUELL @ DOLPHIN - E - NS
SAMUELL @ YOAKLEY GLENN - E - MB
SAMUELL @ FERGUSON - E - FS
SAMUELL @ LAWNVIEW - E - FS
SAMUELL @ TREW - E - MB
HUNNICUT @ GROVE HILL - E - MB
HUNNICUT @ SAMUELL - N - FS
HUNNICUT @ CLAREMONT - N - NS
HIGHLAND @ HIGHLAND - N - NS
HIGHLAND @ JIM MILLER - E - NS
JIM MILLER @ WOODSIDE - E - NS
JIM MILLER @ JIM MILLER - E - MB2
SAMUELL @ JIM MILLER - E - MB1
SAMUELL @ IH-30 - S - FS
SAMUELL @ GALLION - E - NS
SAMUEL @ CINNABAR - E - NS
ST FRANCIS @ SAMUELL - N - FS
ST FRANCIS @ SENATE - E - NS
SENATE @ DILDO - E - NS
DILDO @ ST THOMAS - E - MB
DILDO @ CHENAULT - N - NS
JOHN WEST @ JOHN WEST - N - MB
JOHN WEST @ PEAVY - E - MB
JOHN WEST @ BUCKNER - E - MB
JOHN WEST @ CADENZA - E - MB
JOHN WEST @ LIGHT POINTE - E - NS
LA PRADA @ GARDENDALE - E - NS
LA PRADA @ LA PRADA - E - MB
LA PRADA @ JOHN WEST - E - MB1
LA PRADA @ DEANSGATE - E - MB2
LA PRADA @ EASTFIELD CC - E - NS
EASTFIELD CC
LA PRADA @ GROSS - N - NS
LA PRADA @ LOCKHART - N - FS
SHOREWOOD - N - NS
SHILOH @ OATES - N - FS
SHILOH @ LAVALLE - N - NS
SHILOH @ MIMAR - N - NS
SHILOH @ MATTERHORN - N - NS
SHILOH @ SAN PAULA - N - NS
GUS THOMASSON @ RAN VICENTE - N - NS
GUS THOMASSON @ JOAQUIN - E - NS
FERGUSON @ JOAQUIN - E - NS
JOAQUIN @ DUNLOE - N - NS
JOAQUIN @ NORTHWOOD - N - NS
JOAQUIN @ FERGUSON - W - NS
JOAQUIN @ CENTERVILLE - N - MB
CENTERVILLE @ NORTHWOOD - N - NS
CENTERVILLE @ RUNNELS - N - NS
CENTERVILLE @ SHILOH - E - MB
SHILOH @ CENTERVILLE - N - FS
SHILOH @ ENGINO - N - NS
SHILOH @ RIO VERDE - N - NS
SHILOH @ JOSEY - N - NS
SHILOH @ SANTA ANNA - N - NS
SHILOH @ PERIMETER - N - MB
SHILOH @ NORTHWEST - N - NS
SHILOH @ NORTHWEST - N - MB
SHILOH @ NORTHWEST - N - FS
SOUTH GARLAND TC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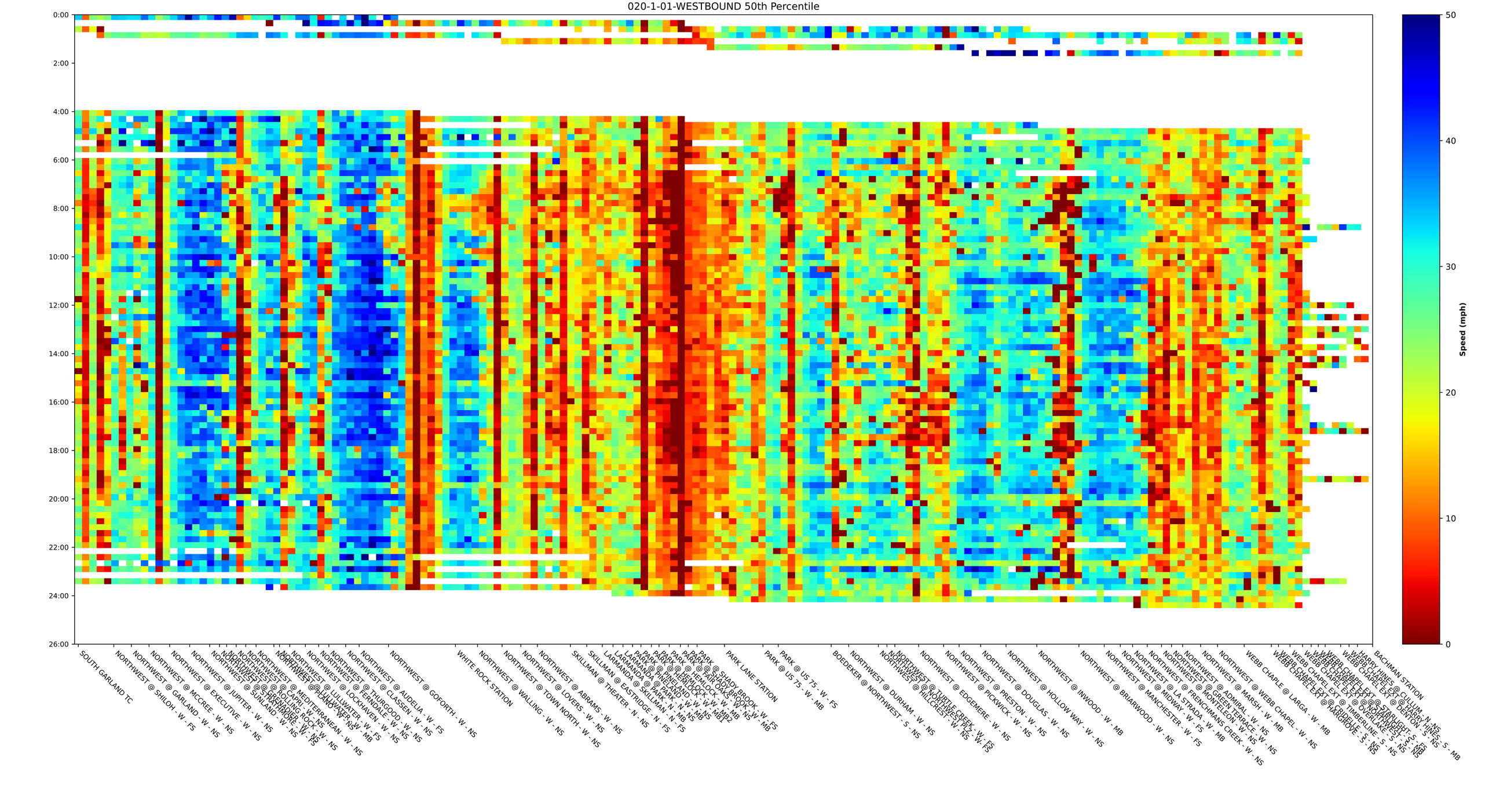
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
BACHMAN STATION
WEBB CHAPEL EXT @ BACHMAN - N - MBT
WEBB CHAPEL EXT @ BACHMAN - N - NS
WEBB CHAPEL EXT @ NORTHWEST - N - NS
WEBB CHAPEL EXT @ TIMBERLINE - N - NS
WEBB CHAPEL EXT @ TIMBERLINE - N - FS
LARGA @ WEBB CHAPEL - E - NS
WEBB CHAPEL @ EL CENTRO - E - NS
NORTHWEST @ MIXON - E - MB
NORTHWEST @ EL CENTRO - E - NS
NORTHWEST @ ADMIRAL - E - NS
NORTHWEST @ GREEN TERRACE - E - NS
NORTHWEST @ COCHRAN HEIGHTS - E - MB
NORTHWEST @ CHAPEL VALLEY - E - NS
NORTHWEST @ MIDWAY - E - MB
NORTHWEST @ MANCHESTER - E - MB
NORTHWEST @ BRIARWOOD - E - NS
NORTHWEST @ INWOOD - E - NS
NORTHWEST @ MCCRAW - E - FS
NORTHWEST @ AMES - E - NS
NORTHWEST @ PRESTON - E - FS
NORTHWEST @ PICKWICK - E - NS
NORTHWEST @ BALTIMORE - E - NS
NORTHWEST @ THACKERY - E - NS
NORTHWEST @ TURTLE CREEK - E - NS
NORTHWEST @ HILLCREST - E - NS
NORTHWEST @ AIRLINE - E - FS
PARK @ GREENVILLE - E - MB
PARK LANE STATION
PARK @ SHADY BROOK - E - MB
PARK @ RIDGECREST - E - NS
PARK @ PALOMAR - E - NS
PARK @ PALOMAR - E - MB
PARK @ LARMANDA - E - NS
LARMANDA @ SKILLMAN - E - NS
LARMANDA @ SKILLMAN - E - MB
SKILLMAN @ SKILLMAN - S - MB
SKILLMAN @ THEATER - S - FS
SKILLMAN @ EASTRIDGE - S - NS
NORTHWEST @ ABRAMS - E - NS
NORTHWEST @ LOVERS - E - FS
NORTHWEST @ TOWN NORTH - E - FS
WHITE ROCK STATION
NORTHWEST @ LAWTHER - E - FS
NORTHWEST @ AUDELIA - E - NS
NORTHWEST @ CLASSEN - E - NS
NORTHWEST @ HORGOOD - E - FS
NORTHWEST @ ESTON - E - FS
NORTHWEST @ SOLTA - E - NS
NORTHWEST @ LULLWATER - E - NS
NORTHWEST @ LAKE HIGHLANDS - E - NS
NORTHWEST @ MEDITERRANEAN - E - NS
NORTHWEST @ CARLING - E - NS
NORTHWEST @ ROCK - E - FS
NORTHWEST @ CHADWICK - E - NS
NORTHWEST @ SUNLAND - E - NS
NORTHWEST @ JUPITER - E - NS
NORTHWEST @ YEAGER - E - FS
NORTHWEST @ MCCREE - E - NS
NORTHWEST @ GARLAND - E - MB
SHILOH @ NORTHWEST - N - FS
SOUTH GARLAND TC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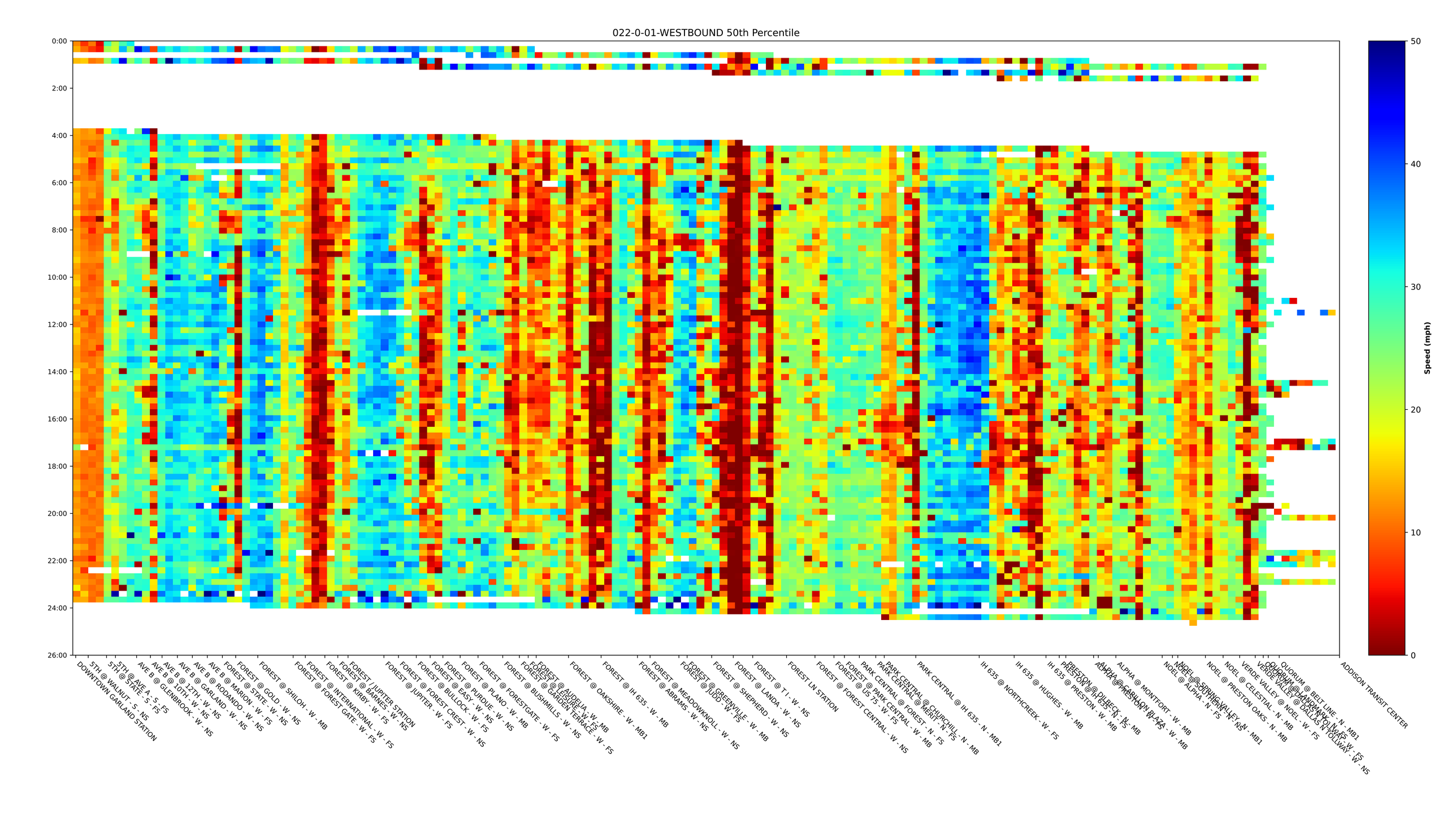
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
SOUTH GARLAND TC
NORTHWEST @ SHILOH - W - FS
NORTHWEST @ GARLAND - W - NS
NORTHWEST @ MCCREE - W - NS
NORTHWEST @ EXECUTIVE - W - NS
NORTHWEST @ JUPITER - W - NS
NORTHWEST @ SUNLAND - W - NS
NORTHWEST @ PEAVY - W - NS
NORTHWEST @ CAPRI - W - NS
NORTHWEST @ ROLLING ROCK - W - NS
NORTHWEST @ PARKMORE - W - NS
NORTHWEST @ MEDITERRANEAN - W - NS
NORTHWEST @ LULLWATER - W - NS
NORTHWEST @ LOCKHAVEN - W - FS
NORTHWEST @ FERNDALE - W - NS
NORTHWEST @ THURGOOD - W - NS
NORTHWEST @ CLASSEN - W - NS
NORTHWEST @ AUDELIA - W - FS
NORTHWEST @ GOFORTH - W - NS
WHITE ROCK STATION
NORTHWEST @ WALLING - W - NS
NORTHWEST @ TOWN NORTH - W - NS
NORTHWEST @ LOVERS - W - NS
NORTHWEST @ ABRAMS - W - NS
SKILLMAN @ THEATER - W - NS
SKILLMAN @ THEATER - N - NS
LARMANDA @ EASTRIDGE - N - NS
LARMANDA @ SKILLMAN - N - FS
PARK @ SKILLMAN - N - FS
PARK @ PINELAND - N - MB
PARK @ HEMLOCK - N - NS
PARK @ HEMLOCK - W - MB
PARK @ FAIR OAKS - W - MB2
PARK @ SHADY BROOK - W - NS
PARK @ SHADY BROOK - W - FS
PARK LANE STATION
PARK @ US 75 - W - MB
PARK @ US 75 - W - FS
BOEDEKER @ NORTHWEST - S - NS
NORTHWEST @ DURHAM - W - NS
NORTHWEST @ HILLCREST - W - NS
NORTHWEST @ TURTLE CREEK - W - FS
NORTHWEST @ EDGEMERE - W - NS
NORTHWEST @ PICKWICK - W - NS
NORTHWEST @ PRESTON - W - NS
NORTHWEST @ DOUGLAS - W - NS
NORTHWEST @ HOLLOW WAY - W - NS
NORTHWEST @ INWOOD - W - MB
NORTHWEST @ BRIARWOOD - W - NS
NORTHWEST @ MANCHESTER - W - FS
NORTHWEST @ LA STRADA - W - MB
NORTHWEST @ FRENCHMANS CREEK - W - NS
NORTHWEST @ MONTELEON - W - NS
NORTHWEST @ GREEN TERRACE - W - NS
NORTHWEST @ ADMIRAL - W - NS
NORTHWEST @ MARSH - W - MB
WEBB CHAPLE @ WEBB CHAPEL - W - MB
WEBB CHAPLE @ LARGA - W - NS
WEBB CHAPEL EXT @ LARGA - W - MB
WEBB CHAPEL EXT @ TARGROVE - S - NS
WEBB CHAPEL EXT @ TIMBERLINE - S - NS
WEBB CHAPEL EXT @ OVERLAKE - S - NS
WEBB CHAPEL EXT @ HARRY HINES - S - NS
WEBB CHAPEL EXT @ DENTON - S - NS
BACHMAN STATION
HARRY HINES @ CULLUM - N - NS
HARRY HINES @ STARLIGHT - S - NS
HARRY HINES @ DENTON - S - NS
HARRY HINES @ CULLUM - S - MB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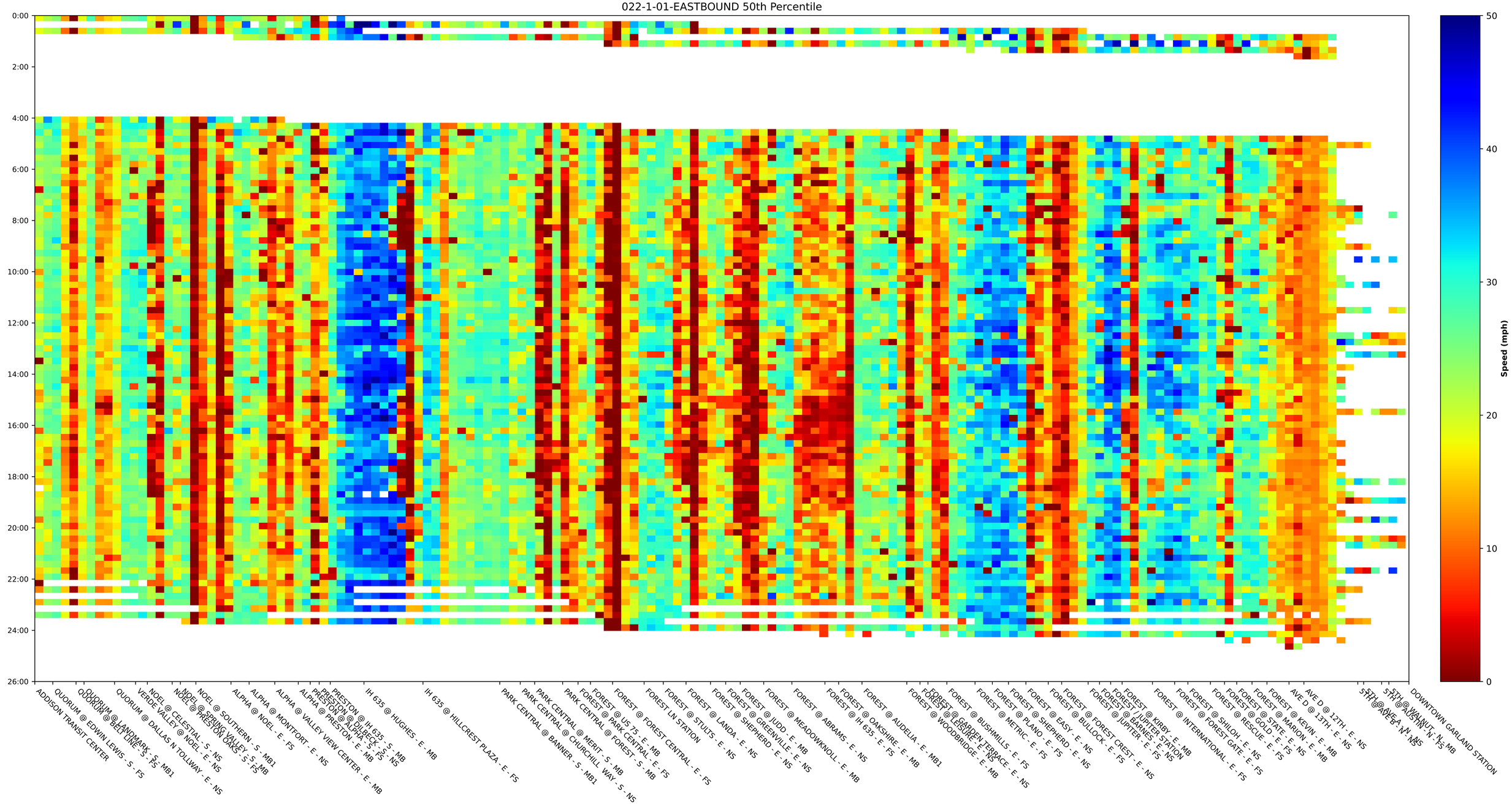
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
DOWNTOWN GARLAND STATION
5TH @ WALNUT - S - NS
5TH @ STATE - S - FS
AVE B @ AVE A - S - FS
AVE B @ GLENBROOK - W - NS
AVE B @ 12TH - W - NS
AVE B @ 10TH - W - NS
AVE B @ GARLAND - W - NS
AVE B @ RODANDO - W - NS
FOREST @ MARION - W - FS
FOREST @ STATE - W - NS
FOREST @ GOLD - W - NS
FOREST @ SHILOH - W - MB
FOREST @ FOREST GATE - W - FS
FOREST @ INTERNATIONAL - W - FS
FOREST @ KIRBY - W - FS
FOREST @ BARNES - W - NS
FOREST / JUPITER STATION
FOREST @ JUPITER - W - FS
FOREST @ FOREST CREST - W - NS
FOREST @ BULLOCK - W - FS
FOREST @ EASY - W - NS
FOREST @ PURDUE - W - NS
FOREST @ PLANO - W - MB
FOREST @ FORESTGATE - W - FS
FOREST @ BUSHMILLS - W - NS
FOREST @ LESLIE / GARDEN TERRACE - W - FS
FOREST @ AUDELIA - W - MB
FOREST @ OAKSHIRE - W - MB
FOREST @ IH 635 - W - MB1
FOREST @ MEADOWKNOLL - W - NS
FOREST @ ABRAMS - W - NS
FOREST @ JUDD - W - FS
FOREST @ GREENVILLE - W - MB
FOREST @ SHEPHERD - W - NS
FOREST @ LANDA - W - NS
FOREST @ T I - W - NS
FOREST LN STATION
FOREST @ FOREST CENTRAL - W - NS
FOREST @ US 75 - W - FS
FOREST @ PARK CENTRAL - W - MB
PARK CENTRAL @ FOREST - N - FS
PARK CENTRAL @ MERIT - N - FS
PARK CENTRAL @ CHURCHILL - N - MB
PARK CENTRAL @ IH 635 - N - MB1
IH 635 @ NORTHCREEK - W - FS
IH 635 @ HUGHES - W - MB
IH 635 @ PRESTON - W - MB
PRESTON @ IH 635 - N - MB
ALPHA @ DUBECK - N - MB
ALPHA @ CARLTON PLAZA - W - MB
ALPHA @ MONTFORT - W - MB
NOEL @ ALPHA - N - FS
NOEL @ SPRING VALLEY - N - MB1
NOEL @ PRESTON OAKS - N - MB
NOEL @ CELESTIAL - N - MB
VERDE VALLEY @ NOEL - W - FS
VERDE VALLEY @ DALLAS TOLLWAY - W - NS
QUORUM @ LANDMARK N - FS
QUORUM @ BELT LINE - N - MB1
ADDISON TRANSIT CENTER


022-1-01-EASTBOUND 50th Percentile
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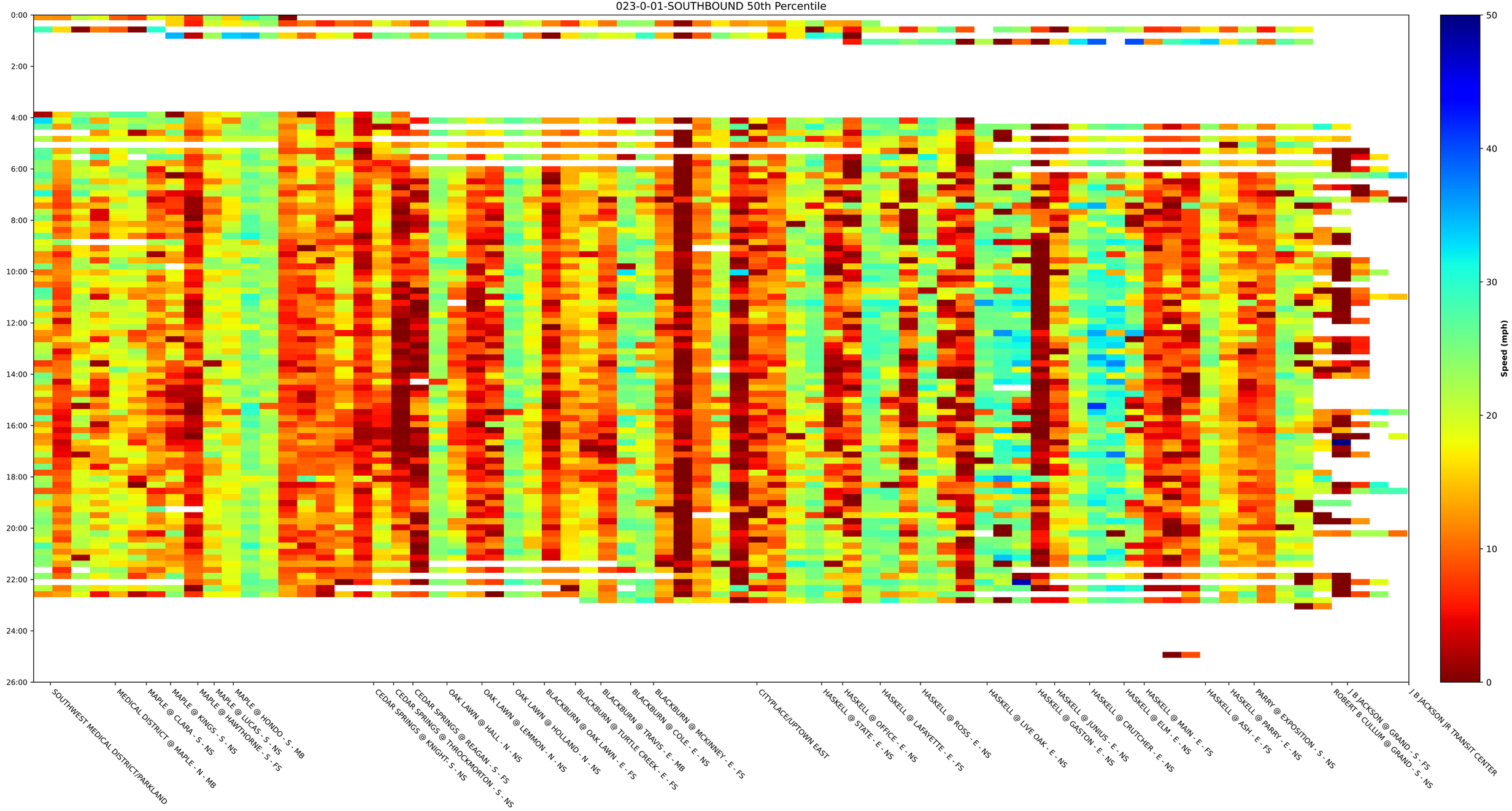
ADDISON TRANSIT CENTER
QUORUM @ EDWIN LEWIS - S - FS
QUORUM @ BELT LINE - S - FS
QUORUM @ LANDMARK - S - MB1
QUORUM @ DALLAS N TOLLWAY - E - NS
VERDE VALLEY @ NOEL - E - NS
NOEL @ CELESTIAL - S - NS
NOEL @ PRESTON OAKS - S - FS
NOEL @ SPRING VALLEY - S - MB
NOEL @ SOUTHERN - S - MB1
ALPHA @ NOEL - E - FS
ALPHA @ MONTFORT - E - NS
ALPHA @ VALLEY VIEW CENTER - E - MB
ALPHA @ PRESTON - E - MB
PRESTON @ ALPHA - S - FS
PRESTON @ DALBECK - S - NS
PRESTON @ IH 635 - S - MB
IH 635 @ HUGHES - E - MB
IH 635 @ HILLCREST PLAZA - E - FS
PARK CENTRAL @ BANNER - S - MB1
PARK CENTRAL @ CHURCHILL WAY - S - NS
PARK CENTRAL @ MERIT - S - MB
FOREST @ PARK CENTRAL - S - MB
FOREST @ PARK CENTRAL - E - FS
FOREST @ US 75 - E - MB
FOREST @ FOREST CENTRAL - E - MB
FOREST LN STATION
FOREST @ FOREST CENTRAL - E - FS
FOREST @ STULTS - E - NS
FOREST @ LANDA - E - NS
FOREST @ SHEPHERD - E - NS
FOREST @ GREENVILLE - E - NS
FOREST @ JUDD - E - MB
FOREST @ MEADOWKNOLL - E - MB
FOREST @ ABRAMS - E - NS
FOREST @ IH 635 - E - FS
FOREST @ OAKSHIRE - E - MB
FOREST @ AUDELIA - E - MB1
FOREST @ WOODBRIDGE - E - MB
FOREST @ LEISURE - E - NS
FOREST @ GARDEN TERRACE - E - NS
FOREST @ BUSHMILLS - E - FS
FOREST @ METRIC - E - FS
FOREST @ PLANO - E - FS
FOREST @ SHEPHERD - E - NS
FOREST @ EASY - E - NS
FOREST @ BULLOCK - E - FS
FOREST @ FOREST CREST - E - NS
FOREST @ JUPITER - E - FS
FOREST @ BARNES - E - NS
FOREST @ JUPITER STATION
FOREST @ KIRBY - E - MB
FOREST @ INTERNATIONAL - E - FS
FOREST @ SHILOH - E - NS
FOREST @ FOREST GATE - E - FS
FOREST @ RESCUE - E - FS
FOREST @ GOLD - E - FS
FOREST @ STATE - E - NS
FOREST @ MARION - E - MB
AVE D @ KEVIN - E - MB
AVE D @ 12TH - E - NS
5TH @ AVE D - N - NS
5TH @ AVE A - N - NS
5TH @ WALNUT - N - MB
5TH @ AUSTIN - N - NS
DOWNTOWN GARLAND STATION
Speed (mph)
0
10
20
30
40
50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SOUTHWEST MEDICAL DISTRICT/PARKLAND
MEDICAL DISTRICT @ MAPLE - N - MB
MAPLE @ CLARA - S - NS
MAPLE @ KINGS - S - NS
MAPLE @ HAWTHORNE - S - FS
MAPLE @ LUCAS - S - NS
MAPLE @ HONDO - S - MB
CEDAR SPRINGS @ KNIGHT - S - NS
CEDAR SPRINGS @ THROCKMORTON - S - NS
CEDAR SPRINGS @ REAGAN - S - FS
OAK LAWN @ HALL - N - NS
OAK LAWN @ LEMMON - N - NS
OAK LAWN @ HOLLAND - N - NS
BLACKBURN @ OAK LAWN - E - FS
BLACKBURN @ TURTLE CREEK - E - FS
BLACKBURN @ TRAVIS - E - MB
BLACKBURN @ COLE - E - NS
BLACKBURN @ MCKINNEY - E - FS
CITYPLACE/UPTOWN EAST
HASKELL @ STATE - E - NS
HASKELL @ OFFICE - E - NS
HASKELL @ LAFAYETTE - E - FS
HASKELL @ ROSS - E - NS
HASKELL @ LIVE OAK - E - NS
HASKELL @ GASTON - E - NS
HASKELL @ JUNIUS - E - NS
HASKELL @ CRUTCHER - E - NS
HASKELL @ ELM - E - NS
HASKELL @ MAIN - E - FS
HASKELL @ ASH - E - FS
HASKELL @ PARRY - E - NS
PARRY @ EXPOSITION - S - NS
ROBERT B CULLUM @ GRAND - S - NS
J B JACKSON @ GRAND - S - FS
J B JACKSON JR TRANSIT CENTER
Speed (mph)
0
10
20
30
40
50


023-1-01-NORTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
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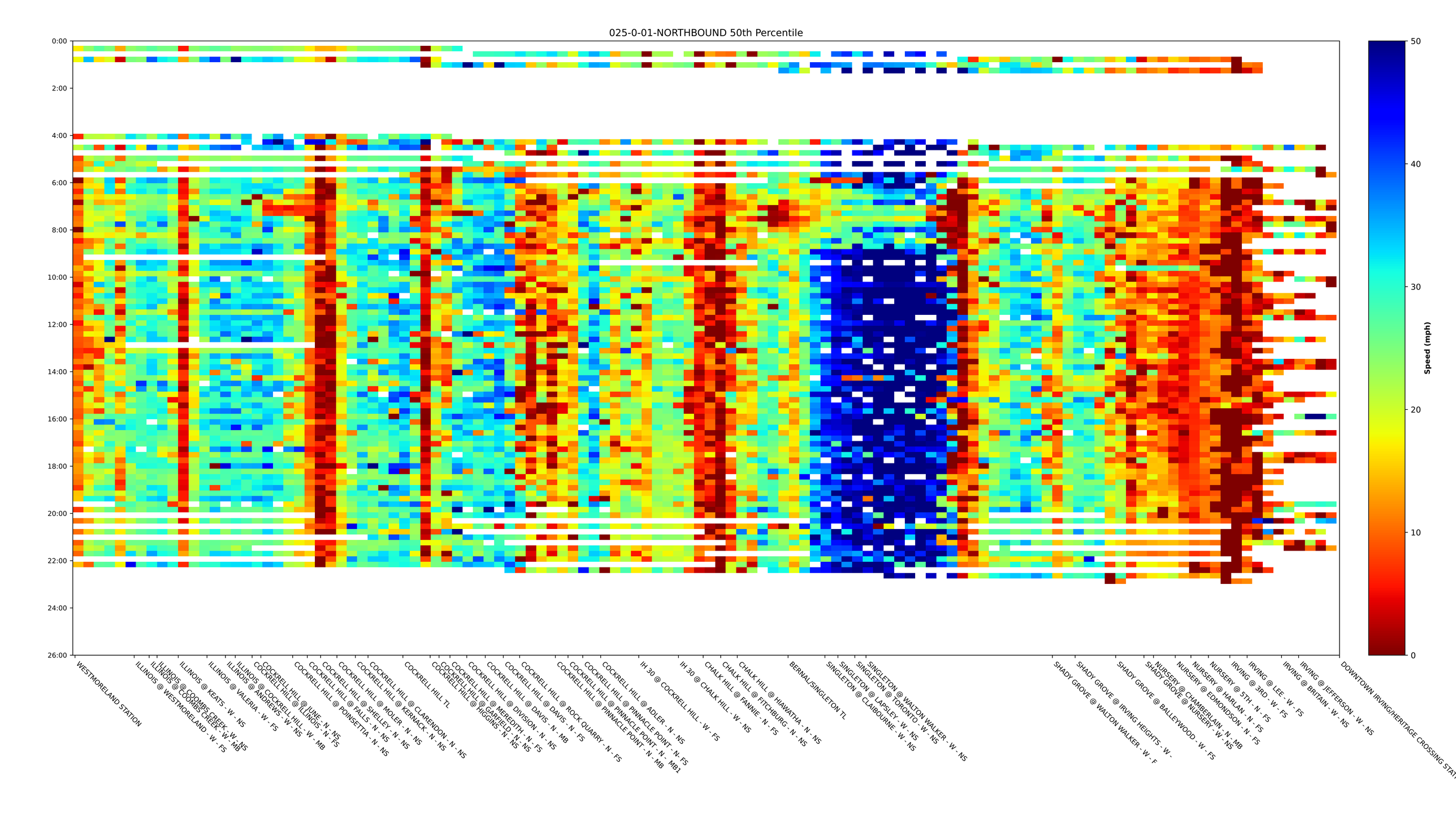
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
J B JACKSON JR TRANSIT CENTER
ROBERT B CULLUM @ GRAND - N - FS
PARRY @ EXPOSITION - N - FS
PARRY @ FLETCHER - N - NS
PEAK @ IH 30 - W - NS
PEAK @ MAIN - W - NS
PEAK @ ELM - W - FS
PEAK @ VICTOR - W - NS
PEAK @ WORTH - W - NS
PEAK @ GASTON - W - NS
PEAK @ LIVE OAK - W - NS
PEAK @ ROSS - W - FS
PEAK @ MUNGER - W - NS
LEMMON @ PEAK - W - FS
HASKELL @ CAPITOL - N - NS
HASKELL @ OFFICE - N - FS
CITYPLACE/UPTOWN EAST
BLACKBURN @ MCKINNEY - W - NS
BLACKBURN @ COLE - W - NS
BLACKBURN @ TURTLE CREEK - W - MB
BLACKBURN @ TURTLE CREEK - W - FS
BLACKBURN @ OAK LAWN - W - NS
OAK LAWN @ HOLLAND - S - MB
OAK LAWN @ LEMMON - S - FS
CEDAR SPRINGS @ CEDAR SPRINGS - S - MB
CEDAR SPRINGS @ THROCKMORTON - N - NS
CEDAR SPRINGS @ KNIGHT - N - FS
CEDAR SPRINGS @ DOUGLAS - N - NS
MAPLE @ LUCAS - N - NS
MAPLE @ HAWTHORNE - N - NS
MAPLE @ KINGS - N - NS
MAPLE @ CLARA - N - FS
MEDICAL DISTRICT @ MAPLE - S - FS
SOUTHWEST MEDICAL DISTRICT/PARKLAND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16:00
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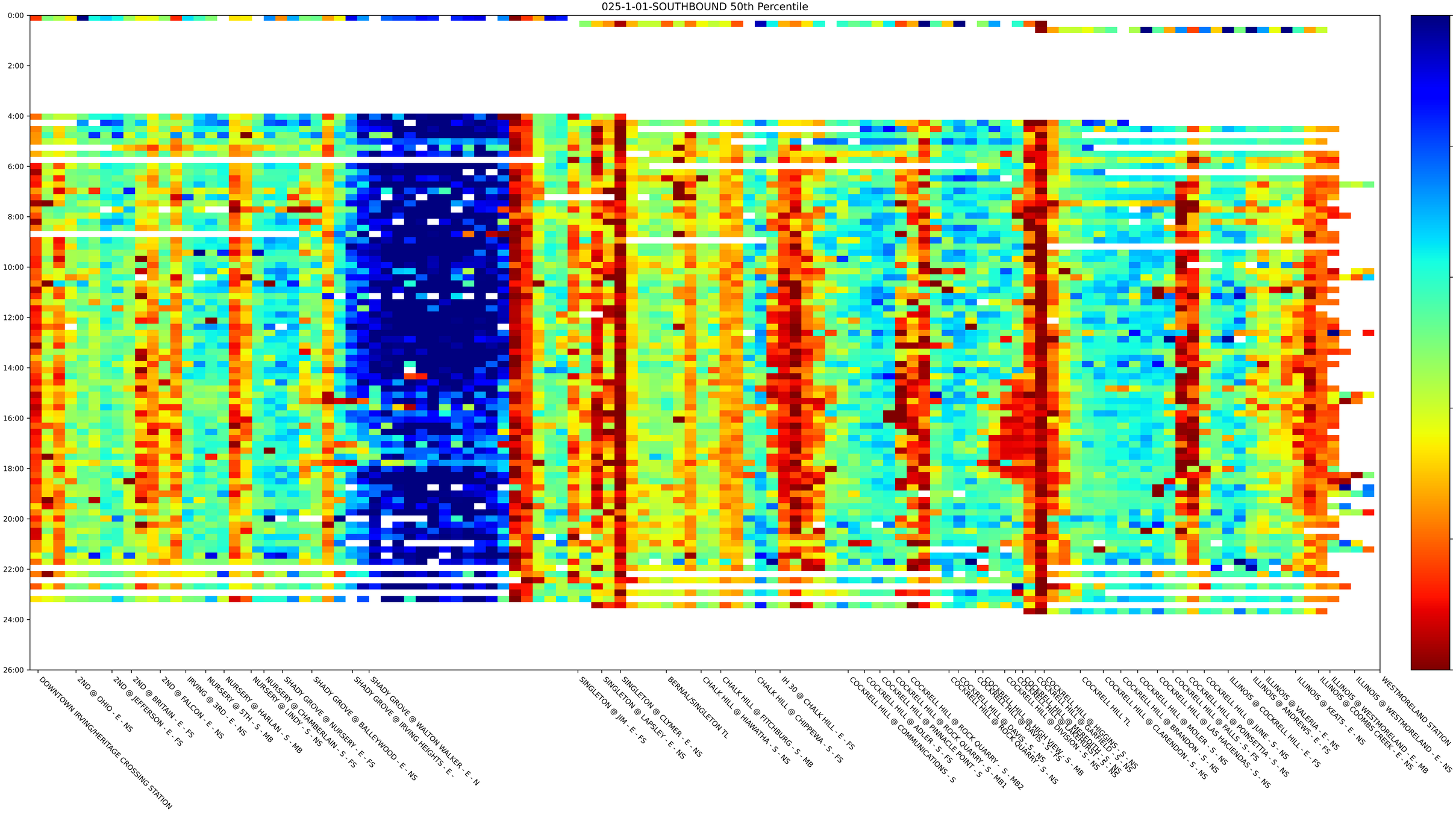
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
WESTMORELAND STATION
ILLINOIS @ WESTMORELAND - W - FS
ILLINOIS @ COOMBS CREEK - W - MB
ILLINOIS @ COOMBS CREEK - W - NS
ILLINOIS @ KEATS - W - NS
ILLINOIS @ VALERIA - W - FS
ILLINOIS @ ANDREWS - W - NS
COCKRELL HILL @ ILLINOIS - W - MB
COCKRELL HILL @ ILLINOIS - N - FS
COCKRELL HILL @ JUNE - N - NS
COCKRELL HILL @ POINSETTIA - N - NS
COCKRELL HILL @ FALLS - N - NS
COCKRELL HILL @ SHELLEY - N - NS
COCKRELL HILL @ MOLER - N - NS
COCKRELL HILL @ KERNACK - N - NS
COCKRELL HILL TL
COCKRELL HILL @ CLARENDON - N - NS
COCKRELL HILL @ GARRELD - N - NS
COCKRELL HILL @ HIGGINS - N - NS
COCKRELL HILL @ MEREDITH - N - FS
COCKRELL HILL @ DIVISION - N - NS
COCKRELL HILL @ DAVIS - N - MB
COCKRELL HILL @ DAVIS - N - FS
COCKRELL HILL @ ROCK QUARRY - N - FS
COCKRELL HILL @ PINNACLE POINT - N - MB
COCKRELL HILL @ PINNACLE POINT - N - MB1
COCKRELL HILL @ PINNACLE POINT - N - FS
COCKRELL HILL @ ADLER - N - NS
IH 30 @ COCKRELL HILL - W - FS
IH 30 @ CHALK HILL - W - NS
CHALK HILL @ FANNIE - N - FS
CHALK HILL @ FITCHBURG - N - NS
CHALK HILL @ HIAWATHA - N - NS
BERNAL/SINGLETON TL
SINGLETON @ CLAIBOURNE - W - NS
SINGLETON @ LAPSLEY - W - NS
SINGLETON @ TORONTO - W - NS
SINGLETON @ WALTON WALKER - W - NS
SHADY GROVE @ WALTON WALKER - W - F
SHADY GROVE @ IRVING HEIGHTS - W -
SHADY GROVE @ BALLEYWOOD - W - FS
SHADY GROVE @ NURSERY - W - NS
NURSERY @ CHAMBERLAIN - N - MB
NURSERY @ EDMONDSON - N - FS
NURSERY @ HARLAN - N - FS
NURSERY @ 5TH - N - FS
IRVING @ 3RD - W - FS
IRVING @ LEE - W - FS
IRVING @ BRITAIN - W - NS
IRVING @ JEFFERSON - W - NS
DOWNTOWN IRVING/HERITAGE CROSSING STATION


025-1-01-SOUTHBOUND 50th Percentile
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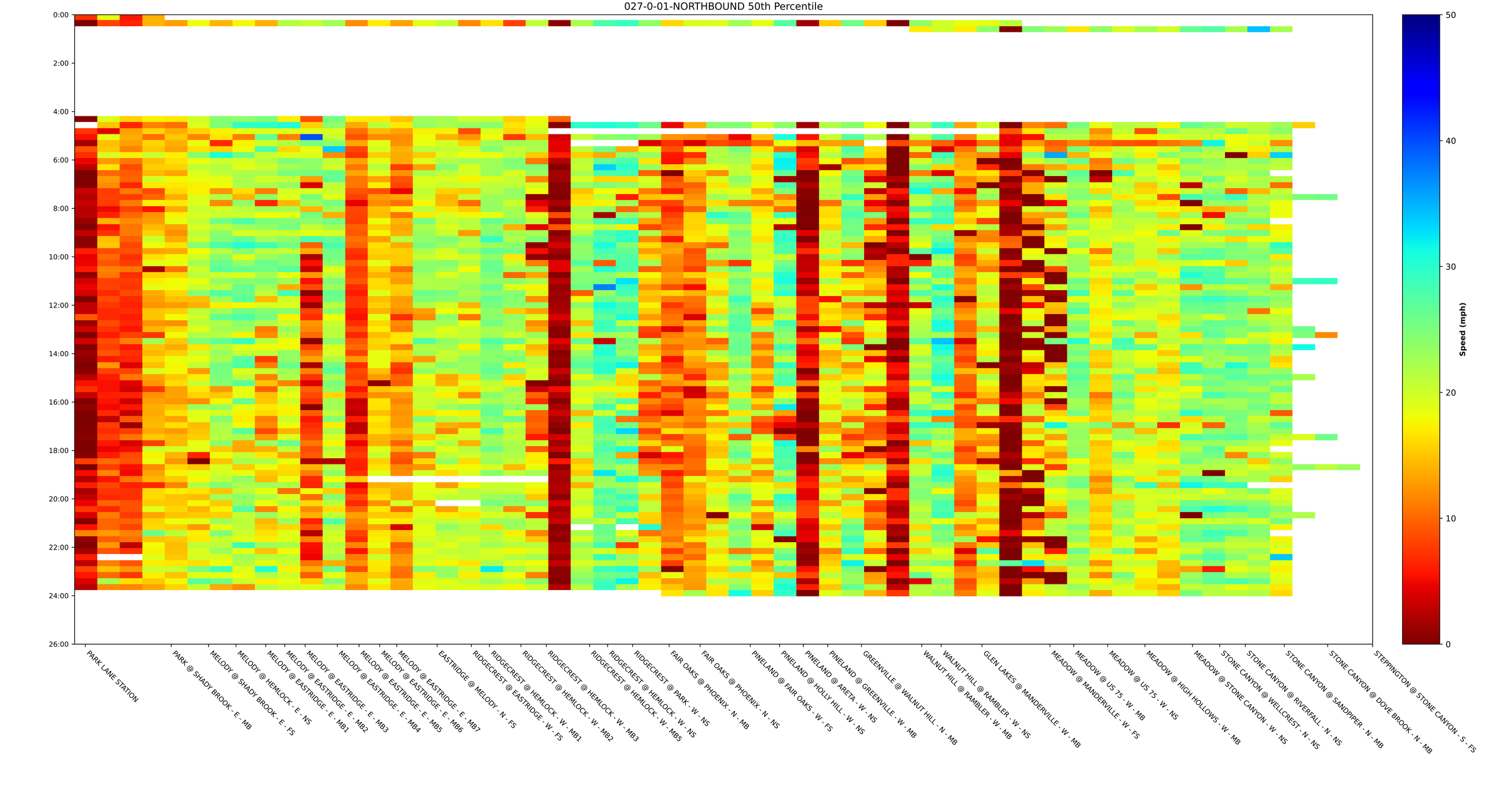
26:00
Speed (mph)
0
10
20
30
40
50
DOWNTOWN IRVING/HERITAGE CROSSING STATION
2ND @ OHIO - E - NS
2ND @ JEFFERSON - E - FS
2ND @ BRITAIN - E - FS
2ND @ FALCON - E - NS
IRVING @ 3RD - E - NS
NURSERY @ 5TH - S - MB
NURSERY @ HARLAN - S - MB
NURSERY @ LINDY - S - NS
NURSERY @ CHAMBERLAIN - S - FS
SHADY GROVE @ NURSERY - E - FS
SHADY GROVE @ BALLEYWOOD - E - NS
SHADY GROVE @ IRVING HEIGHTS - E -
SHADY GROVE @ WALTON WALKER - E - N
SINGLETON @ JIM - E - FS
SINGLETON @ LAPSLEY - E - NS
SINGLETON @ CLYMER - E - NS
BERNAL/SINGLETON TL
CHALK HILL @ HIAWATHA - S - NS
CHALK HILL @ FITCHBURG - S - MB
CHALK HILL @ CHIPPEWA - S - FS
IH 30 @ CHALK HILL - E - FS
COCKRELL HILL @ COMMUNICATIONS - S
COCKRELL HILL @ ADLER - S - FS
COCKRELL HILL @ PINNACLE POINT - S
COCKRELL HILL @ ROCK QUARRY - S - MB1
COCKRELL HILL @ ROCK QUARRY - S - MB2
COCKRELL HILL @ ROCK QUARRY - S - NS
COCKRELL HILL @ DAVIS - S - NS
COCKRELL HILL @ DAVIS - S - FS
COCKRELL HILL @ HIGH VIEW - S - MB
COCKRELL HILL @ DIVISION - S - NS
COCKRELL HILL @ MEREDITH - S - NS
COCKRELL HILL @ GARFIELD - S - NS
COCKRELL HILL @ HIGGINS - S - NS
COCKRELL HILL TL
COCKRELL HILL @ CLARENDON - S - NS
COCKRELL HILL @ BRANDON - S - NS
COCKRELL HILL @ MOLER - S - NS
COCKRELL HILL @ LAS HACIENDAS - S - NS
COCKRELL HILL @ FALLS - S - FS
COCKRELL HILL @ POINSETTIA - S - NS
COCKRELL HILL @ JUNE - S - NS
ILLINOIS @ COCKRELL HILL - E - FS
ILLINOIS @ ANDREWS - E - FS
ILLINOIS @ VALERIA - E - NS
ILLINOIS @ KEATS - E - NS
ILLINOIS @ COOMBS CREEK - E - NS
ILLINOIS @ WESTMORELAND - E - MB
ILLINOIS @ WESTMORELAND - E - NS
WESTMORELAND STATION


027-0-01-NORTHBOUND 50th Percentile
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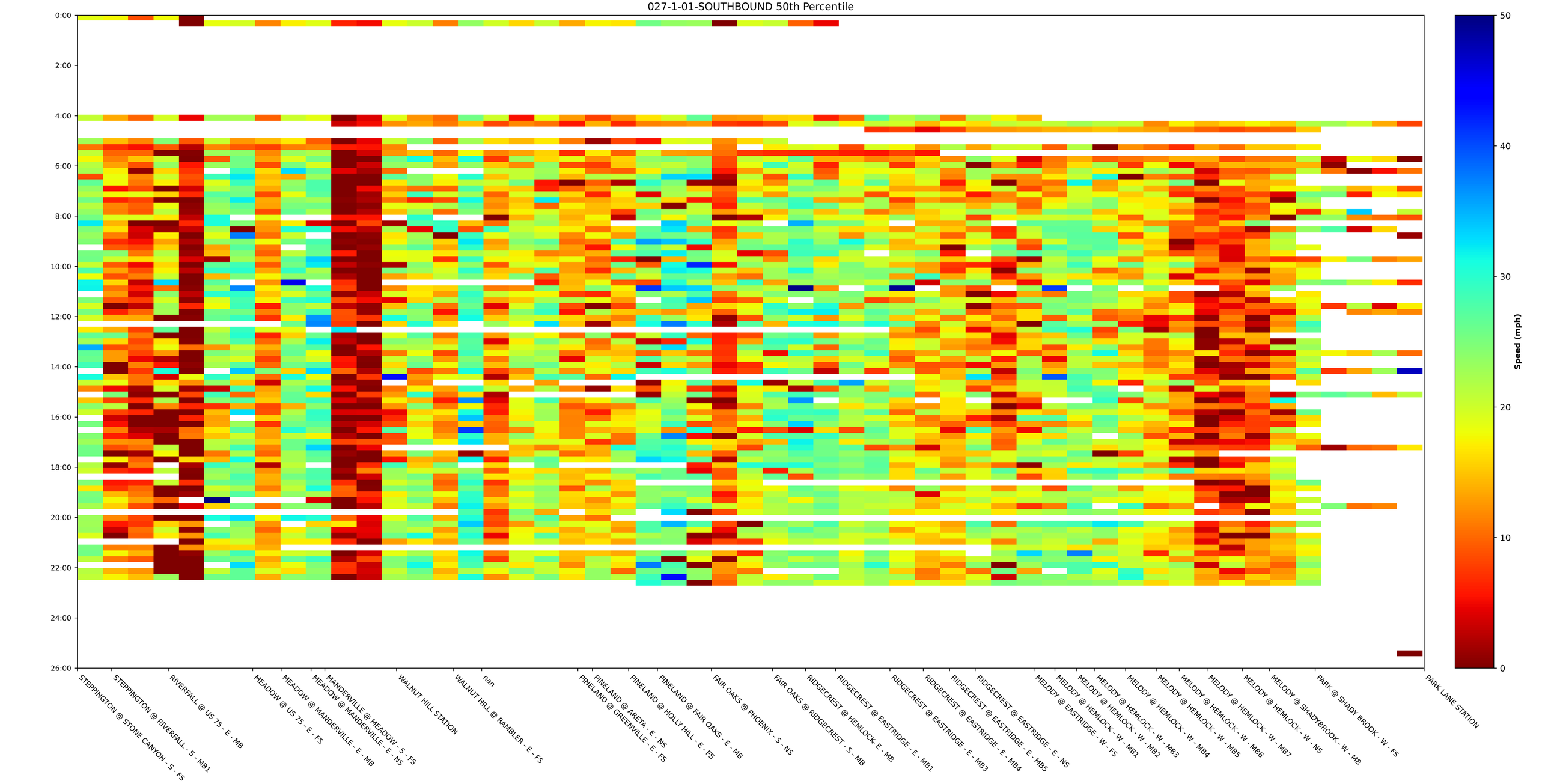
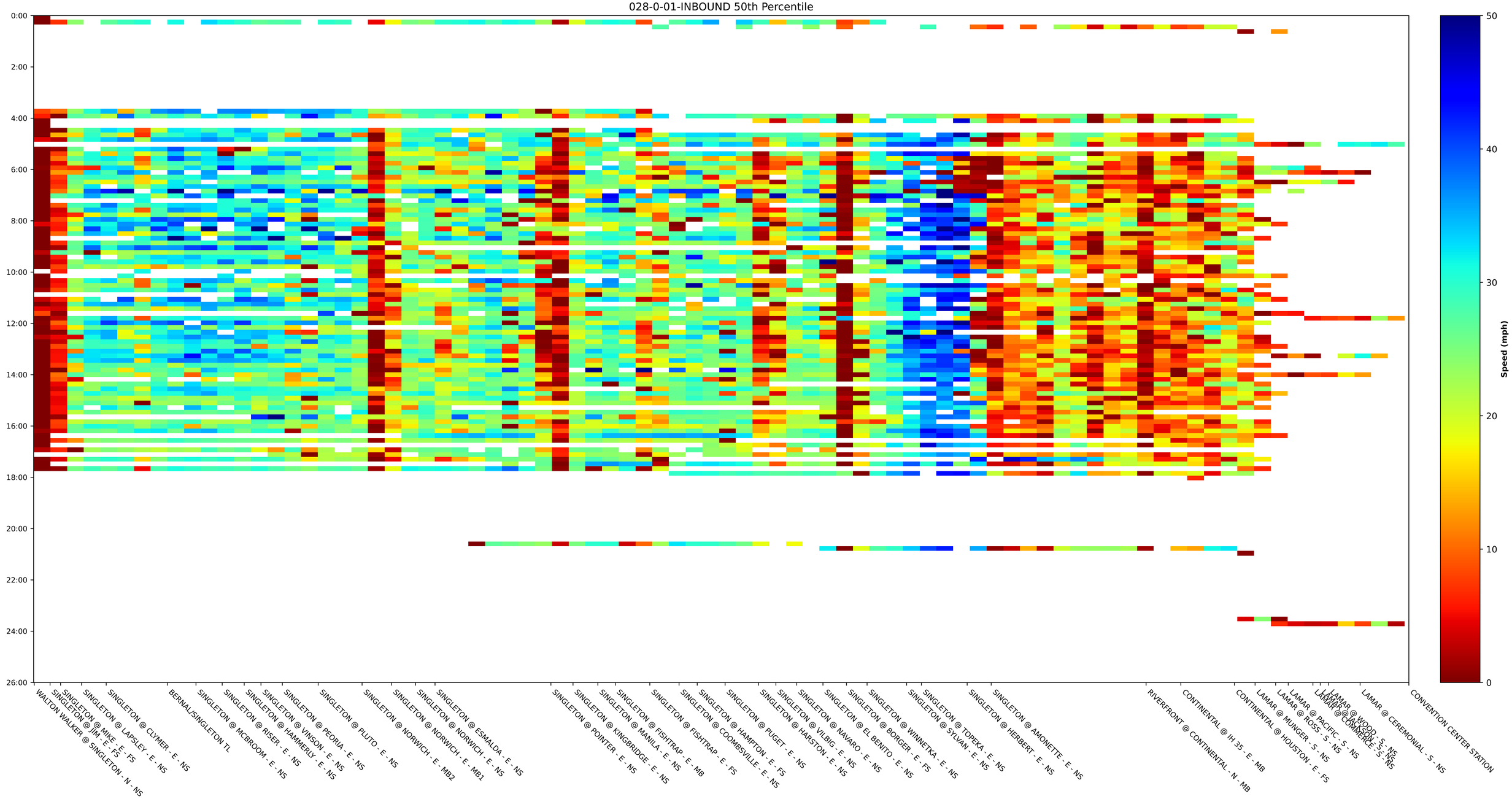
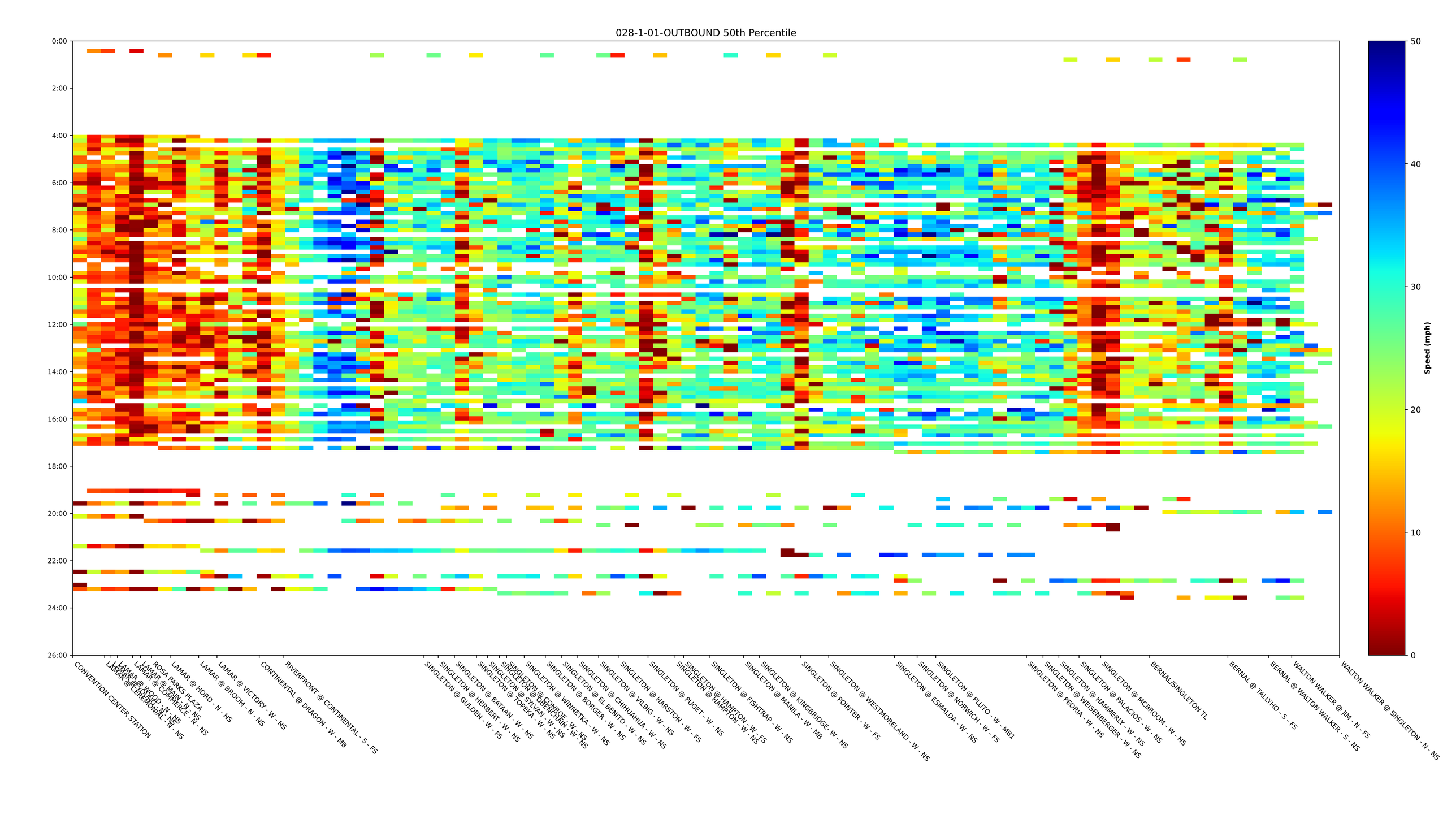
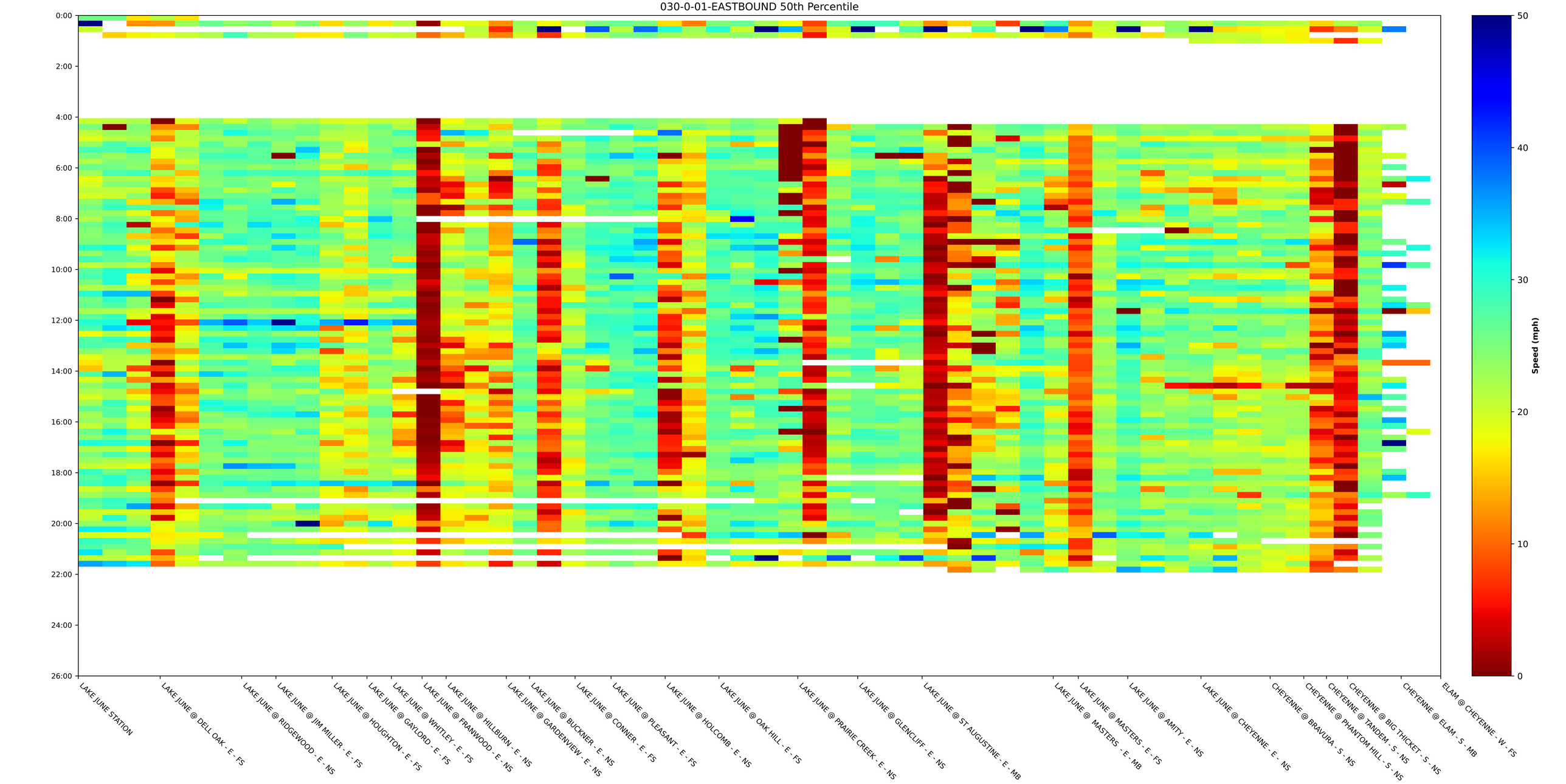
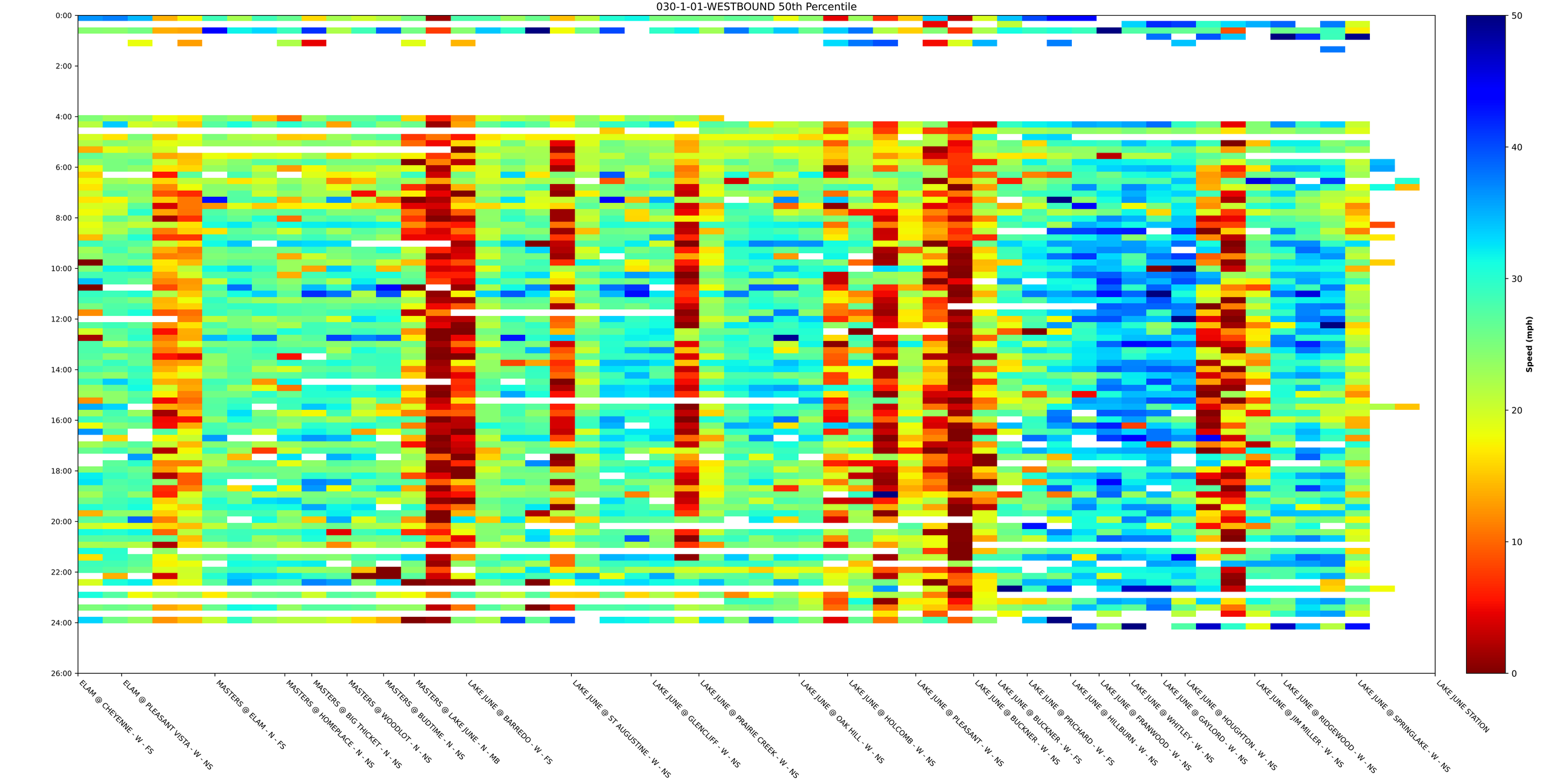
PARK LANE STATION
PARK @ SHADY BROOK - E - MB
MELODY @ SHADY BROOK - E - FS
MELODY @ HEMLOCK - E - NS
MELODY @ EASTRIDGE - E - MB1
MELODY @ EASTRIDGE - E - MB2
MELODY @ EASTRIDGE - E - MB3
MELODY @ EASTRIDGE - E - MB4
MELODY @ EASTRIDGE - E - MB5
MELODY @ EASTRIDGE - E - MB6
EASTRIDGE @ MELODY - E - MB7
RIDGECREST @ MELODY - N - FS
RIDGECREST @ EASTRIDGE - W - FS
RIDGECREST @ HEMLOCK - W - MB1
RIDGECREST @ HEMLOCK - W - MB2
RIDGECREST @ HEMLOCK - W - MB3
RIDGECREST @ HEMLOCK - W - MB5
RIDGECREST @ PARK - W - NS
FAIR OAKS @ PHOENIX - N - MB
FAIR OAKS @ PHOENIX - N - NS
PINELAND @ FAIR OAKS - W - FS
PINELAND @ HOLLY HILL - W - NS
PINELAND @ ARETA - W - NS
PINELAND @ GREENVILLE - W - MB
GREENVILLE @ WALNUT HILL - N - MB
WALNUT HILL @ RAMBLER - W - MB
GLEN LAKES @ MANDERVILLE - W - NS
MEADOW @ MANDERVILLE - W - MB
MEADOW @ US 75 - W - FS
MEADOW @ US 75 - W - MB
MEADOW @ HIGH HOLLOWS - W - NS
MEADOW @ STONE CANYON - W - MB
STONE CANYON @ STONE CANYON - W - NS
STONE CANYON @ WELLCREST - N - NS
STONE CANYON @ RIVERFALL - N - NS
STONE CANYON @ SANDPIPER - N - MB
STONE CANYON @ DOVE BROOK - N - MB
STEPPINGTON @ STONE CANYON - S - FS
Speed (mph)
0
10
20
30
40
50

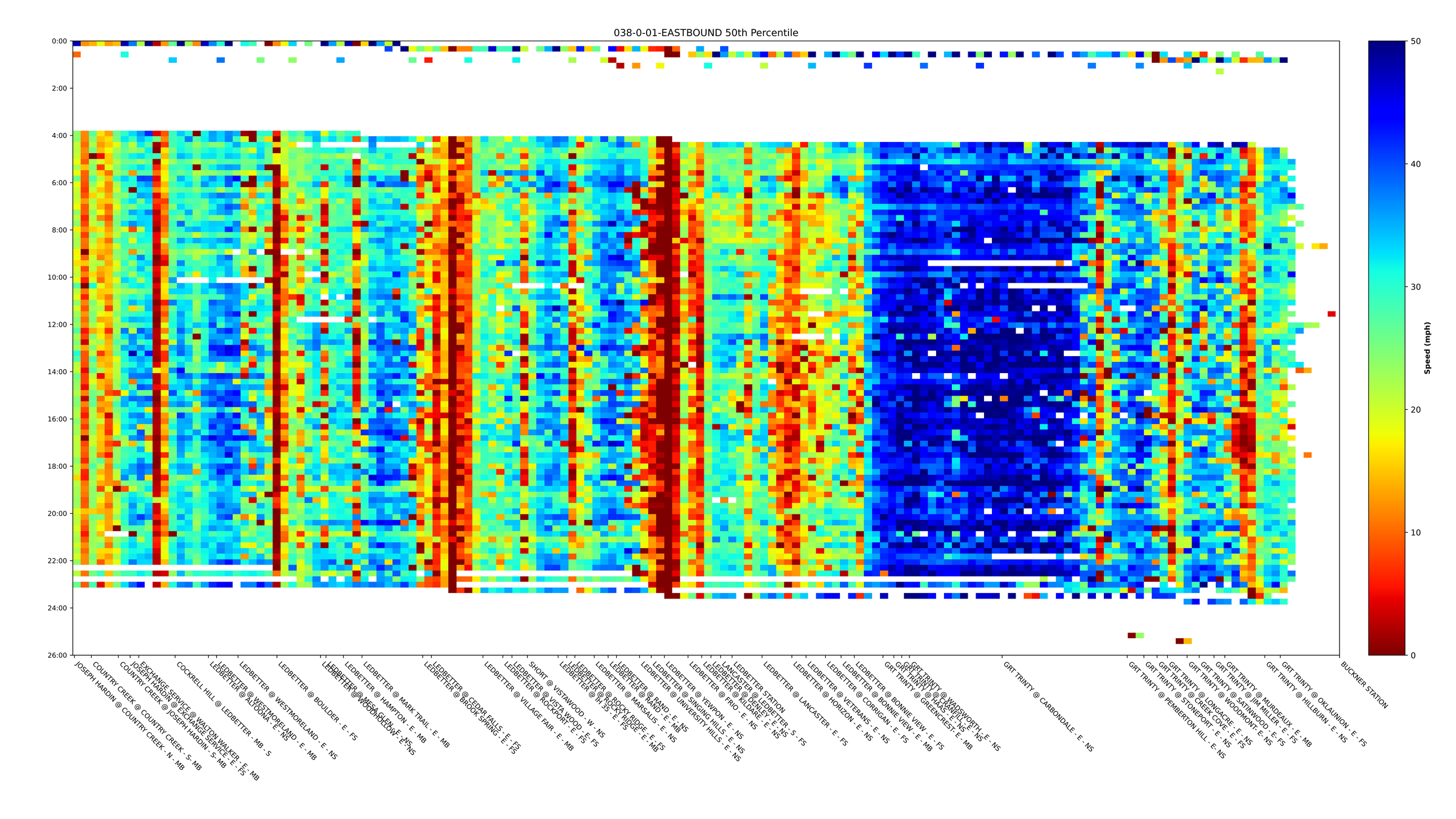

027-1-01-SOUTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
STEPPINGTON @ STONE CANYON - S - FS
STEPPINGTON @ RIVERFALL - S - MB1
RIVERFALL @ US 75 - E - MB
MEADOW @ US 75 - E - FS
MEADOW @ MANDERVILLE - E - MB
MANDERVILLE @ MEADOW - S - FS
MEADOW @ MANDERVILLE - E - NS
WALNUT HILL STATION
WALNUT HILL @ RAMBLER - E - FS
nan
PINELAND @ ARETA - E - NS
PINELAND @ GREENVILLE - E - FS
PINELAND @ HOLLY HILL - E - FS
PINELAND @ FAIR OAKS - E - MB
FAIR OAKS @ PHOENIX - S - NS
FAIR OAKS @ RIDGECREST - S - MB
RIDGECREST @ HEMLOCK - E - MB
RIDGECREST @ EASTRIDGE - E - MB1
RIDGECREST @ EASTRIDGE - E - MB3
RIDGECREST @ EASTRIDGE - E - MB4
RIDGECREST @ EASTRIDGE - E - MB5
RIDGECREST @ EASTRIDGE - E - NS
MELODY @ EASTRIDGE - W - FS
MELODY @ HEMLOCK - W - MB1
MELODY @ HEMLOCK - W - MB2
MELODY @ HEMLOCK - W - MB3
MELODY @ HEMLOCK - W - MB4
MELODY @ HEMLOCK - W - MB5
MELODY @ HEMLOCK - W - MB6
MELODY @ HEMLOCK - W - MB7
MELODY @ HEMLOCK - W - NS
MELODY @ SHADYBROOK - W - MB
PARK @ SHADY BROOK - W - FS
PARK LANE STATION
Speed (mph)
0
10
20
30
40
50

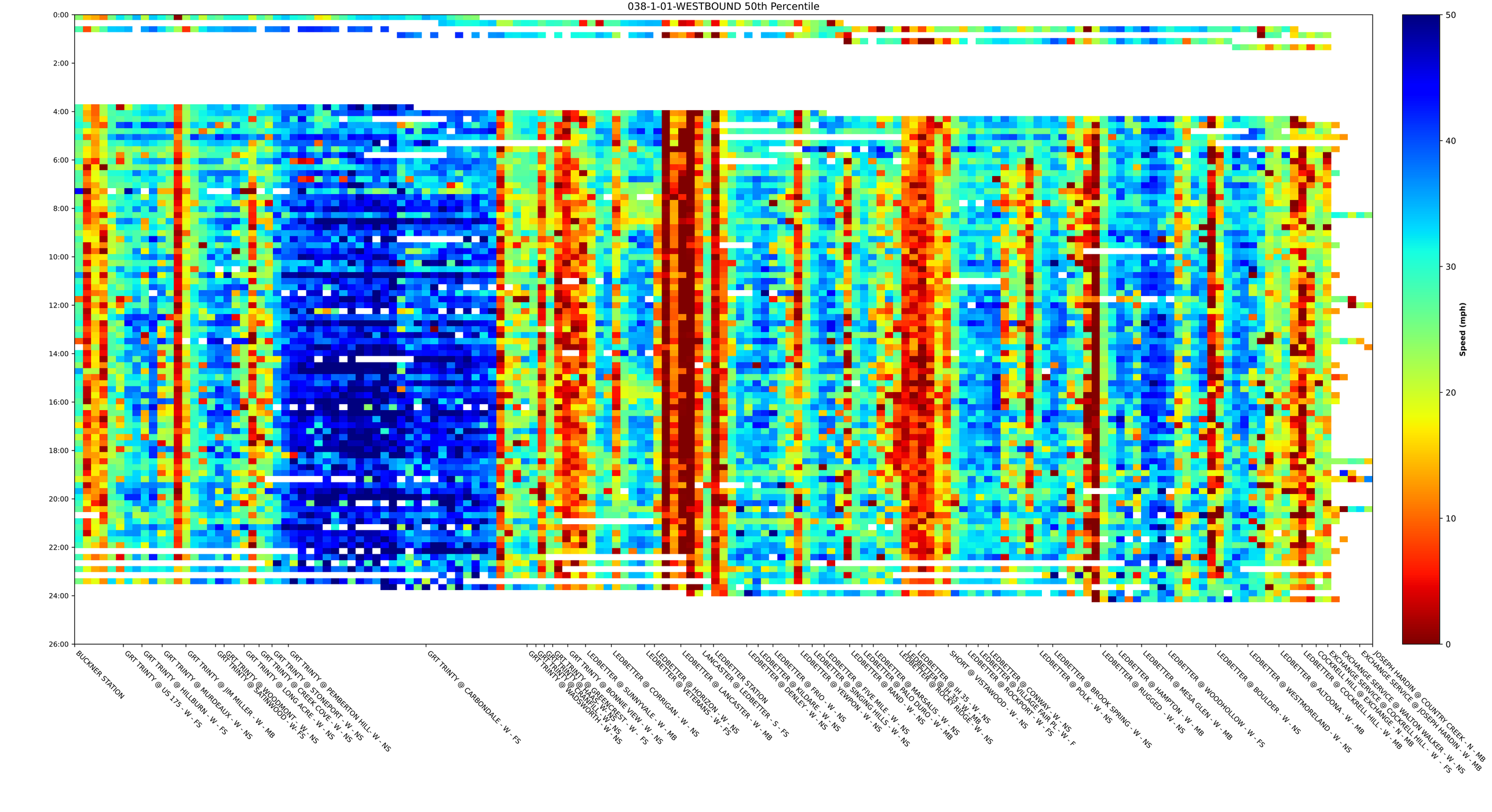

028-0-01-INBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
WALTON WALKER @ SINGLETON - N - NS
SINGLETON @ JIM - E - FS
SINGLETON @ MIKE - E - FS
SINGLETON @ LAPSLEY - E - NS
SINGLETON @ CLYMER - E - NS
BERNAL/SINGLETON TL
SINGLETON @ MCBROOM - E - NS
SINGLETON @ RISER - E - NS
SINGLETON @ HAMMERLY - E - NS
SINGLETON @ VINSON - E - NS
SINGLETON @ PEORIA - E - NS
SINGLETON @ PLUTO - E - NS
SINGLETON @ NORWICH - E - MB2
SINGLETON @ NORWICH - E - MB1
SINGLETON @ ESMALDA - E - NS
SINGLETON @ POINTER - E - NS
SINGLETON @ KINGBRIDGE - E - NS
SINGLETON @ MANILA - E - NS
SINGLETON @ FISHTRAP - E - MB
SINGLETON @ FISHTRAP - E - FS
SINGLETON @ COOMBSVILLE - E - NS
SINGLETON @ HAMPTON - E - FS
SINGLETON @ PUGET - E - NS
SINGLETON @ HARSTON - E - NS
SINGLETON @ VILBIG - E - NS
SINGLETON @ NAVARO - E - NS
SINGLETON @ EL BENITO - E - NS
SINGLETON @ BORGER - E - FS
SINGLETON @ WINNETKA - E - NS
SINGLETON @ SYLVAN - E - NS
SINGLETON @ TOPEKA - E - NS
SINGLETON @ HERBERT - E - NS
SINGLETON @ AMONETTE - E - NS
RIVERFRONT @ CONTINENTAL - N - MB
CONTINENTAL @ IH 35 - E - MB
CONTINENTAL @ HOUSTON - E - FS
LAMAR @ MUNGER - S - NS
LAMAR @ PACIFIC - S - NS
LAMAR @ ROSS - S - NS
LAMAR @ COMMERCE - S - NS
LAMAR @ WOOD - S - NS
LAMAR @ CEREMONIAL - S - NS
CONVENTION CENTER STATION
Speed (mph)
0
10
20
30
40
50


028-1-01-OUTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
CONVENTION CENTER STATION
LAMAR @ CEREMONIAL - N - NS
LAMAR @ WOOD - N - NS
LAMAR @ COMMERCE - N - NS
LAMAR @ MAIN - N - NS
ROSA PARKS PLAZA
LAMAR @ HORD - N - NS
LAMAR @ BROOM - N - NS
LAMAR @ VICTORY - W - NS
CONTINENTAL @ DRAGON - W - MB
RIVERFRONT @ CONTINENTAL - S - FS
SINGLETON @ GULDEN - W - FS
SINGLETON @ HERBERT - W - NS
SINGLETON @ BATAAN - W - NS
SINGLETON @ TOPEKA - W - NS
SINGLETON @ SYLVAN - W - NS
SINGLETON @ OBENCHAIN - W - NS
SINGLETON @ CONROE - W - NS
SINGLETON @ WINNETKA - W - NS
SINGLETON @ BORGER - W - NS
SINGLETON @ EL BENITO - W - NS
SINGLETON @ CHIHUAHUA - W - NS
SINGLETON @ VILBIG - W - NS
SINGLETON @ HARSTON - W - FS
SINGLETON @ PUGET - W - NS
SINGLETON @ HAMPTON - W - NS
SINGLETON @ HAMPTON - W - FS
SINGLETON @ FISHTRAP - W - NS
SINGLETON @ MANILA - W - MB
SINGLETON @ KINGBRIDGE- W - NS
SINGLETON @ POINTER - W - FS
SINGLETON @ WESTMORELAND - W - NS
SINGLETON @ ESMALDA - W - NS
SINGLETON @ NORWICH - W - FS
SINGLETON @ PLUTO - W - MB1
SINGLETON @ PEORIA - W - NS
SINGLETON @ WEISENBERGER - W - NS
SINGLETON @ HAMMERLY - W - NS
SINGLETON @ PALACIOS - W - NS
SINGLETON @ MCBROOM - W - NS
BERNAL/SINGLETON TL
BERNAL @ TALLYHO - S - FS
BERNAL @ WALTON WALKER - S - NS
WALTON WALKER @ JIM - N - FS
WALTON WALKER @ SINGLETON - N - NS
Speed (mph)
0
10
20
30
40
50


030-0-01-EASTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
LAKE JUNE STATION
LAKE JUNE @ DELL OAK - E - FS
LAKE JUNE @ RIDGEWOOD - E - NS
LAKE JUNE @ JIM MILLER - E - FS
LAKE JUNE @ HOUGHTON - E - FS
LAKE JUNE @ GAYLORD - E - FS
LAKE JUNE @ WHITLEY - E - FS
LAKE JUNE @ FRANWOOD - E - NS
LAKE JUNE @ HILLBURN - E - NS
LAKE JUNE @ GARDENVIEW - E - NS
LAKE JUNE @ BUCKNER - E - NS
LAKE JUNE @ CONNER - E - FS
LAKE JUNE @ PLEASANT - E - FS
LAKE JUNE @ HOLCOMB - E - NS
LAKE JUNE @ OAK HILL - E - FS
LAKE JUNE @ PRAIRIE CREEK - E - NS
LAKE JUNE @ GLENCLIFF - E - NS
LAKE JUNE @ ST AUGUSTINE - E - MB
LAKE JUNE @ MASTERS - E - MB
LAKE JUNE @ MASTERS - E - FS
LAKE JUNE @ AMITY - E - NS
LAKE JUNE @ CHEYENNE - E - NS
CHEYENNE @ BRAVURA - S - NS
CHEYENNE @ PHANTOM HILL - S - NS
CHEYENNE @ TANDEM - S - NS
CHEYENNE @ BIG THICKET - S - NS
CHEYENNE @ ELAM - S - MB
ELAM @ CHEYENNE - W - FS
Speed (mph)
0
10
20
30
40
50


030-1-01-WESTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
ELAM @ CHEYENNE - W - FS
ELAM @ PLEASANT VISTA - W - NS
MASTERS @ ELAM - N - FS
MASTERS @ HOMEPLACE - N - NS
MASTERS @ BIG THICKET - N - NS
MASTERS @ WOODLOT - N - NS
MASTERS @ BUDTIME - N - NS
MASTERS @ LAKE JUNE - N - MB
LAKE JUNE @ BARREDO - W - FS
LAKE JUNE @ ST AUGUSTINE - W - NS
LAKE JUNE @ GLENCLIFF - W - NS
LAKE JUNE @ PRAIRIE CREEK - W - NS
LAKE JUNE @ OAK HILL - W - NS
LAKE JUNE @ HOLCOMB - W - NS
LAKE JUNE @ PLEASANT - W - NS
LAKE JUNE @ BUCKNER - W - NS
LAKE JUNE @ BUCKNER - W - FS
LAKE JUNE @ PRICHARD - W - FS
LAKE JUNE @ HILLBURN - W - NS
LAKE JUNE @ FRANWOOD - W - NS
LAKE JUNE @ WHITLEY - W - NS
LAKE JUNE @ GAYLORD - W - NS
LAKE JUNE @ HOUGHTON - W - NS
LAKE JUNE @ JIM MILLER - W - NS
LAKE JUNE @ RIDGEWOOD - W - NS
LAKE JUNE @ SPRINGLAKE - W - NS
LAKE JUNE STATION
Speed (mph)
0
10
20
30
40
50


038-0-01-EASTBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
JOSEPH HARDIN @ COUNTRY CREEK - N - MB
COUNTRY CREEK @ JOSEPH HARDIN - S - MB
EXCHANGE SERVICE @ WALTON WALKER - E - MB
JOSEPH HARDIN @ EXCHANGE SERVICE - E - FS
COCKRELL HILL @ LEDBETTER - MB - S
LEDBETTER @ ALTOONA - E - NS
LEDBETTER @ WESTMORELAND - E - MB
LEDBETTER @ WESTMORELAND - E - NS
LEDBETTER @ BOULDER - E - FS
LEDBETTER @ WOODHOLLOW - E - NS
LEDBETTER @ MESA GLEN - E - NS
LEDBETTER @ HAMPTON - E - MB
LEDBETTER @ MARK TRAIL - E - MB
LEDBETTER @ BROOK SPRING - E - FS
LEDBETTER @ CEDAR FALLS - E - FS
LEDBETTER @ VILLAGE FAIR - E - MB
SHORT @ VISTAWOOD - W - NS
LEDBETTER @ ROCKPORT - E - FS
LEDBETTER @ VISTA WOOD - E - FS
LEDBETTER @ IH 35 - E - FS
LEDBETTER @ ROCKY RIDGE - E - MB
LEDBETTER @ ROCKY RIDGE - E - FS
LEDBETTER @ MARSALIS - E - NS
LEDBETTER @ RAND - E - FS
LEDBETTER @ RAND - E - NS
LEDBETTER @ UNIVERSITY HILLS - E - NS
LEDBETTER @ SINGING HILLS - E - NS
LEDBETTER @ YEWPON - E - NS
LEDBETTER @ FRIO - E - NS
LEDBETTER @ KILDARE - E - NS
LEDBETTER @ DENLEY - E - NS
LANCASTER @ LEDBETTER - S - FS
LEDBETTER STATION
LEDBETTER @ LANCASTER - E - FS
LEDBETTER @ HORIZON - E - NS
LEDBETTER @ VETERANS - E - NS
LEDBETTER @ CORRIGAN - E - FS
LEDBETTER @ BONNIE VIEW - E - FS
GRT TRINITY @ BONNIE VIEW - E - MB
GRT TRINITY @ HAAS - E - NS
GRT TRINITY @ GREENCREST - E - MB
GRT TRINITY @ WADSWORTH - E - NS
GRT TRINITY @ DENLEY - E - NS
GRT TRINITY @ CARBONDALE - E - NS
GRT TRINITY @ PEMBERTON HILL - E - NS
GRT TRINITY @ STONEPORT - E - NS
GRT TRINITY @ CREEK COVE - E - FS
GRT TRINITY @ LONGACRE - E - NS
GRT TRINITY @ WOODMONT - E - NS
GRT TRINITY @ SATINWOOD - E - FS
GRT TRINITY @ JIM MILLER - E - MB
GRT TRINITY @ MURDEAUX - E - FS
GRT TRINITY @ HILLBURN - E - NS
GRT TRINITY @ OKLAUNION - E - FS
BUCKNER STATION


038-1-01-WESTBOUND 50th Percentile
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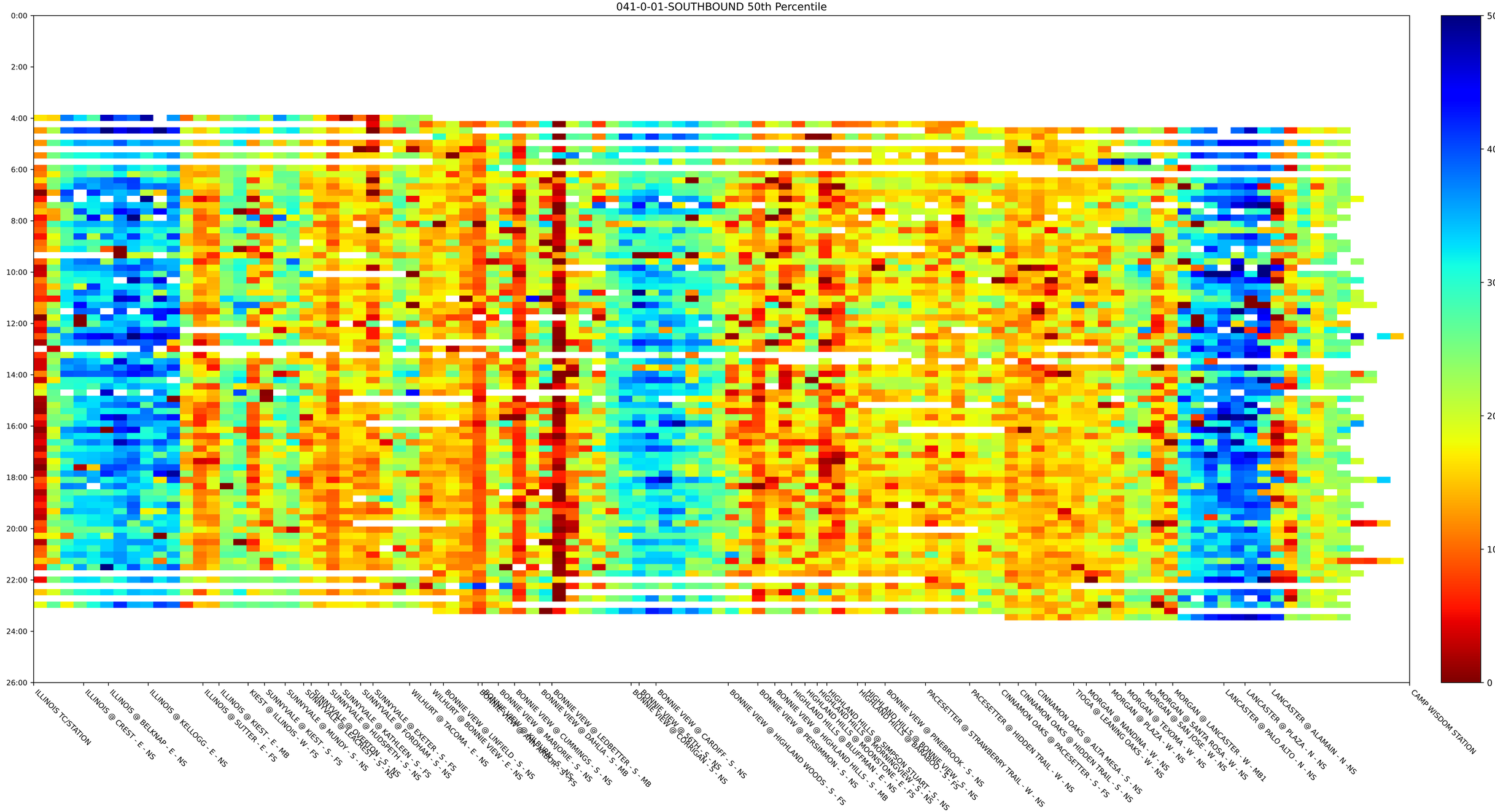
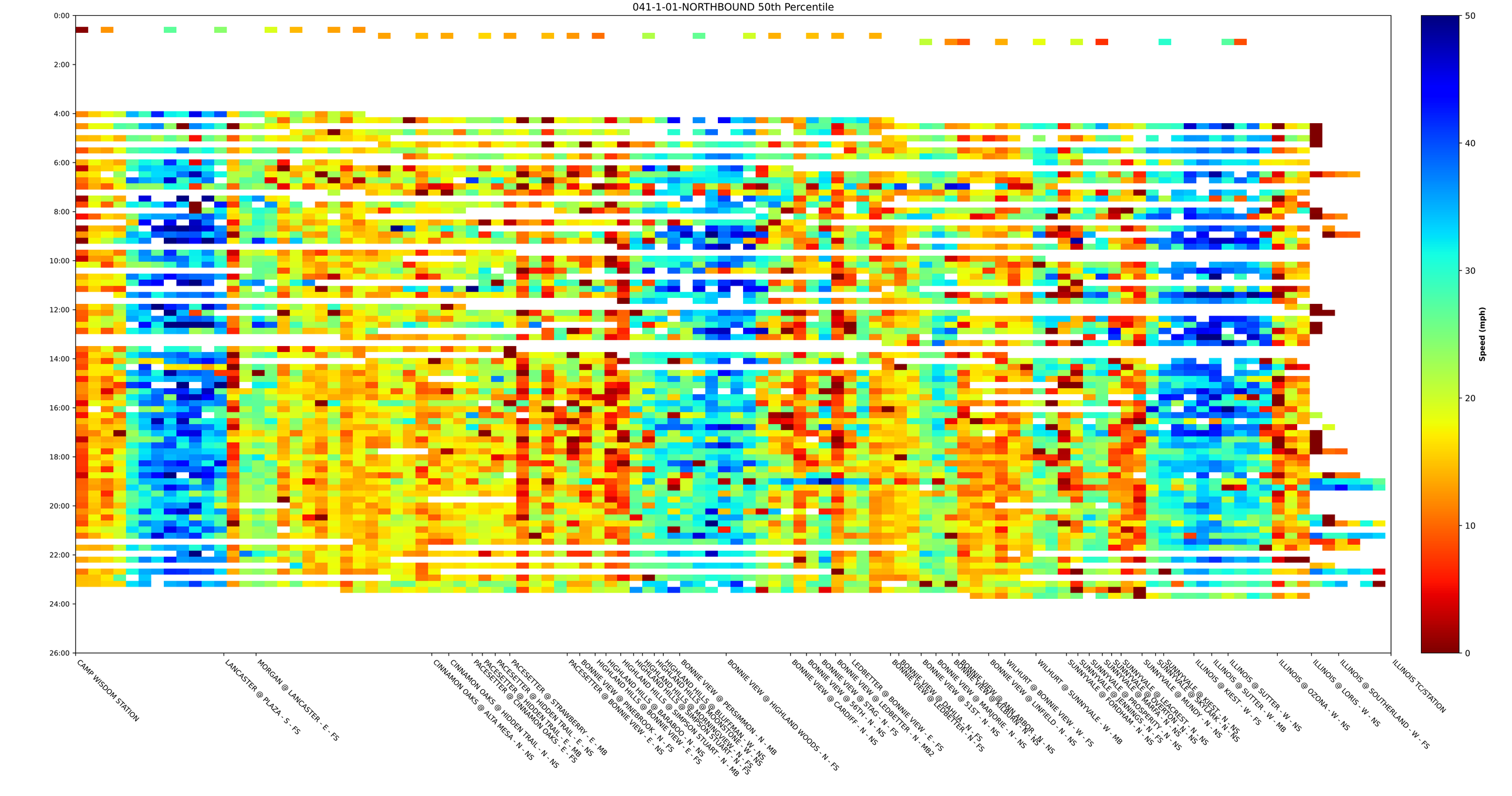
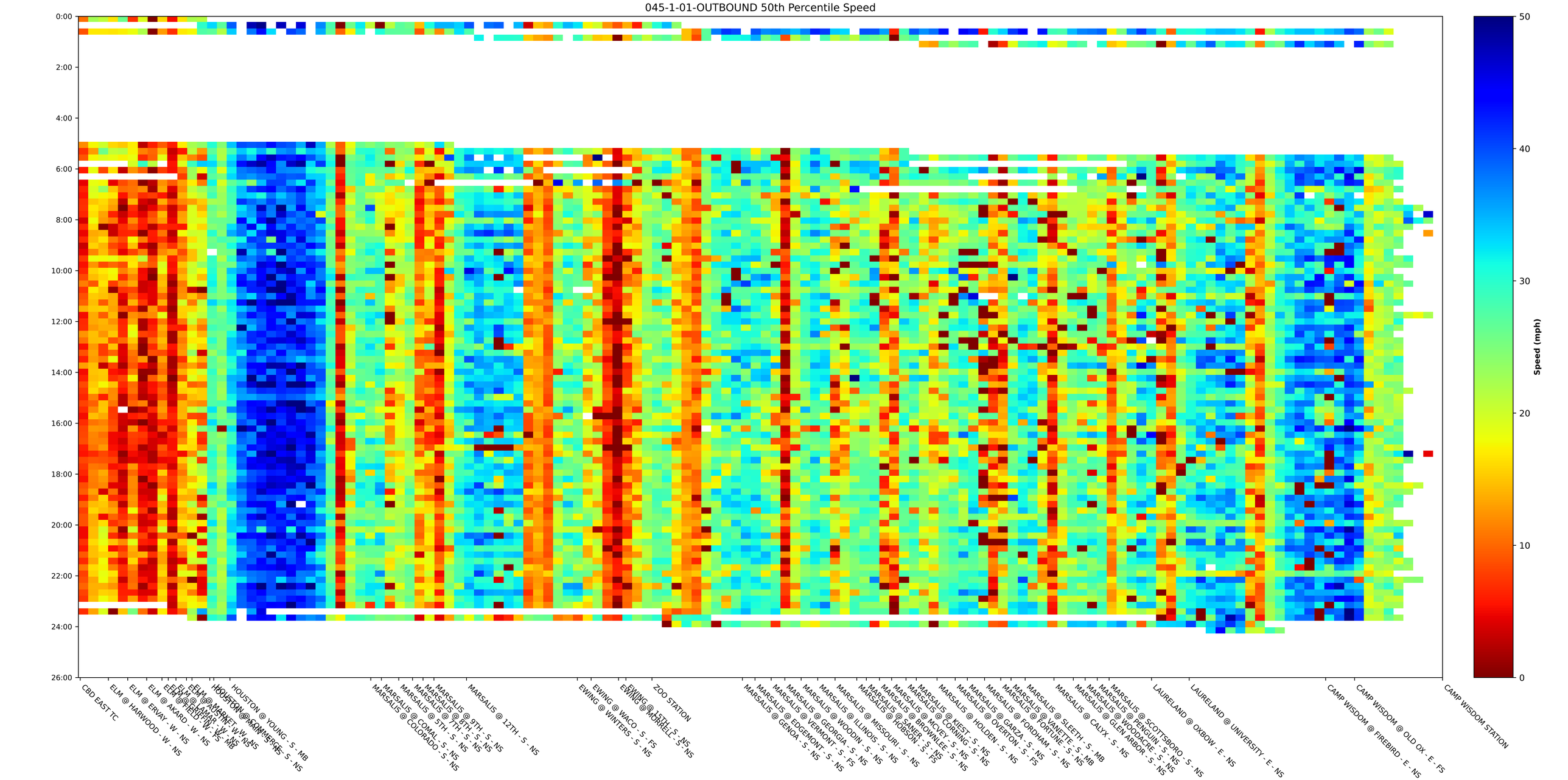
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
BUCKNER STATION
GRT TRINITY @ US 175 - W - FS
GRT TRINITY @ HILLBURN - W - FS
GRT TRINITY @ MURDEAUX - W - NS
GRT TRINITY @ JIM MILLER - W - MB
GRT TRINITY @ SATINWOOD - W - FS
GRT TRINITY @ WOODMONT - W - NS
GRT TRINITY @ LONG ACRE - W - NS
GRT TRINITY @ CREEK COVE - W - NS
GRT TRINITY @ STONEPORT - W - NS
GRT TRINITY @ PEMBERTON HILL - W - NS
GRT TRINITY @ CARBONDALE - W - FS
GRT TRINITY @ WADSWORTH - W - NS
GRT TRINITY @ CANAL - W - NS
GRT TRINITY @ GREENCREST - W - FS
GRT TRINITY @ BONNIE VIEW - W - NS
LEDBETTER @ SUNNYVALE - W - MB
LEDBETTER @ CORRIGAN - W - NS
LEDBETTER @ VETERANS - W - FS
LEDBETTER @ HORIZON - W - NS
LEDBETTER @ LANCASTER - W - MB
LEDBETTER STATION
LANCASTER @ LEDBETTER - S - FS
LEDBETTER @ DENLEY - W - NS
LEDBETTER @ KILDARE - W - NS
LEDBETTER @ FRIO - W - NS
LEDBETTER @ YEWPON - W - NS
LEDBETTER @ SINGING HILLS - W - NS
LEDBETTER @ FIVE MILE - W - NS
LEDBETTER @ RAND - W - NS
LEDBETTER @ PALO DURO - W - MB
LEDBETTER @ MARSALIS - W - NS
LEDBETTER @ IH 35 - W - NS
LEDBETTER @ ROCK RIDGE - W - NS
SHORT @ VISTAWOOD - W - NS
LEDBETTER @ ROCKPORT - W - FS
LEDBETTER @ VILLAGE FAIR PL - W - F
LEDBETTER @ CONWAY - W - NS
LEDBETTER @ POLK - W - NS
LEDBETTER @ BROOK SPRING - W - NS
LEDBETTER @ RUGGED - W - NS
LEDBETTER @ HAMPTON - W - MB
LEDBETTER @ MESA GLEN - W - MB
LEDBETTER @ WOODHOLLOW - W - FS
LEDBETTER @ BOULDER - W - NS
LEDBETTER @ WESTMORELAND - W - NS
LEDBETTER @ ALTOONA - W - MB
COCKRELL HILL @ COCKRELL HILL - W - MB
EXCHANGE SERVICE @ EXCHANGE - N - MB
EXCHANGE SERVICE @ WALTON WALKER - W - NS
EXCHANGE SERVICE @ JOSEPH HARDIN - W - MB
JOSEPH HARDIN @ COUNTRY CREEK - N - MB


041-0-01-SOUTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
ILLINOIS TC/STATION
ILLINOIS @ CREST - E - NS
ILLINOIS @ BELKNAP - E - NS
ILLINOIS @ KELLOGG - E - NS
ILLINOIS @ SUTTER - E - FS
ILLINOIS @ KIEST - E - MB
KIEST @ ILLINOIS - W - FS
SUNNYVALE @ KIEST - S - FS
SUNNYVALE @ MUNDY - S - NS
SUNNYVALE @ LACREST - S - NS
SUNNYVALE @ OVERTON - S - NS
SUNNYVALE @ HUDSPETH - S - FS
SUNNYVALE @ KATHLEEN - S - FS
SUNNYVALE @ FORDHAM - S - NS
SUNNYVALE @ EXETER - S - FS
WILHURT @ TACOMA - E - NS
WILHURT @ BONNIE VIEW - E - NS
BONNIE VIEW @ LINFIELD - S - NS
BONNIE VIEW @ ANNAPOLIS - S - FS
BONNIE VIEW @ MARJORIE - S - NS
BONNIE VIEW @ CUMMINGS - S - NS
BONNIE VIEW @ DAHLIA - S - MB
BONNIE VIEW @ LEDBETTER - S - MB
BONNIE VIEW @ CORRIGAN - S - NS
BONNIE VIEW @ 56TH - S - NS
BONNIE VIEW @ CARDIFF - S - NS
BONNIE VIEW @ HIGHLAND WOODS - S - FS
BONNIE VIEW @ PERSIMMON - S - NS
HIGHLAND HILLS @ HIGHLAND HILLS - S - MB
HIGHLAND HILLS @ BLUFFMAN - E - NS
HIGHLAND HILLS @ MOONSTONE - E - FS
HIGHLAND HILLS @ MOONGLOW - S - NS
HIGHLAND HILLS @ SIMPSON STUART - S - NS
HIGHLAND HILLS @ BARADO - S - FS
BONNIE VIEW @ PINEBROOK - S - NS
PACESETTER @ STRAWBERRY TRAIL - W - NS
CINNAMON OAKS @ HIDDEN TRAIL - W - NS
CINNAMON OAKS @ PACESETTER - S - FS
CINNAMON OAKS @ ALTA MESA - S - NS
TIOGA @ LEANING OAKS - W - NS
MORGAN @ NANDINA - W - NS
MORGAN @ PLAZA - W - NS
MORGAN @ TEXOMA - W - NS
MORGAN @ SAN JOSE - W - NS
MORGAN @ SANTA ROSA - W - NS
MORGAN @ LANCASTER - W - MB1
LANCASTER @ PALO ALTO - N - NS
LANCASTER @ PLAZA - N - NS
LANCASTER @ ALAMAIN - N - NS
CAMP WISDOM STATION


041-1-01-NORTHBOUND 50th Percentile
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
24:00
26:00
Speed (mph)
0
10
20
30
40
50
CAMP WISDOM STATION
LANCASTER @ PLAZA - S - FS
MORGAN @ LANCASTER - E - FS
CINNAMON OAKS @ ALTA MESA - N - NS
CINNAMON OAKS @ HIDDEN TRAIL - N - NS
PACESETTER @ HIDDEN TRAIL - E - FS
PACESETTER @ HIDDEN TRAIL - E - MB
PACESETTER @ STRAWBERRY - E - MB
PACESETTER @ BONNIE VIEW - E - NS
BONNIE VIEW @ PINEBROOK - N - FS
HIGHLAND HILLS @ BONNIE VIEW - E - FS
HIGHLAND HILLS @ BARABOO - N - NS
HIGHLAND HILLS @ SIMPSON STUART - N - MB
HIGHLAND HILLS @ MORNINGVIEW - E - NS
HIGHLAND HILLS @ MOONSTONE - W - NS
HIGHLAND HILLS @ BLUEFEATHER - W - FS
BONNIE VIEW @ PERSIMMON - N - MB
BONNIE VIEW @ HIGHLAND WOODS - N - FS
BONNIE VIEW @ CARDIFF - N - NS
BONNIE VIEW @ 56TH - N - FS
BONNIE VIEW @ STAG - N - FS
LEDBETTER @ LEDBETTER - N - NS
LEDBETTER @ BONNIE VIEW - E - FS
BONNIE VIEW @ LEDBETTER - N - MB2
BONNIE VIEW @ DAHLIA - N - FS
BONNIE VIEW @ 51ST - N - NS
BONNIE VIEW @ MARJORIE - N - NS
BONNIE VIEW @ KIRKDUN - N - NS
BONNIE VIEW @ ANN ARBOR - N - NS
BONNIE VIEW @ LINFIELD - N - NS
WILHURT @ BONNIE VIEW - W - FS
WILHURT @ SUNNYVALE - W - MB
SUNNYVALE @ FORDHAM - N - NS
SUNNYVALE @ JENNINGS - N - FS
SUNNYVALE @ PROSPECT - N - NS
SUNNYVALE @ MARFA - N - NS
SUNNYVALE @ OVERTON - N - NS
SUNNYVALE @ LEACREST - N - NS
SUNNYVALE @ MUNDY - N - NS
SUNNYVALE @ SKYLARK - N - NS
ILLINOIS @ KIEST - W - FS
ILLINOIS @ SUTTER - W - MB
ILLINOIS @ SUTTER - W - NS
ILLINOIS @ OZONA - W - NS
ILLINOIS @ LORIS - W - NS
ILLINOIS @ SOUTHERLAND - W - FS
ILLINOIS TC/STATION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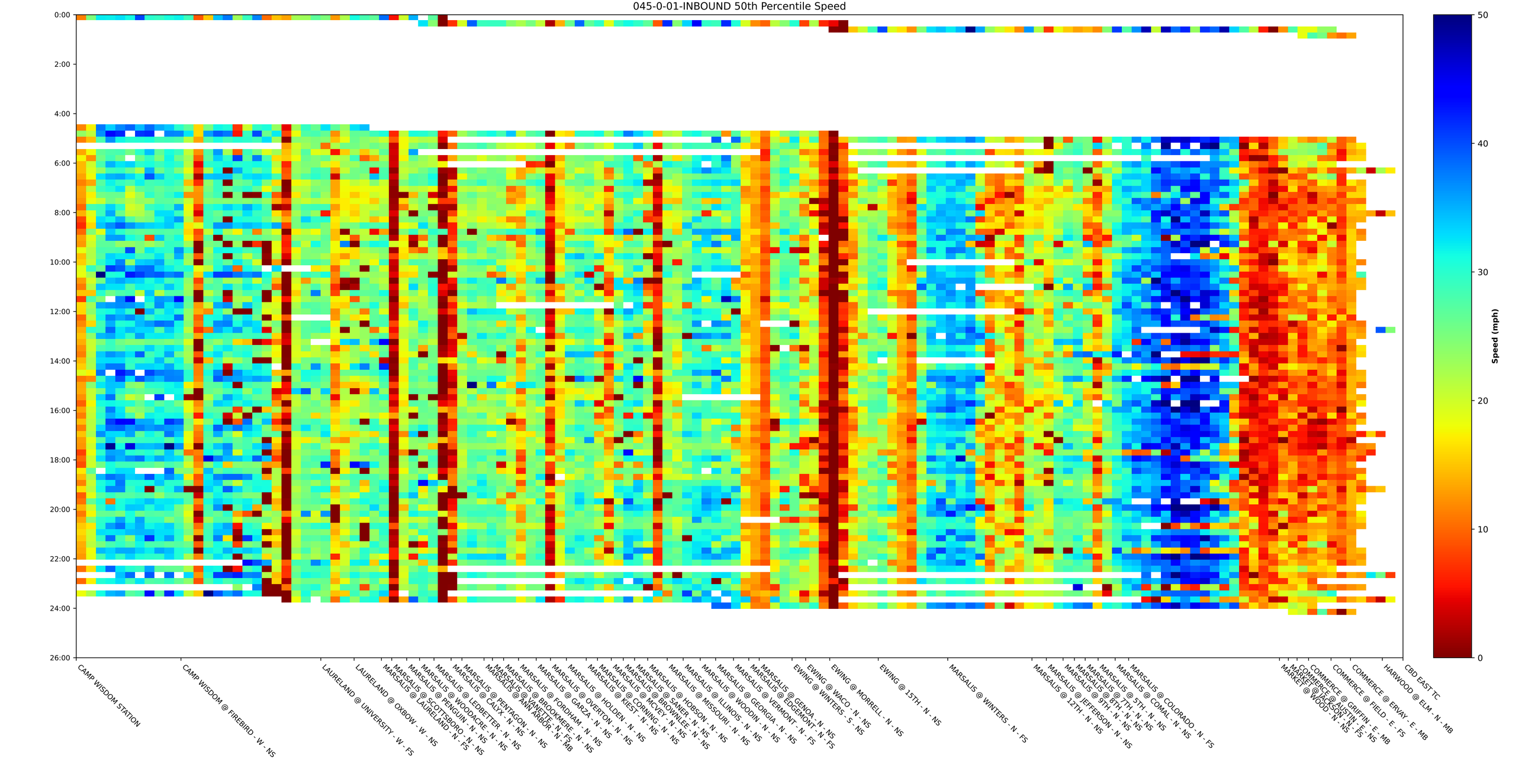
18:00
20:00
22:00
24:00
26:00
CBD EAST TC
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - NS
ELM @ AKARD - W - MB
ELM @ MARKET - W - NS
HOUSTON @ COMMERCE - S - NS
HOUSTON @ YOUNG - S - MB
MARSALIS @ COLORADO - S - NS
MARSALIS @ COMAL - S - NS
MARSALIS @ 5TH - S - NS
MARSALIS @ 6TH - S - NS
MARSALIS @ 9TH - S - NS
MARSALIS @ 12TH - S - NS
EWING @ WINTERS - S - NS
EWING @ WACO - S - FS
EWING @ MORRELL - S - NS
ZOO STATION
MARSALIS @ GENOA - S - NS
MARSALIS @ EDGEMONT - S - NS
MARSALIS @ VERMONT - S - FS
MARSALIS @ GEORGIA - S - NS
MARSALIS @ WOODIN - S - NS
MARSALIS @ ILLINOIS - S - NS
MARSALIS @ MISSOURI - S - NS
MARSALIS @ HOBSON - S - NS
MARSALIS @ SAMER - S - FS
MARSALIS @ BROWNLEE - S - NS
MARSALIS @ MCVEY - S - NS
MARSALIS @ CORNING - S - NS
MARSALIS @ KIEST - S - NS
MARSALIS @ HOLDEN - S - NS
MARSALIS @ OVERTON - S - NS
MARSALIS @ GARZA - S - NS
MARSALIS @ FORDHAM - S - NS
MARSALIS @ VALETTE - S - NS
MARSALIS @ FORTUNE - S - NS
MARSALIS @ SLEETH - S - MB
MARSALIS @ CALYX - S - NS
MARSALIS @ PENGUIN - S - NS
MARSALIS @ WOODACRE - S - NS
MARSALIS @ GLEN ARBOR - S - NS
MARSALIS @ SCOTTSBORO - S - NS
LAURELAND @ OXBOW - E - NS
LAURELAND @ UNIVERSITY - E - NS
CAMP WISDOM @ FIREBIRD - E - NS
CAMP WISDOM @ OLD OX - E - FS
CAMP WISDOM STATION
Speed (mph)
0
10
20
30
40
50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24:00
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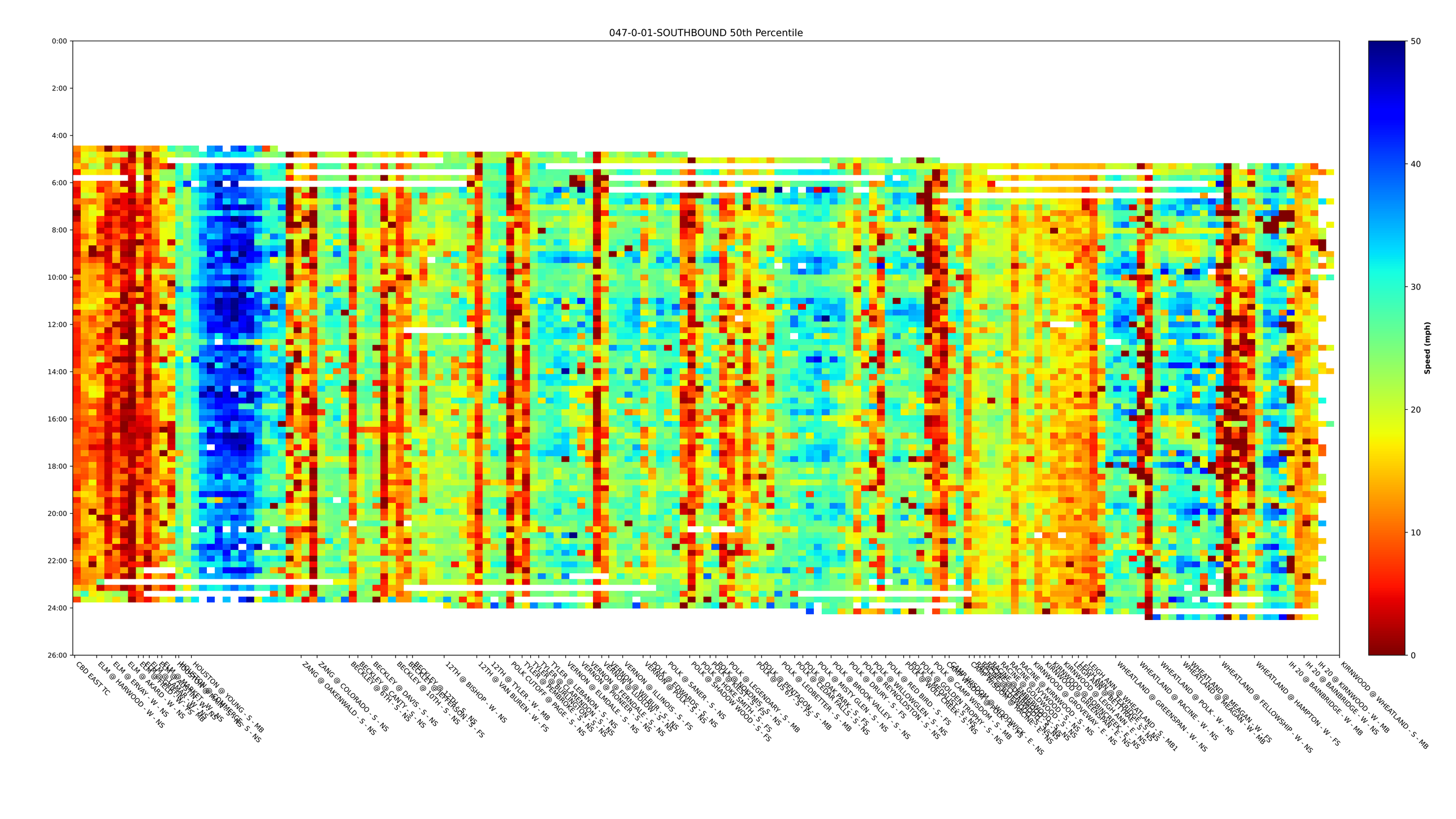
CAMP WISDOM STATION
CAMP WISDOM @ FIREBIRD - W - NS
LAURELAND @ UNIVERSITY - W - FS
LAURELAND @ OXBOW - W - NS
MARSALIS @ LAURELAND - N - FS
MARSALIS @ SCOTTSBORO - N - NS
MARSALIS @ PENGUIN - N - NS
MARSALIS @ WOODACRE - N - NS
MARSALIS @ LEDBETTER - N - NS
MARSALIS @ CALYX - N - NS
MARSALIS @ PENTAGON - N - NS
MARSALIS @ ANN ARBOR - N - MB
MARSALIS @ JANETTE - N - FS
MARSALIS @ BROOKMERE - N - NS
MARSALIS @ FORDHAM - N - NS
MARSALIS @ GARZA - N - NS
MARSALIS @ OVERTON - N - NS
MARSALIS @ HOLDEN - N - NS
MARSALIS @ KIEST - N - NS
MARSALIS @ CORNING - N - NS
MARSALIS @ MCVEY - N - NS
MARSALIS @ BROWNLEE - N - NS
MARSALIS @ SAMER - N - NS
MARSALIS @ HOBSON - N - NS
MARSALIS @ MISSOURI - N - NS
MARSALIS @ ILLINOIS - N - NS
MARSALIS @ WOODIN - N - NS
MARSALIS @ GEORGIA - N - NS
MARSALIS @ VERMONT - N - FS
MARSALIS @ EDGEMONT - N - FS
MARSALIS @ GENOA - N - NS
EWING @ WINTERS - S - NS
EWING @ WACO - N - NS
EWING @ MORRELL - N - NS
EWING @ 15TH - N - NS
MARSALIS @ WINTERS - N - FS
MARSALIS @ 12TH - N - NS
MARSALIS @ JEFFERSON - N - NS
MARSALIS @ 9TH - N - NS
MARSALIS @ 8TH - N - NS
MARSALIS @ 7TH - N - NS
MARSALIS @ 5TH - N - NS
MARSALIS @ COMAL - N - NS
MARSALIS @ COLORADO - N - FS
MARKET @ WOOD - N - NS
MARKET @ AUSTIN - E - FS
COMMERCE @ AUSTIN - E - NS
COMMERCE @ GRIFFIN - E - MB
COMMERCE @ FIELD - E - FS
COMMERCE @ ERVAY - E - MB
HARWOOD @ ELM - N - MB
CBD EAST TC
Speed (mph)
0
10
20
30
40
50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Speed (mph)
0
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20
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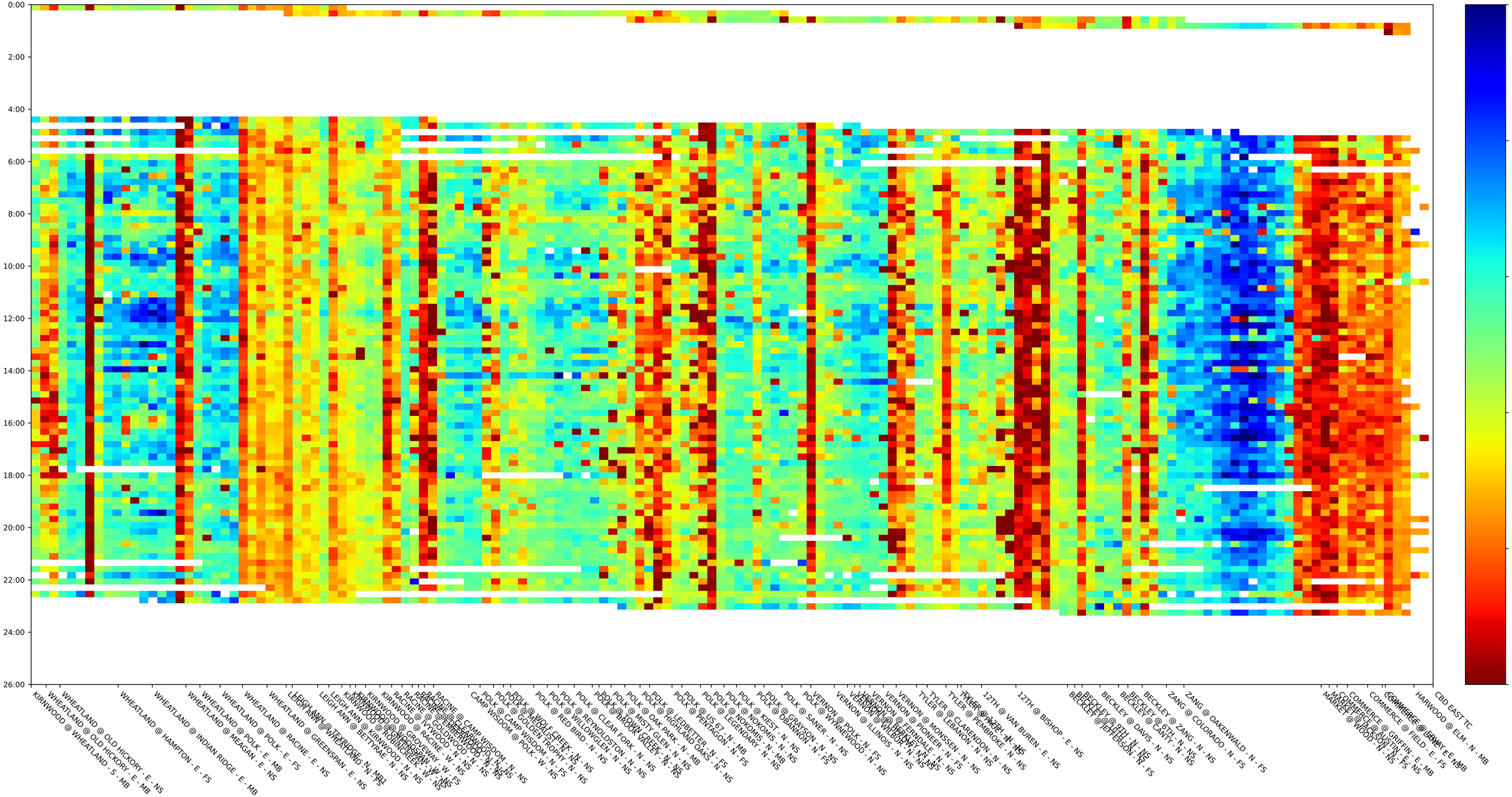
40
50
CBD EAST TC
ELM @ HARWOOD - W - NS
ELM @ ERVAY - W - NS
ELM @ AKARD - W - NS
ELM @ FIELD - W - NS
ELM @ AKARD - W - MB
ELM @ MARKET - W - NS
HOUSTON @ MAIN - S - NS
HOUSTON @ YOUNG - S - MB
ZANG @ OAKENWALD - S - NS
ZANG @ COLORADO - S - NS
BECKLEY @ 8TH - S - NS
BECKLEY @ CANTY - S - NS
BECKLEY @ DAVIS - S - NS
BECKLEY @ 10TH - S - NS
BECKLEY @ JEFFERSON - S - NS
12TH @ BISHOP - W - NS
12TH @ VAN BUREN - W - FS
12TH @ TYLER - W - MB
POLK CUTOFF @ PAGE - S - NS
TYLER @ CLARENDON - S - NS
TYLER @ LEBANON - S - NS
TYLER @ TEMBROKE - S - NS
VERNON @ ELMDALE - S - NS
VERNON @ PIONEER - S - NS
VERNON @ FERNDALE - S - NS
VERNON @ WILBUR - S - NS
VERNON @ ILLINOIS - S - NS
POLK @ EDWARDS - S - FS
POLK @ SANER - S - NS
POLK @ SHADOW WOOD - S - FS
POLK @ HOKE SMITH - S - NS
POLK @ NOKOMIS - S - FS
POLK @ LEGENDARY - S - MB
POLK @ PENTAGON - S - NS
POLK @ US 67 - S - FS
POLK @ LEDBETTER - S - MB
POLK @ CEDAR PARK - S - MB
POLK @ OAK PARK - S - FS
POLK @ MISTY GLEN - S - NS
POLK @ BROOK VALLEY - S - NS
POLK @ DRURY - S - FS
POLK @ REYNOLDSTON - S - NS
POLK @ WILLOWGLEN - S - NS
POLK @ RED BIRD - S - FS
POLK @ WOLF CREEK - S - NS
POLK @ GOLDEN TROPHY - S - NS
POLK @ CAMP WISDOM - S - NS
CAMP WISDOM @ POLK - W - NS
CAMP WISDOM @ WOODWICK - S - MB
RACINE @ WOODWICK - E - NS
RACINE @ WISDOM - E - NS
RACINE @ GOLDWOOD - E - NS
RACINE @ IVYWOOD - E - NS
KIRNWOOD @ IVYWOOD - S - NS
KIRNWOOD @ GROVEWAY - E - NS
KIRNWOOD @ ROBINCREEK - E - NS
KIRNWOOD @ LEIGH ANN - E - NS
LEIGH ANN @ BETHPAGE - S - NS
WHEATLAND @ LEIGH ANN - E - NS
WHEATLAND @ GREENSPAN - E - NS
WHEATLAND @ GREENSPAN - W - NS
WHEATLAND @ RACINE - W - NS
WHEATLAND @ POLK - W - NS
WHEATLAND @ MEAGAN - E - NS
WHEATLAND @ MEAGAN - W - MB
WHEATLAND @ FELLOWSHIP - W - NS
WHEATLAND @ HAMPTON - W - FS
IH 20 @ BAINBRIDGE - W - MB
IH 20 @ BAINBRIDGE - W - NS
IH 20 @ KIRNWOOD - W - MB
KIRNWOOD @ WHEATLAND - S - MB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KIRNWOOD @ WHEATLAND - S - MB
WHEATLAND @ OLD HICKORY - E - MB
WHEATLAND @ HAMPTON - E - FS
WHEATLAND @ INDIAN RIDGE - E - MB
WHEATLAND @ MEAGAN - E - NS
WHEATLAND @ POLK - E - MB
WHEATLAND @ RACINE - E - FS
LEIGH ANN @ GREENSPAN - E - NS
LEIGH ANN @ TEXRIDGE - N - MB1
LEIGH ANN @ WHEATLAND - N - FS
KIRNWOOD @ BETTYRAE - N - NS
KIRNWOOD @ ROBINCREEK - N - NS
KIRNWOOD @ GROVEWAY - N - NS
RACINE @ VYNWOOD - N - NS
RACINE @ GOLDENWOOD - N - NS
RACINE @ CAMP WISDOM - N - NS
CAMP WISDOM @ POLK - W - NS
POLK @ CAMP WISDOM - N - FS
POLK @ WOLF CREEK - N - NS
POLK @ GOLDEN TROPHY - N - NS
POLK @ RED BIRD - N - NS
POLK @ WILLOWGLEN - N - NS
POLK @ REYNOLDSTON - N - NS
POLK @ CLEAR FORK - N - NS
POLK @ BROOK VALLEY - N - NS
POLK @ MISTY GLEN - N - NS
POLK @ OAK PARK - N - NS
POLK @ HIGHLAND OAKS - N - NS
POLK @ LEDBETTER - N - MB
POLK @ US 67 - N - FS
POLK @ PENTAGON - N - FS
POLK @ LEGENDARY - N - MB
POLK @ NOKOMIS - N - NS
POLK @ KIEST - N - NS
POLK @ OGAINON - N - NS
POLK @ GRAYSON - N - NS
POLK @ SANER - N - NS
POLK @ WYNNEWOOD - N - NS
VERNON @ POLK - N - NS
VERNON @ ILLINOIS - N - NS
VERNON @ WILBURN - N - NS
VERNON @ FERNDALE - N - NS
VERNON @ PIONEER - N - NS
VERNON @ MONSSEN - N - NS
TYLER @ LEBANON - N - NS
TYLER @ CLARENDON - N - NS
TYLER @ PEMBROKE - N - NS
TYLER @ 8TH - N - NS
12TH @ VAN BUREN - E - NS
12TH @ BISHOP - E - NS
BECKLEY @ 8TH - E - NS
BECKLEY @ 8TH - N - NS
BECKLEY @ DAVIS - N - NS
JEFFERSON - N - FS
BECKLEY @ 6TH - N - NS
BECKLEY @ CANTY - N - NS
BECKLEY @ ZANG - N - NS
ZANG @ COLORADO - N - FS
ZANG @ OAKENWALD - N - FS
MARKET @ WOOD - N - NS
COMMERCE @ JACKSON - E - NS
COMMERCE @ GRIFFIN - E - MB
COMMERCE @ FIELD - E - FS
COMMERCE @ ELM - E - NS
HARWOOD @ ELM - N - MB
CBD EAST TC
Speed (mph)
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10
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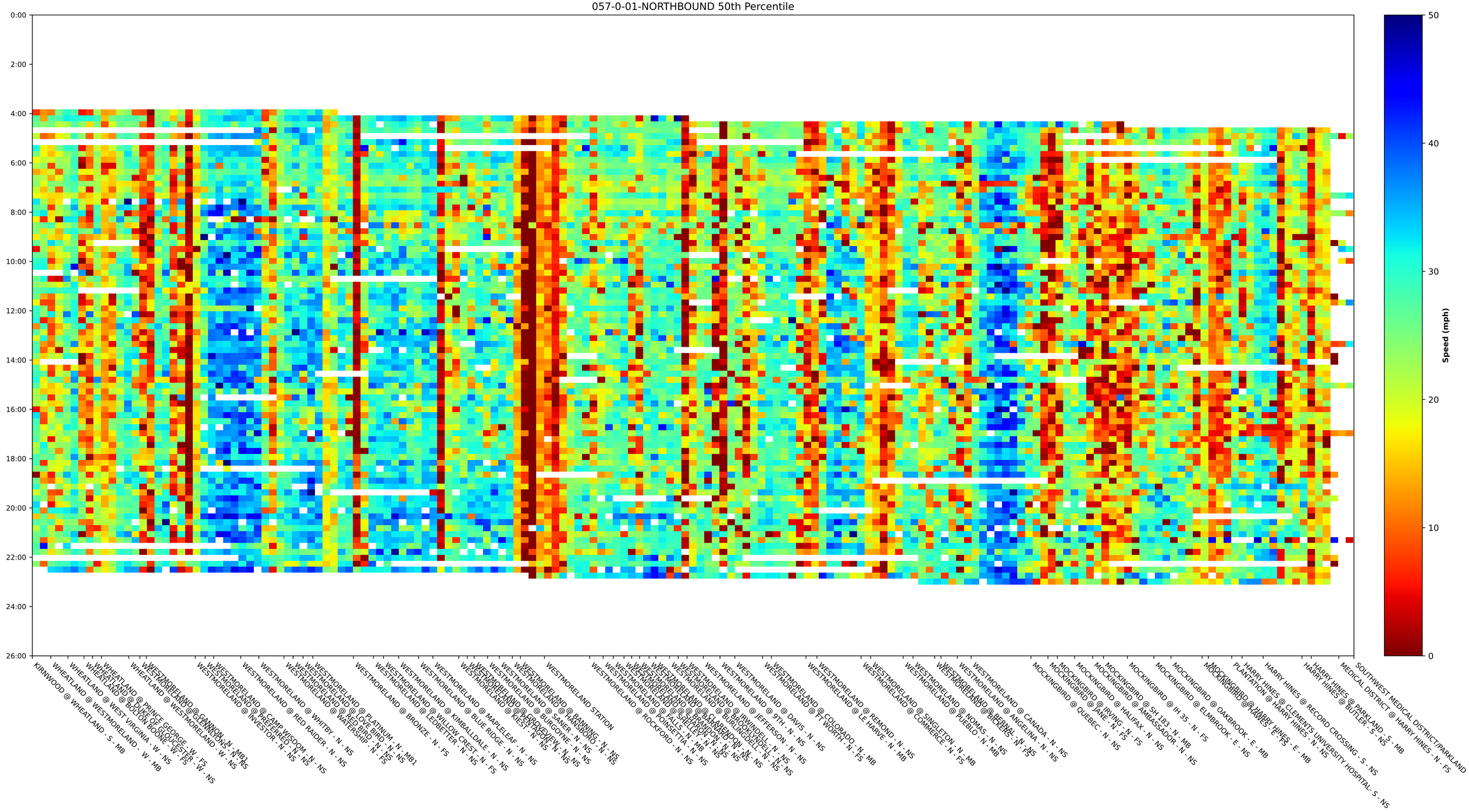
40
50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Speed (mph)
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50
KIRNWOOD @ WHEATLAND - S - MB
WHEATLAND @ WESTMORELAND - W - MB
WHEATLAND @ WEST VIRGINIA - W - NS
WHEATLAND @ BOLTON BOONE - W - FS
WESTMORELAND @ PRINCE GEORGE - W - FS
WESTMORELAND @ GLOUCESTER - W - FS
WESTMORELAND @ CANNON - N - MB1
WESTMORELAND @ LENNOX - N - NS
WESTMORELAND - W - NS
WESTMORELAND @ INVESTOR - N - NS
WESTMORELAND @ CAMP WISDOM - N - NS
WESTMORELAND @ RED RAIDER - N - NS
WESTMORELAND @ WHITBY - N - NS
WESTMORELAND @ PLATINUM - N - MB1
WESTMORELAND @ LOVEBIRD - N - NS
WESTMORELAND @ WATERSHIP - N - NS
WESTMORELAND @ BRONZE - N - FS
WESTMORELAND @ LEDBETTER - N - NS
WESTMORELAND @ WILLOW CREST - N - FS
WESTMORELAND @ KIMBALLDALE - N - NS
WESTMORELAND @ BLUE RIDGE - N - NS
WESTMORELAND @ MAPLELEAF - N - NS
WESTMORELAND @ KIESTWOOD - N - NS
WESTMORELAND @ GROVEVIEW - N - NS
WESTMORELAND @ BURGOYNE - N - NS
WESTMORELAND @ SANER - N - NS
WESTMORELAND @ RANNING - N - NS
WESTMORELAND @ HARSFORD - N - NS
WESTMORELAND STATION
WESTMORELAND @ ROCKFORD - N - NS
WESTMORELAND @ POINSETTIA - N - MB
WESTMORELAND @ FALLSVIEW - N - NS
WESTMORELAND @ SHERATON - N - NS
WESTMORELAND @ FLAMEWOOD - N - NS
WESTMORELAND @ BARKDALE - N - NS
WESTMORELAND @ BURLINGDELL - N - NS
WESTMORELAND @ IRVINDELL - N - NS
WESTMORELAND @ BROOKVILLE - N - NS
WESTMORELAND @ JEFFERSON - N - NS
WESTMORELAND @ 9TH - N - NS
WESTMORELAND @ DAVIS - N - NS
WESTMORELAND @ COLORADO - N - MB
WESTMORELAND @ FT WORTH - N - FS
WESTMORELAND @ LE HARVE - N - MB
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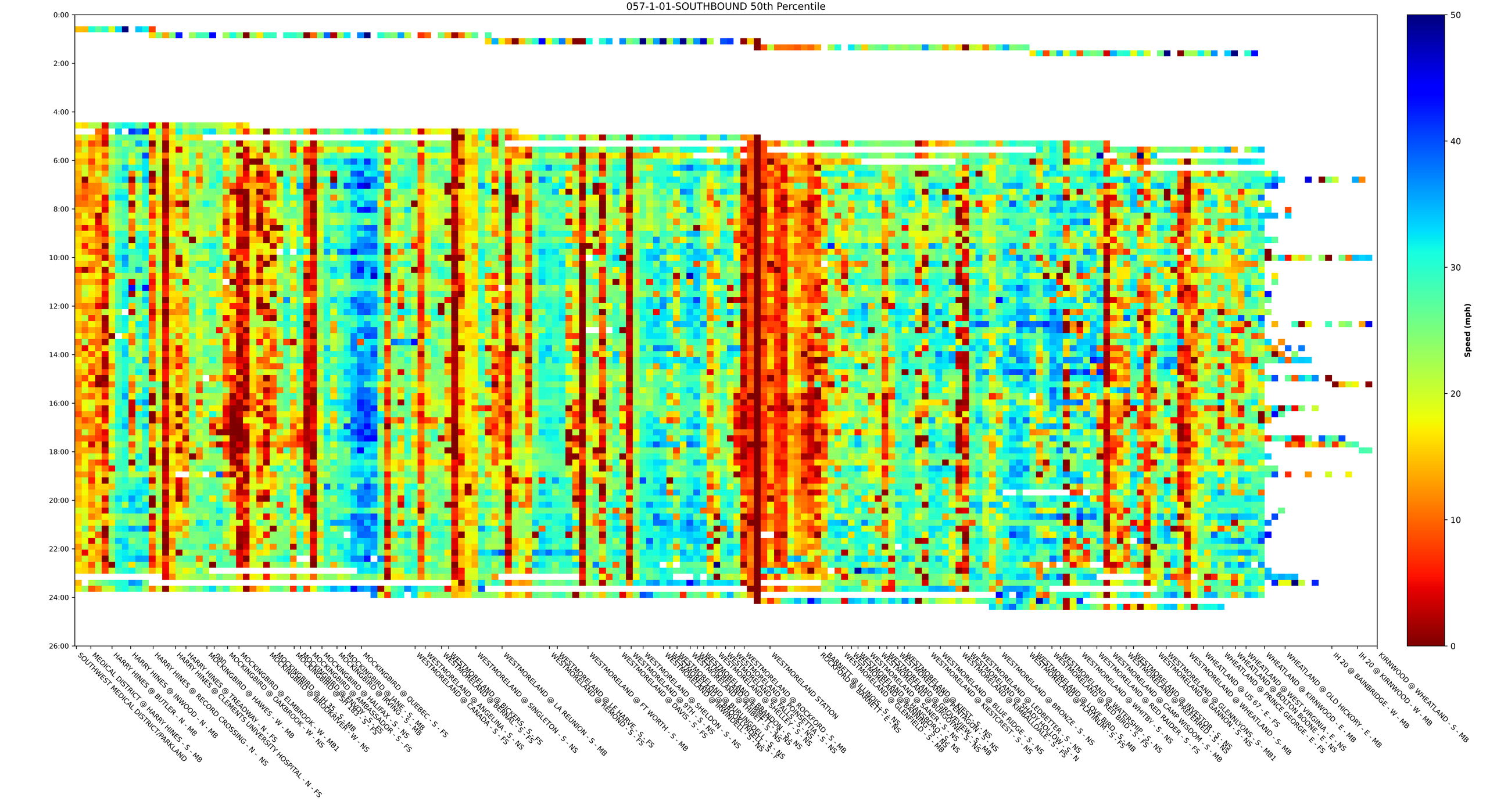
MOCKINGBIRD @ IRVING - N - FS
MOCKINGBIRD @ HALIFAX - N - NS
MOCKINGBIRD @ 5H 183 - N - MB
MOCKINGBIRD @ AMBASSADOR - N - NS
MOCKINGBIRD @ IH 35 - N - FS
MOCKINGBIRD @ ELMBROOK - E - NS
MOCKINGBIRD @ OAKBROOK - E - MB
MOCKINGBIRD @ HARRY HINES - E - FS
HARRY HINES @ PLANTATION @ HARRY HINES - E - MB
HARRY HINES @ CLEMENTS UNIVERSITY HOSPITAL - S - NS
HARRY HINES @ RECORD CROSSING - S - NS
HARRY HINES @ BUTLER - S - NS
HARRY HINES @ PARKLAND - S - MB
SOUTHWEST MEDICAL DISTRICT @ HARRY HINES - N - FS
MEDICAL DISTRICT/PARKLAND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24:00
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Speed (mph)
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40
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SOUTHWEST MEDICAL DISTRICT/PARKLAND
MEDICAL DISTRICT @ HARRY HINES - S - MB
HARRY HINES @ BUTLER - N - MB
HARRY HINES @ INWOOD - N - MB
HARRY HINES @ RECORD CROSSING - N - NS
HARRY HINES @ CLEMENTS UNIVERSITY HOSPITAL - N - FS
MBD
MOCKINGBIRD @ TREADWAY - N - FS
MOCKINGBIRD @ HAWES - W - MB
MOCKINGBIRD @ OAKBROOK - W - NS
MOCKINGBIRD @ ELMBROOK - W - MB1
MOCKINGBIRD @ I-35 - E - MB
MOCKINGBIRD @ BROOKRIVER - W - NS
MOCKINGBIRD @ SFWU - S - FS
MOCKINGBIRD @ AMBASSADOR - S - FS
MOCKINGBIRD @ HALIFAX - S - MB
MOCKINGBIRD @ IRVING - S - MB
MOCKINGBIRD @ JANE - S - MB
MOCKINGBIRD @ QUEBEC - S - FS
WESTMORELAND @ ANGELINA - S - FS
WESTMORELAND @ CANADA - S - FS
WESTMORELAND @ BICKERS - S - FS
WESTMORELAND @ BERNAL - S - NS
WESTMORELAND @ SINGLETON - S - NS
WESTMORELAND @ LA REUNION - S - MB
WESTMORELAND @ LE HAVRE - S - FS
WESTMORELAND @ REMOND - S - FS
WESTMORELAND @ FT WORTH - S - MB
WESTMORELAND @ DAVIS - S - FS
WESTMORELAND @ 9TH - S - NS
WESTMORELAND @ SHELDON - S - NS
WESTMORELAND @ HATTERAS - S - NS
WESTMORELAND @ IRMINDELL - S - NS
WESTMORELAND @ BURLINGDELL - S - NS
WESTMORELAND @ THOMAS - S - NS
WESTMORELAND @ BRANDON - S - NS
WESTMORELAND @ CALLAS - S - NS
WESTMORELAND @ SHELLEY - S - NS
WESTMORELAND @ CONSETTA - S - NS
WESTMORELAND @ ROCKFORD - S - MB
WESTMORELAND STATION
BARNETT @ ILLINOIS - E - NS
ROCKFORD @ BARNETT - E - NS
WESTMORELAND @ BARNETT - E - NS
WESTMORELAND @ GLENFIELD - S - MB
WESTMORELAND @ RAINFORD - S - NS
WESTMORELAND @ SAMER - S - NS
WESTMORELAND @ GROVEVIEW - S - NS
WESTMORELAND @ RENTZEL - S - NS
WESTMORELAND @ WEST - S - NS
WESTMORELAND @ KIESTCREST - S - NS
WESTMORELAND @ BLUE RIDGE - S - NS
WESTMORELAND @ KIMBALLDALE - S - FS
WESTMORELAND @ HAZY HOLLOW - S - N
WESTMORELAND @ LEDBETTER - S - NS
WESTMORELAND @ BRONZE - S - NS
WESTMORELAND @ IOWA - S - NS
WESTMORELAND @ PLATINUM - S - FS
WESTMORELAND @ RED BIRD - S - MB
WESTMORELAND @ WATERSHIP - S - FS
WESTMORELAND @ WHITBY - S - NS
WESTMORELAND @ RED RAIDER - S - FS
WESTMORELAND @ CAMP WISDOM - S - NS
WESTMORELAND @ PRAIRIEMONT - S - MB
WESTMORELAND @ INVERNESS - S - NS
WESTMORELAND @ GANNON - S - NS
WHEATLAND @ GLENNLYONS - S - MB1
WHEATLAND @ US 67 - E - FS
WHEATLAND @ WHEATLAND - S - MB
WHEATLAND @ PRINCE GEORGE - E - FS
WHEATLAND @ BOLTON BOONE - E - NS
WHEATLAND @ WEST VIRGINIA - E - MB
WHEATLAND @ KIRNWOOD - E - MB
WHEATLAND @ OLD HICKORY - E - MB
IH 20 @ BAINBRIDGE - W - MB
IH 20 @ KIRNWOOD - W - MB
KIRNWOOD @ WHEATLAND - S - MB

APPENDIX C

Front Line Staff Input

Bus Route	Dir.	Roadway	Limits	Detailed Description	Potential Solution
9	WB/EB	Jefferson	Polk to Westmoreland	bus gets out of traffic lane at bus stops, requiring move back into lane	Bus Lane designation
9	WB/EB	Jefferson	Cockrell Hill intersection	traffic circle seems unsafe for everyone	Remove traffic circle; replace w signalized intersection
9	Both	Jefferson	Polk to Beckley	Parked cars, slow crusing cars, people walking onto/across street at mid-block Sunday evenings	Sunday evening detour or adjust schedule to reflect delays
9	Both	Abrams/Richmond/ Gaston	eastern end of line loop	back-to-back tight right-turn radius	smooth out radius
9	WB/EB	Jefferson	Polk to Beckley	on-street parking (long trucks, vehicles backing up or slowing down to park	on-street parking or convert to parallel parking
13	Both	Cooper	Colonial to Harwood	on-street parking creates slow operations or complete stops on these streets	remove on-street parking; reroute bus
13	Both	Harwood	Cooper to Pennsylvania	on-street parking creates slow operations or complete stops on these streets; one-way operation affects NB bus routing	remove on-street parking; reroute bus
13	Both	Cooper, Warren, Harwood		on-street parking on both sides exists. (NOTE: route on an extended detour)	Confirm route would get new alignment when construction project is completed
15, 16, 18, 20,	WB/SB	So. Garland Transit Center	Shiloh	left-turn signal doesn't always appear, delaying exiting buses onto SB Shiloh	provide left-turn signal from the Transit Center onto SB Shiloh Rd
17	SB/SB	Skillman	Southwestern to Abrams	slow speeds during construction	better communication between Cities and DART prior to construction to adjust schedule or establish extended detour route
18	NB/OB	Gus Thomasson	Ferguson	dfficult to make right turn onto Ferguson	Improve right-turn radius
20	Both	Northwest Highway	full extent	heavy traffic on Northwest Highway slows down bus operations	implement bus lane (s)
20	Both	Northwest Highway	NW/Boedeker to Park Ln Station	travel is slow due to traffic, turn signals, narrow road, etc	reroute bus down Caruth, Greenville to park Ln Station
20	EB	Multiple (Webb Chapel Ext, Larga, Webb Chapel)	Multiple (Webb Chapel Ext, Larga, Webb Chapel)	two back-to-back right turns made by buses had tight right-turn radii that make right turns difficult to make safely and in a speedy manner.	reroute the bus north to Lombardy
20	WB	Boedeker	Northwest Highway	extended delay on SB Boedeker to WB Northwest Highway	Provide right-turn arrow (and acceleration lane)
20	EB	Northwest Highway	@ White Rock Lake Stn	extended delay on left-turn movment out of Station onto EB Northwest Highway	Provide additional green time to left-tuirn phase or route #20 to remain on the highway, serve station that way
20		Park Ln	Lamanda	difficult to make unprotected left-turn from Lamanda onto Park Ln	reroute this route to another street, possibly Eastriedge, to an intersection with protected left-turns
20	EB	Northwest Highway	Hillcrest to Boedeker	easternmost bus stop on NW Highway is too close to Boedeker to accommodate weaving over to left-turn lane during PM peak period	eliminate the easternmost bus stop prior to Boedeker
20	EB	Community Dr	@ Green Line Xing (we. Of Denton Dr)	upon exiting Bachman Stn, bus gets held up at train crossings no. of station	reroute the bus to Webb Chapel on the south side of the Station, thereby avoid at-grade crossing
22	Both	Forest Ln	Forest Ln Station to Audelia	too many stops on this segment of Forest Ln slow down speeds	consolidate bus stops or revise schedule

Bus Route	Dir.	Roadway	Limits	Detailed Description	Potential Solution
				difficult to maneuver from right lane to three lanes over to left-turn lane within short distance in peak hour traffic when auto traffic is not accommodating	eliminate southernmost stop to allow bus to maneuver over to the left lane to make left-turn onto EB I-635 frontage roads
22	EB	Preston Rd	Alpha to I-635		
22	EB/WB	Forest Ln	not specified	too many stops on segments of Forest Lane slow down bus speeds	consolidate bus stops
22	EB/WB	Forest Ln	not specified	too many stops on segments of Forest Lane slow down bus speeds	consolidate bus stops
22	Both	Forest Lane	Forest Ln Stn to Forest/Jupiter Stn	heavy traffic	implement bus lane between the two stations
22	EB	Verde Valley	Noel	tight radius makes completing a right-turn difficult	Improve right-turn radius
22	EB	Verde Valley	Noel	on-street parking makes completing a right-turn difficult	Prohibit on-street parking by the intersection
22	EB	Forest	east of Audelia	there is a stop on a curve east of Audelia next to a driveway	relocate the bus stop or simply remove it
22	EB/WB	Forest Ln	not specified (Forest Ln Stn to Audelia)	too many stops on segments of Forest Lane slow down bus speeds	consolidate bus stops
23	NB	Maple	Medical District	protected left-turn arrow changes too fast; not enough time for buses	extend green arrow for buses
23	SB	Haskell	@ Ross	road north and south of this intersection are not well aligned	
23	SB	Haskell	@ Swiss	road north and south of this intersection are not well aligned	
25	Both	Chalk Hill	freight crossing between Singleton and I-30	at different times of the day, the bus is stopped for an extended peirod of time when freight train crosses Chaulk Hill Rd	reroute the bus to stay on Lp 12, then I-30 til it reaches Chaulk Hill
25	Both	Cockrell Hill	@ Jefferston intersection	roundabout is unsafe for auto/bus travel thru the Cockrell Hill/Jefferson intersection	remove roundabout and replace with traditional signalized intersection
25	SB	Bernal	@ Chaulk Hill intersection	extended delay on Bernal/Chaulk Hill signalized intersection	improve signal timing to accommodate buses (TSP)
27	NB to EB	Ridgecrest	Fair Oaks	to EB Fair Oaks takes a long time.	transit signal priority for bus movements
28	EB	Singleton	west of Lapsley	bus layover on Singleton west of Lapsley obstructs sight distance for NB Lapsley to WB Singleton drivers	shift layover to occur at Singleton/Bernal PTL or shift stop/shelter further west of Lapsley
38	WB/EB	Ledbetter	Bonnie View, Marsalis timepoints	padded schedule/timepoints requires slow move east-west across Ledbetter in both directions	adjust schedule (tighten internal timepoints; add layover time)
41		Wilhurt	Sunnyvale to Bonnie View		
45	Both	Marsalis/Ewing	Clarendon to Winters	This route takes a circuitous path off of its primary roadway to allow access to the Dallas Zoo, to serve Winters.	Streamline the route to eliminate unnecessary segments and reduce overall run time.
45	SB	Marsalis	@Laureland	Bus stop is located at the end of a wide 2-lane oadway, and it is difficult to make a left-turn from that position because drivers in the same direction may not allow the bus to get over into the other lane.	shift bus stop north to allow bus operators sufficient space to maneuver to a left-turn position OR shift the bus stop topast the turning movement to Laureland
47	NB	Tyler	@ Tyler/Vernon Station	NB #47 riders alighting at bus stop adjacent to Tyler/Vernon Station must make dangerous crossing of Tyler St to Station; no signal protects them.	reroute NB run into facility for safer access to rail station or provide pedestrian crossing
47	Both	Leigh Ann	Kimwood to Wheatland	narrow roadway with on-street parallel parking on both sides of the street makes bus travel through here slow and unsafe	prohibit parking on one side of the street and at the bus stops
57	SB	Westmoreland	@Westmoreland Station	unsignalized intersection prevents left-turns to be made or to be made with protected signals, so circuitous and lengthy routing occurs	add traffic signal that only stops traffic when buses are present, but is still synchronized with adjacent signals to allow for continued N-S corridor progression

Bus Route	Dir.	Roadway	Limits	Detailed Description	Potential Solution
1	SB	Pearl	@ Pacific/Gaston intersection	difficult to maneuver from right bus bay to three lanes over to left-turn lane within 150' in peak hour traffic when auto traffic is not accommodating	slide #1 bus bay north
1	SB	Pearl	@ Pacific/Gaston intersection	difficult to maneuver from right bus bay to three lanes over to left-turn lane within 150' in peak hour traffic when auto traffic is not accommodating	slide #1 bus bay north
28	SB	Lamar	San Jacinto to Pacific	SB DART PD parks on Lamar between San Jacinto and Pacific hindering SB bus operators from accessing riders waiting for them at bus stop	Prohibit DART PD from parking on-street on SB Lamar between San Jacinto and Pacific
9, 45, 47	WB	Elm St	at Houston St intersection	WB buses turning SB onto Houston are one of two turning lanes, turning into two narrow lanes…..Issue(s): 1) Stop bar for NB Houston drivers is not far back, forcing WB turning drivers (on inside-most lane) to slow down and swing wide 2) For WB turning drivers on second lane, they must also swing wide which is complicated by the fact that tourist trolleys are parked there at different times of the day.	(1) move bus stop line for NB Houston left-turn lane (2) prohibit tourist trolleys from parking on SBHouston between Elm and Main Streets
102	NB	Colorado	@ Fort Worth Avenue intersection	insufficient time/space for bus to make NB Colorado to WB Ft Worth Ave left-turn	Upgrade signal to include protected left-turn movement
104	NB	NB Malcolm X to WB MLK	@ Malcolm X/MLK intersection	unprotected left-turn at this intersection results in waiting several cycles	signal upgrade: accommodate left-turn signal only during the cycles when a left-turn bus approaches
109	SB	EB Illinois to SB Beckley	@ Illinois/SB Beckley intersection	tight right turn radius, where making wide right turns are difficult to make	smooth out radius or establish NB stop line that accommodates wide turns
114	CCW	Easter	Kiest to Overton	narrow roadway, on-street parking	prohibit on-street parking on one side of the street OR within 50' north and south of bus stops
212	EB	Woodmeadow	west of La Prada	4-lane divided roadway, where one-side is closed. Trees, shrubs, are overgrown, obstruct travel on EB lane	trim shrubs on EB direction
218	ClW	Lake June	St. Augustine	difficult to turn right from Lake June onto St. Augustine	Move turn lane on St. Augustine back by 25'
224	WB	I-30 frntg road/HOV Lane n bus stop	near St. Francis/Highland	bus stop on WB I-30 frontage just east of Highland/St. Francis does not allow WB bus operator to enter HOV Lane near Jim Miller entrance because the entrance to mainlanes is too close to HOV entrance (1,200'), where closer to 3,000' is needed to weave over 3 freeway mainlanes	
224	WB	Same as comment as E24			
227	EB/NB	Alpha	west of Montfort	easternmost stop on Alpha before left-turn onto NB Montfort is too close to intersection to weave over to make turn.	remove the bus stop in question, which we understand was originally intended for (2) other routes that used to go thru or right
229	WB	Belt Line	@ Denton Dr	tight right turn radius, where making wide right turns are difficult to make and requires traffic to let up	possibly smooth out the radius
231	WB	Walnut Hill	east of Belt Line (before Fire Stn	large pothole in front of Apartments in right lane	fill in pothole
232	EB/WB	Trinity Mills Station	entrance/exit of Trinity Mills Stn	extended delay at entrance/exit of Station	improve signal timing to accommodate buses (TSP)
245	NB/SB	Barnes	@ Forest Ln intersection	signalized intersection takes too long for NB/SB movement into and out of Forest/Jupiter Station	adjust signal phasing to accomodate bus movements (TSP)

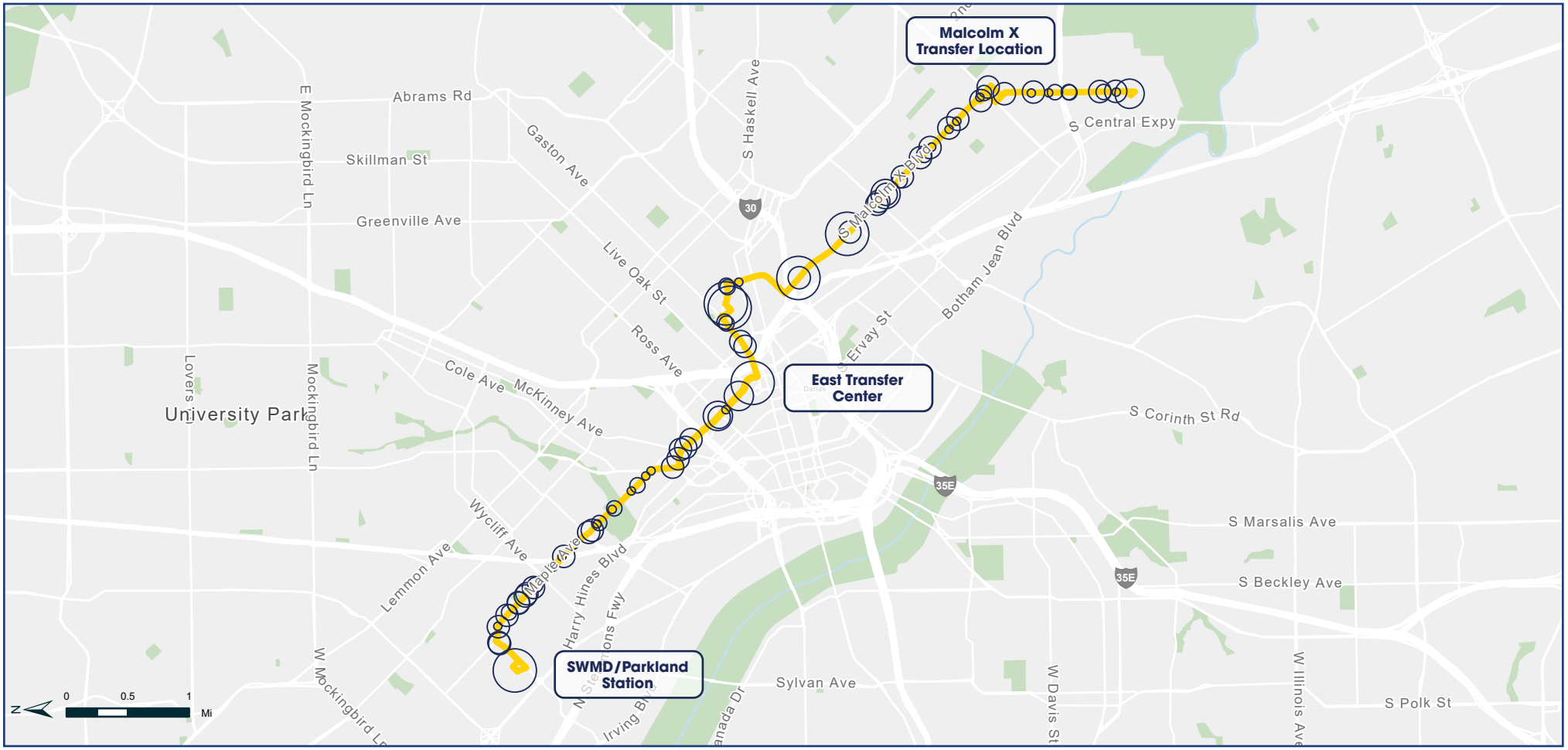
Bus Route	Dir.	Roadway	Limits	Detailed Description	Potential Solution
245	NB	Shiloh	Forest	short left-turn signal doesn't last long enough for buses	extend green time for left-turn movements
247	SB	Jupiter	Kingsley	short green time for SB Jupiter traffic turning left to Kingsley is too short	extend green time
227, 233	WB	Valley View	@ Denton St intersection	lack of left-turn signal can result in extended delays; sit thru a couple of cycles	add left-turn signal phase
All		NA	NA	lack of quiet place at Northwest facility	establish a quiet place at Northwest facility
GoPass, Tap Car	All	All	All	There is delay associated with GoPass and Tap Cards to confirm they're active	
multiple	EB/WB	Commerce, Elm	extent of Downtown Dallas	auto drivers (SOV, Uber, parking, etc.) continuously violate the bus-only lanes' bus-lane designation/painting is faint	repaint bus lane symbols; penalize violators
Multiple	All	All	All	Fare options are too many and result in delays when riders are alighting	reduce/simplify the number of options
multiple	NB	Ferguson Rd	Shiloh	Left-turn signal on NB Ferguson onto NB Shiloh doesn't always appear; affects multiple routes as they are getting into service bound for So Garland Transit Center	provide dedicated left-turn arrow with sufficient time.
Routes out of service	Both	Northwest Highway	I-35 to Harry Hines	although not a segment of routes, buses going into and coming out of service must contend with faded lane striping, which results in confusing, unsafe conditions	restripe lanes

APPENDIX D

Route Evaluation and Toolbox Recommendation Summaries

Route 1 – Malcolm X-Maple

CORE
Corridor Optimization + Rider Experience



TERMINI

Samoa & Bexar
SWMD/Parkland Station

FREQUENCY

15 min Peak
15 min Midday

AVERAGE DAILY BOARDINGS

1,245

ROUTE CONNECTIONS

Routes 3, 13, 23, 45, 47, 57, 101, 102, 104, 105, 109, 209, 213, 214, 219, 222, 230, 237, 249, 434, 435, 436, Red Line, Blue Line, Green Line, Orange Line

KEY DESTINATIONS

Downtown Dallas
Carpenter Park
Baylor University Medical Center Station
Malcolm X Transfer Location
Southwestern Medical District
Parkland Memorial Hospital

LEGEND

Average Daily Boardings

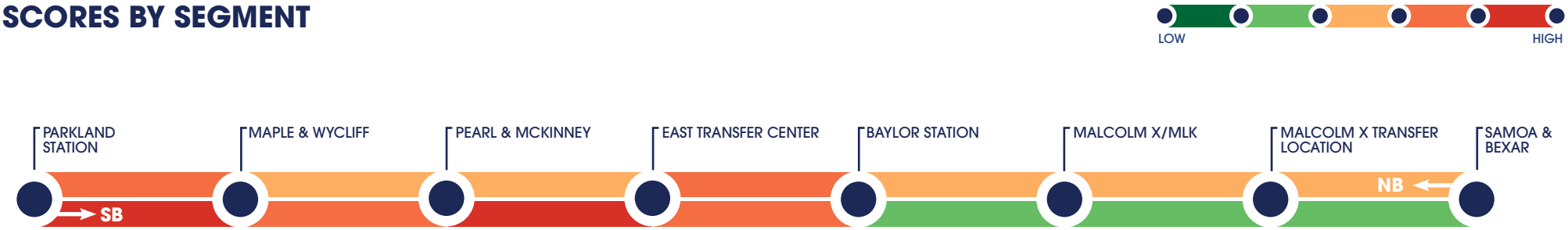
- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 1 – Malcolm X-Maple

CORE
Corridor Optimization + Rider Experience

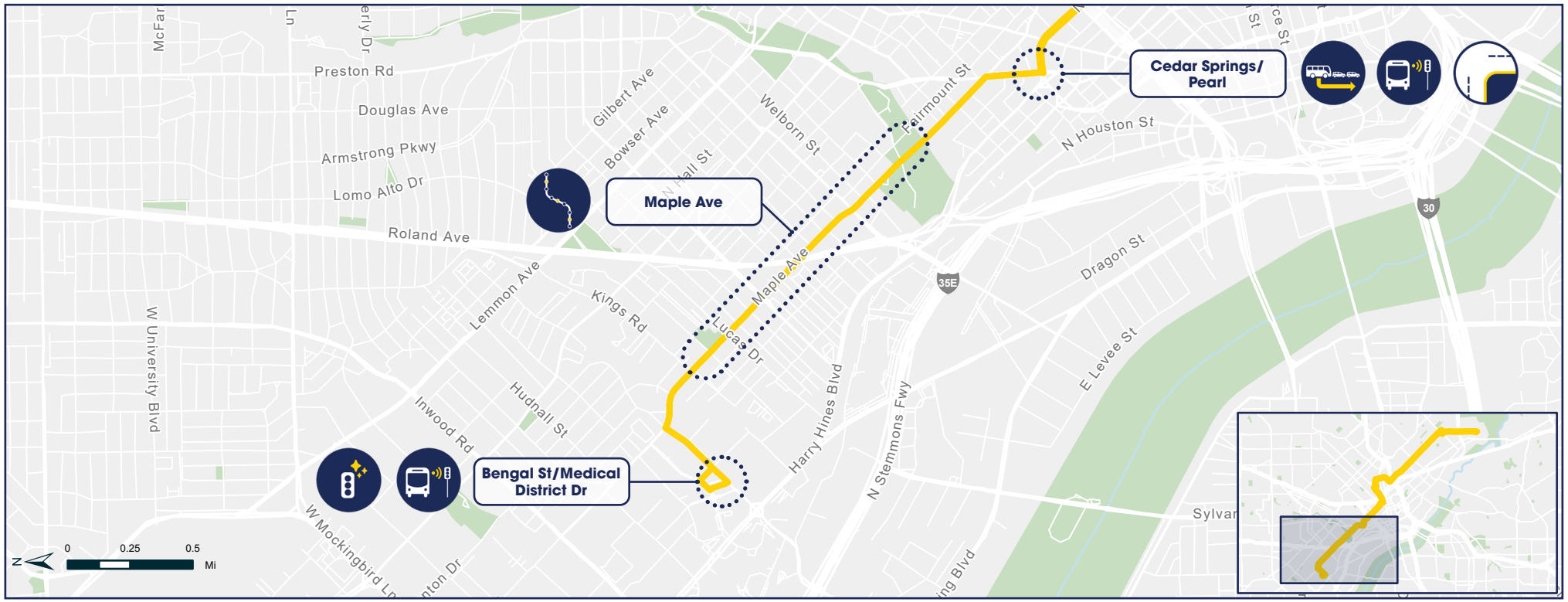
Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	LOW
Max Passenger Load Average maximum passenger load along the route	LOW
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	LOW

SCORES BY SEGMENT



Route 1 – Malcolm X-Maple

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

The northernmost part of Route 1 serves the UTSW Medical District. A new signal that accommodates protected left turns and Transit Signal Priority is recommended at the Bengal St & Medical District Dr intersection. A queue jump and TSP are also recommended at Cedar Springs & Pearl, as well as stop consolidation along Maple Ave.

TOOLBOX ICON DEFINITION


TRANSIT SIGNAL PRIORITY

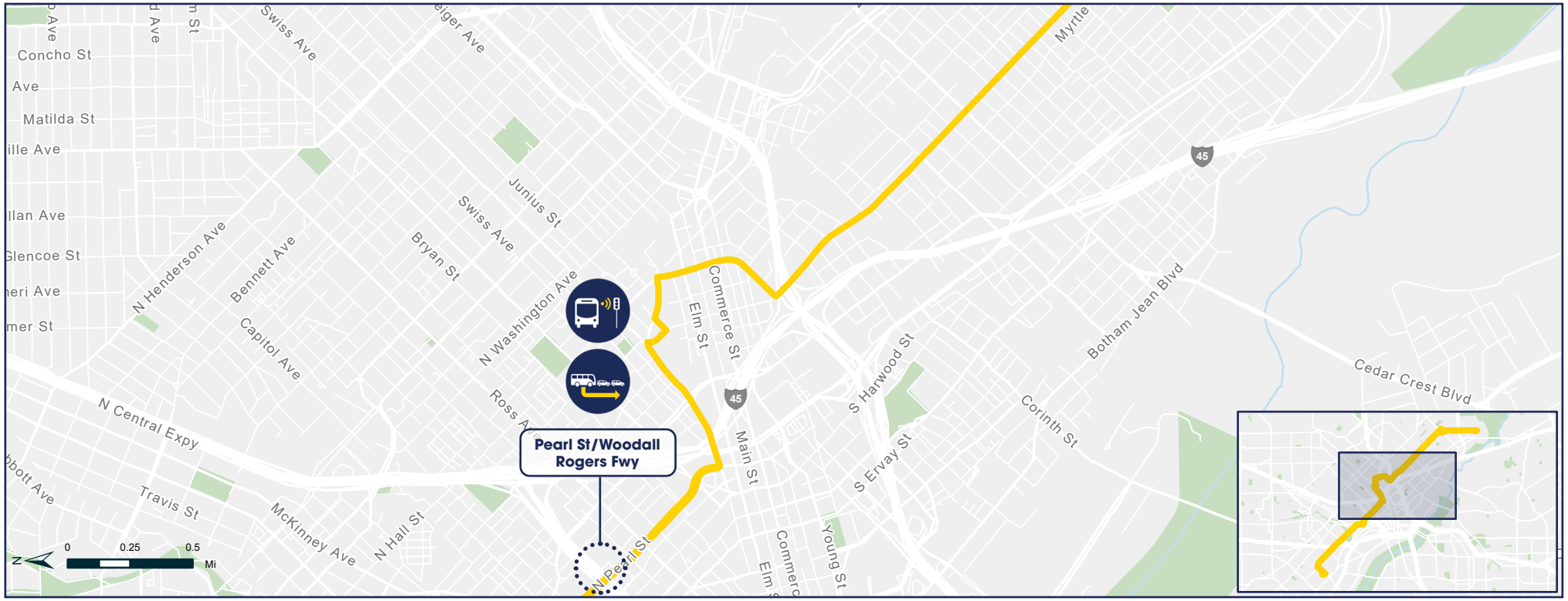

QUEUE JUMP


STOP CONSOLIDATION


NEW SIGNAL


TURN RADIUS

Route 1 – Malcolm X-Maple



RECOMMENDATIONS

Transit Signal Priority at Woodall Rogers Freeway and Pearl St near Klyde Warren Park would create a queue jump for transit vehicles moving through the intersection.

Trips within the downtown area show a high need for CORE improvements and should be evaluated as part of future analysis.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

QUEUE JUMP

Route 1 – Malcolm X-Maple

RECOMMENDATIONS

A new signal at Malcolm X Blvd and Lawrence St would provide protected left turns for northbound vehicles. The route could also be rerouted to Elsie Faye Higgins St, where Transit Signal Priority should be provided.

TOOLBOX ICON DEFINITION

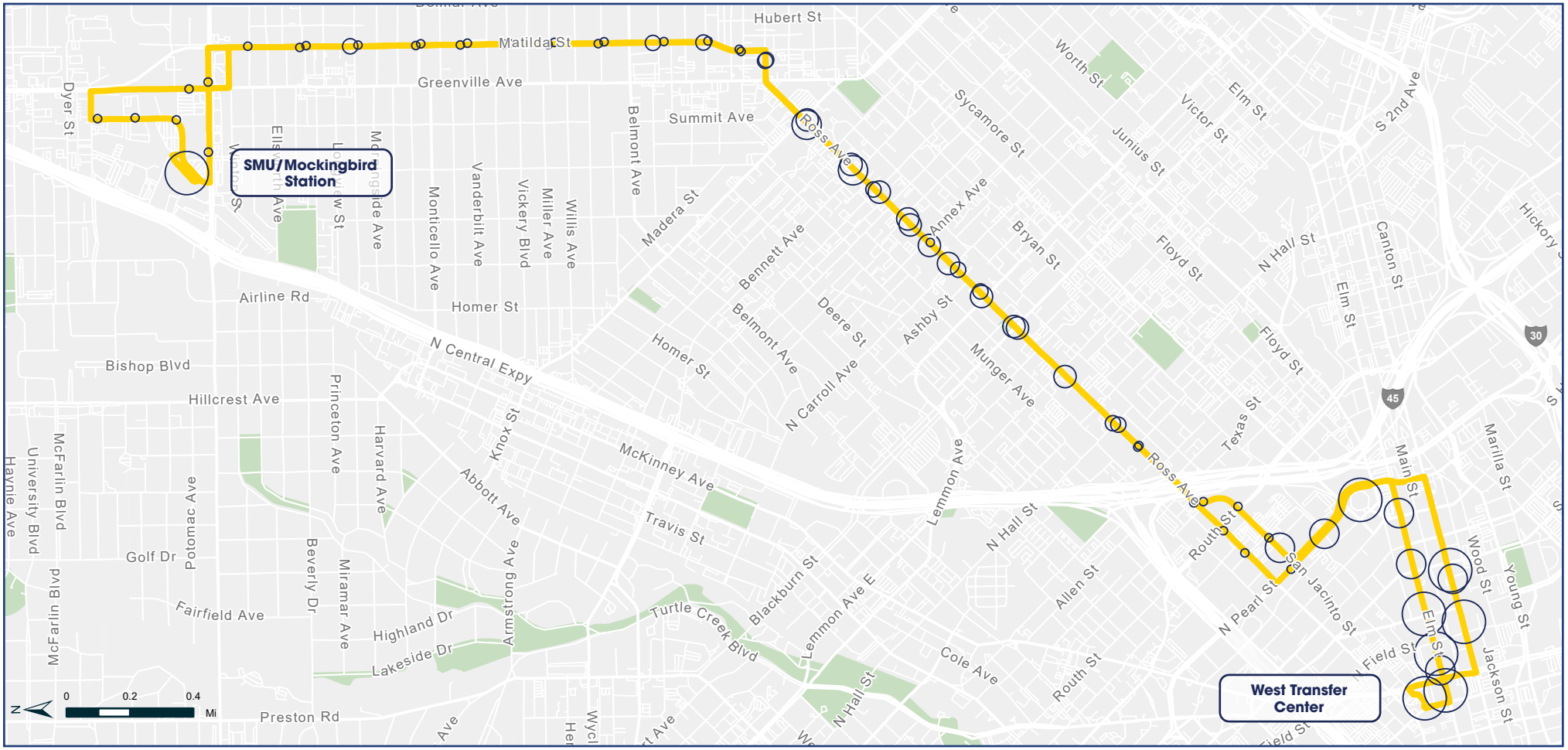
NEW SIGNAL

TRANSIT SIGNAL PRIORITY

ROUTE DESIGN

Route 3 – Ross

CORE
Corridor Optimization + Rider Experience



TERMINI

SMU/Mockingbird Station
West Transfer Center

FREQUENCY

15 min Peak
15 min Midday

AVERAGE DAILY BOARDINGS

960

ROUTE CONNECTIONS

Routes 17, 23, 105, 205, 207, 209, 239, 249, 440, 442, Park Cities/ Lakewood GoLink, Red Line, Blue Line, Orange Line

KEY DESTINATIONS

Earl Cabell Federal Building
Lower Greenville
Southern Methodist University
Thanksgiving Center

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 3 – Ross

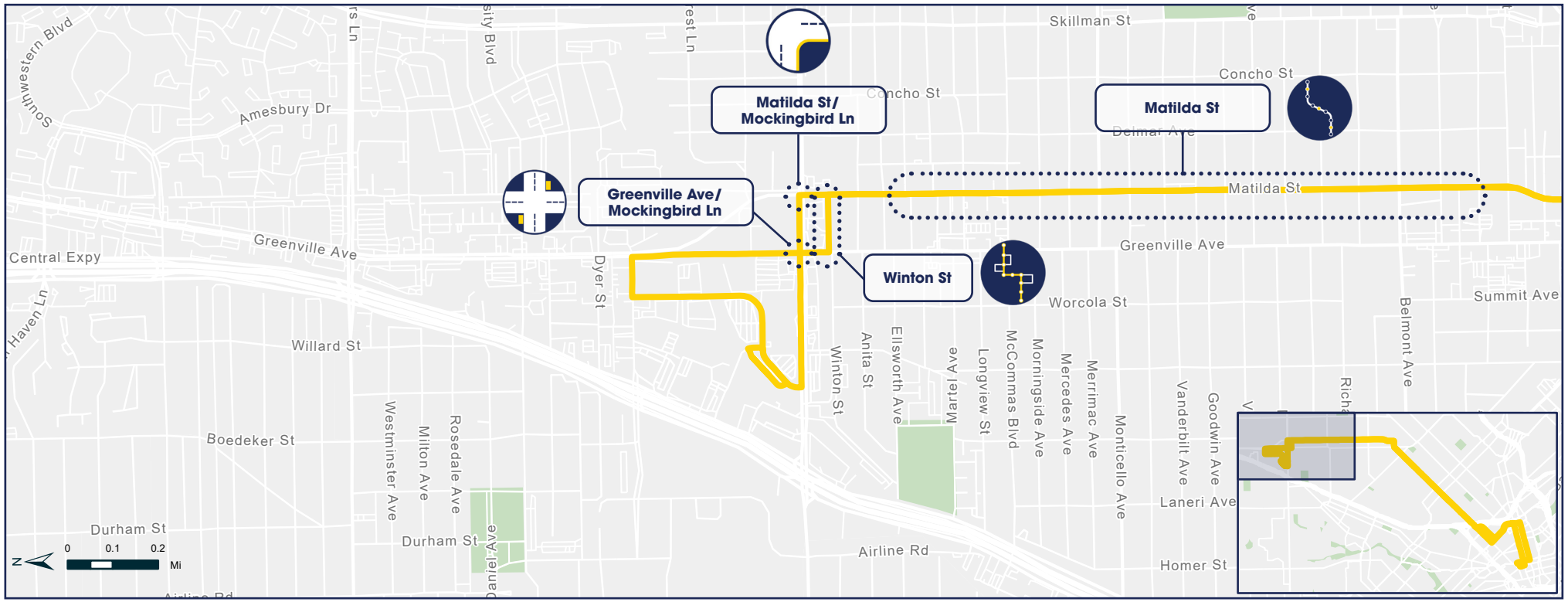
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	LOW
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	LOW
Max Passenger Load Average maximum passenger load along the route	LOW
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	LOW

SCORES BY SEGMENT

Route 3 – Ross

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

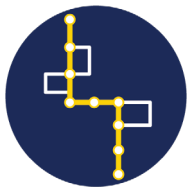
Route 3 serves SMU at its northern terminal. Bus stops at Greenville Ave and Mockingbird Ln can be relocated closer to the intersection to more easily facilitate transfers between Routes 3 and 17. Stops along Matilda St could also be consolidated based on ridership to make service more efficient, and the southbound route could also be realigned from Winton to Mockingbird. The right turn radius from eastbound Mockingbird to southbound Matilda should be adjusted to better accommodate buses.

TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

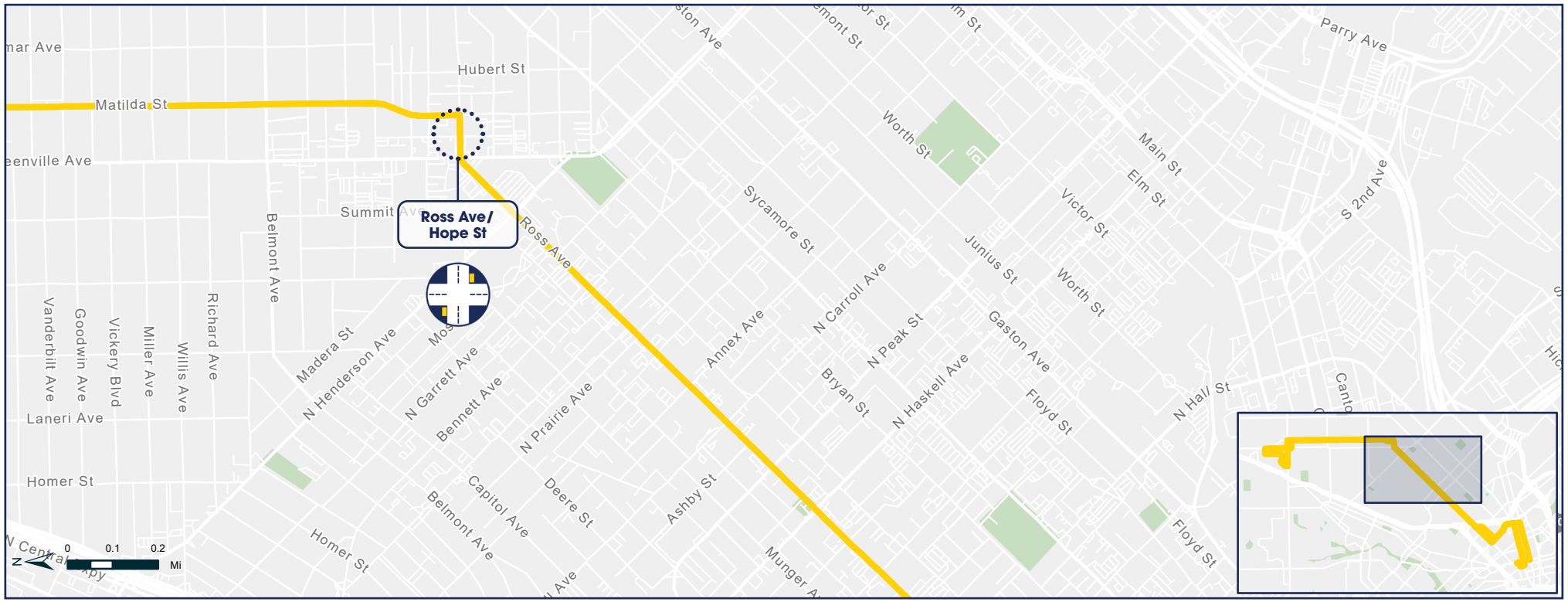
STOP CONSOLIDATION

TURN RADIUS



ROUTE DESIGN

Route 3 – Ross



RECOMMENDATIONS

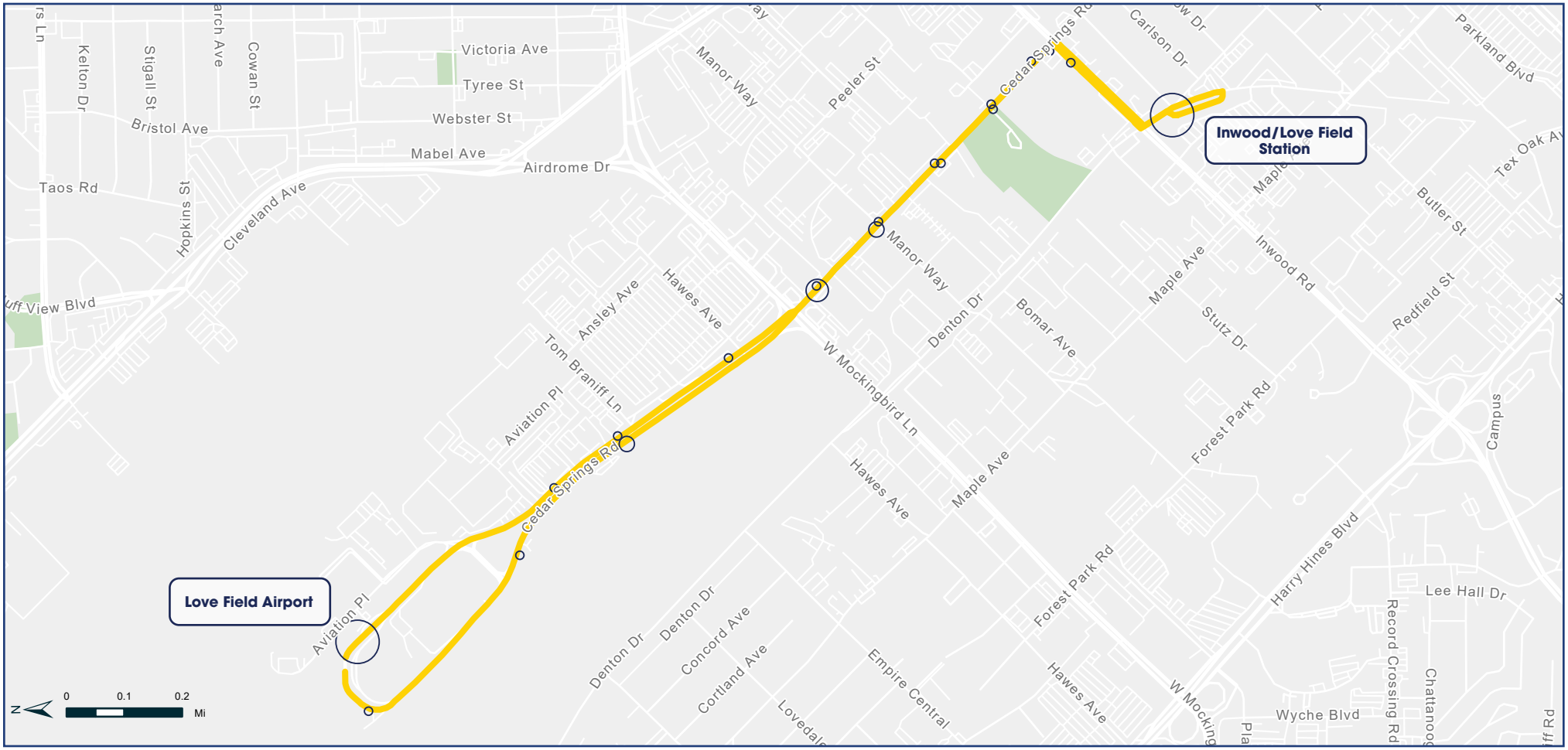
It is also recommended that the eastbound stop at Ross & Hope shift to the near side of the intersection. Pavement maintenance is also recommended on Ross Ave between Greenville and US 75.

There are no recommendations made for other segments of this route.

TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

Route 5 – Love Field Shuttle



TERMINI

Inwood/Love Field Station
Dallas Love Field Airport

FREQUENCY

15 min Peak
15 min Midday

AVERAGE DAILY BOARDINGS

217

ROUTE CONNECTIONS

Routes 103, 207, 222, Park Cities GoLink, Green Line, Orange Line

KEY DESTINATIONS

Dallas Love Field Airport
University of Texas Southwestern Medical District
Dallas Love Field Car Rental Branches

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

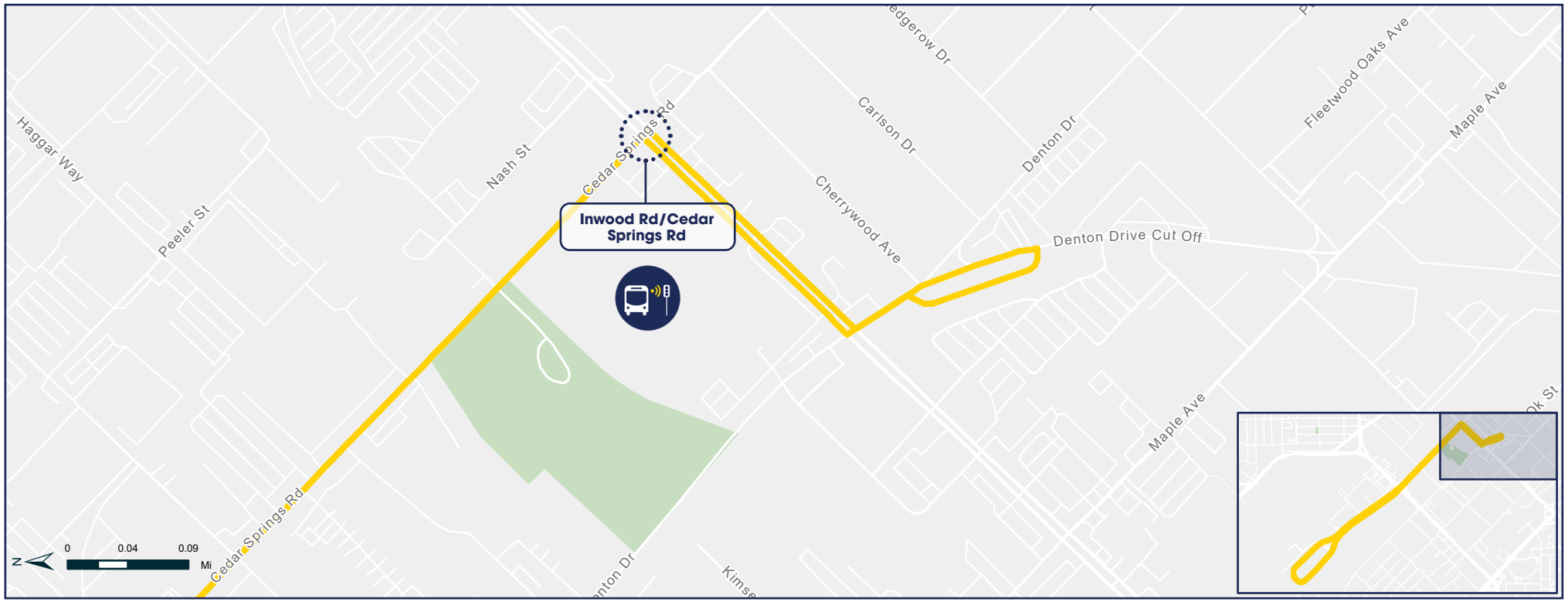
Route 5 – Love Field Shuttle

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	VERY HIGH
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 5 – Love Field Shuttle



RECOMMENDATIONS

Route 5 connects Inwood/Love Field Station to Dallas Love Field Airport. Transit Signal Priority would improve efficiency for vehicles turning left at Cedar Springs Rd and Inwood Rd.

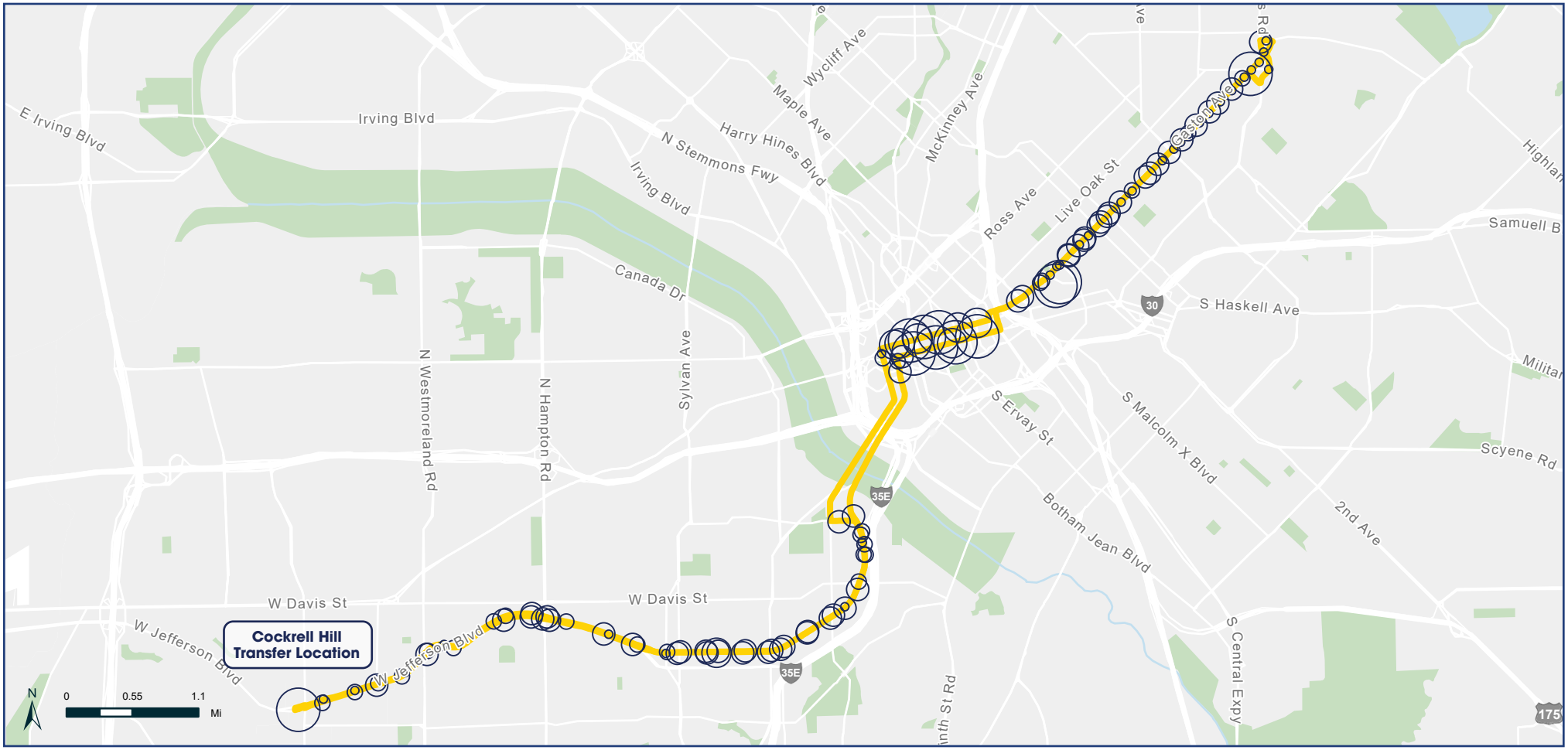
There are no recommendations made for other segments of this route.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 9 – Jefferson Gaston

CORE
Corridor Optimization + Rider Experience



TERMINI

Cockrell Hill Transfer Location
Richmond & Abrams

FREQUENCY

15 min Peak
15 min Midday

AVERAGE DAILY BOARDINGS

2,128

ROUTE CONNECTIONS

Routes 1, 18, 23, 25, 45, 47, 57, 101, 109, 219, 221, 226, Red Line, Blue Line, Green Line, Orange Line

KEY DESTINATIONS

Majestic Theatre
Baylor University Medical Center
AT&T Discovery District
Dallas College El Centro Campus
Downtown Oak Cliff

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 9 – Jefferson Gaston

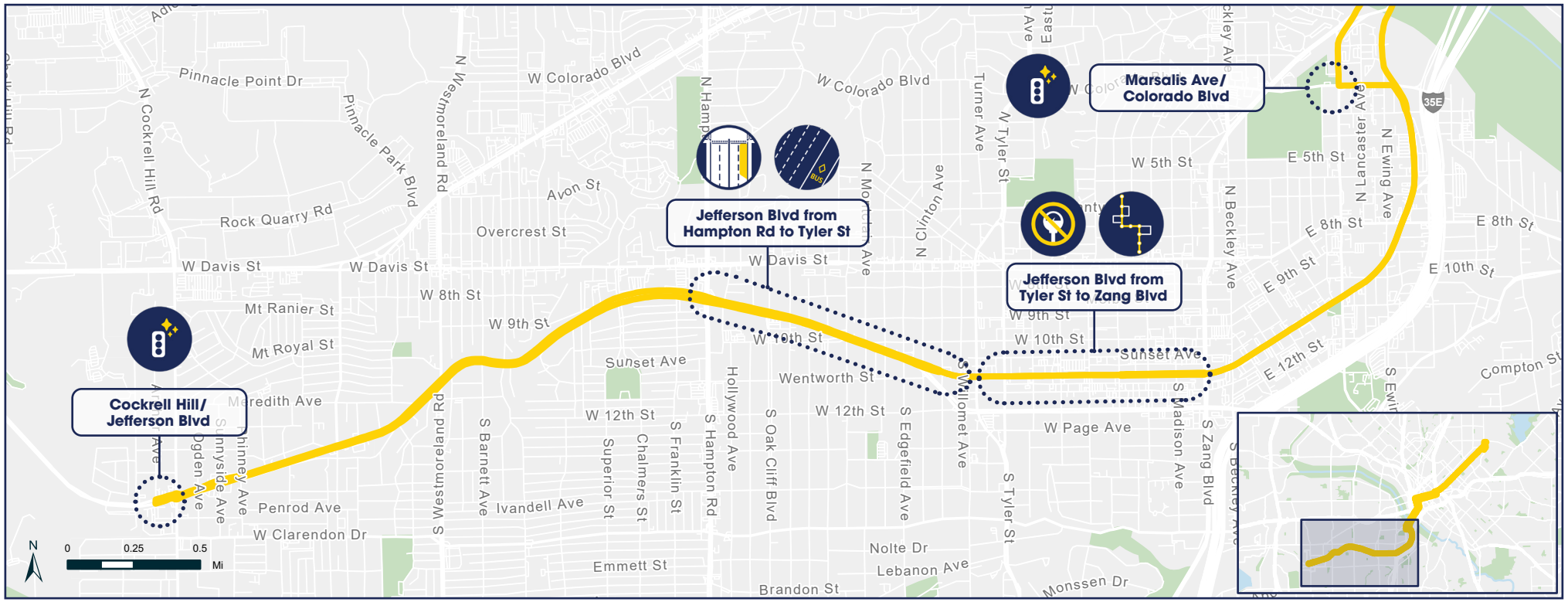
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	VERY HIGH
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	HIGH
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 9 – Jefferson Gaston

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 9 connects the Cockrell Hill and Lakewood Heights neighborhoods. A new signal with a protected left turn would benefit turning vehicles at Marsalis Ave and Colorado Blvd after the route crosses south over the Trinity River. At Jefferson and Cockrell Hill, the traffic circle should be replaced with a traditional traffic signal.

To avoid special events, the route could be diverted away from Jefferson Blvd between Zang Blvd and Tyler St on Sunday evenings or angled parking could be restricted in that area.

On Jefferson between Hampton Rd and Tyler St, a dedicated bus lane or bus bulbs could be established where the former third travel lane was restricted from use.

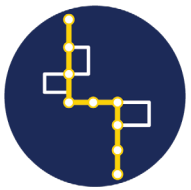
TOOLBOX ICON DEFINITION

NEW SIGNAL

BUS BULB

DEDICATED
BUS LANE

PARKING
REMOVAL



ROUTE DESIGN

Route 9 – Jefferson Gaston

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

Route 9 terminates in the east at the Lakewood Shopping Center near White Rock Lake. A new signal with Transit Signal Priority at Abrams Rd and Gaston Ave would benefit vehicles at the start of westbound trips. The turning radii at Gaston Ave & Richmond Ave and Abrams Rd & Richmond Ave should be adjusted to better accommodate buses, or the route should be realigned to avoid tight right turns.

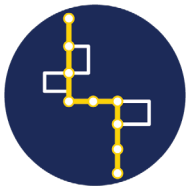
There are no recommendations made for other segments of this route.

TOOLBOX ICON DEFINITION

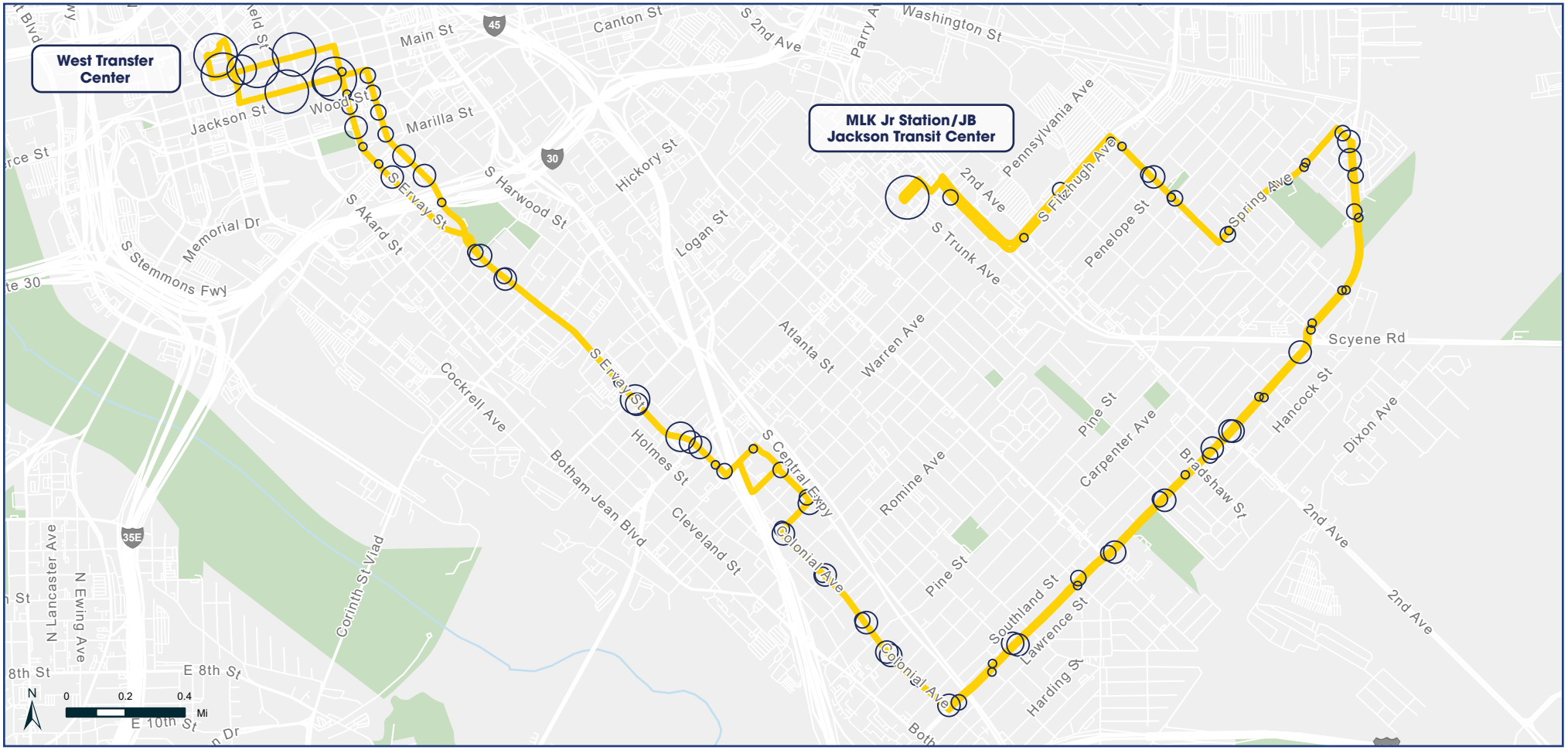

TRANSIT SIGNAL PRIORITY


NEW SIGNAL


TURN RADIUS


ROUTE DESIGN

Route 13 – Ervay



TERMINI

West Transfer Center
MLK Jr Station/JB Jackson Transit Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,484

ROUTE CONNECTIONS

Routes 1, 23, 104, 216, South Dallas GoLink, Green Line, Orange Line, Blue Line, Red Line

KEY DESTINATIONS

Paul L. Dunbar Learning Center
Frazier House
Dallas College El Centro Campus
Malcolm X Transfer Location
Hatcher Station

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

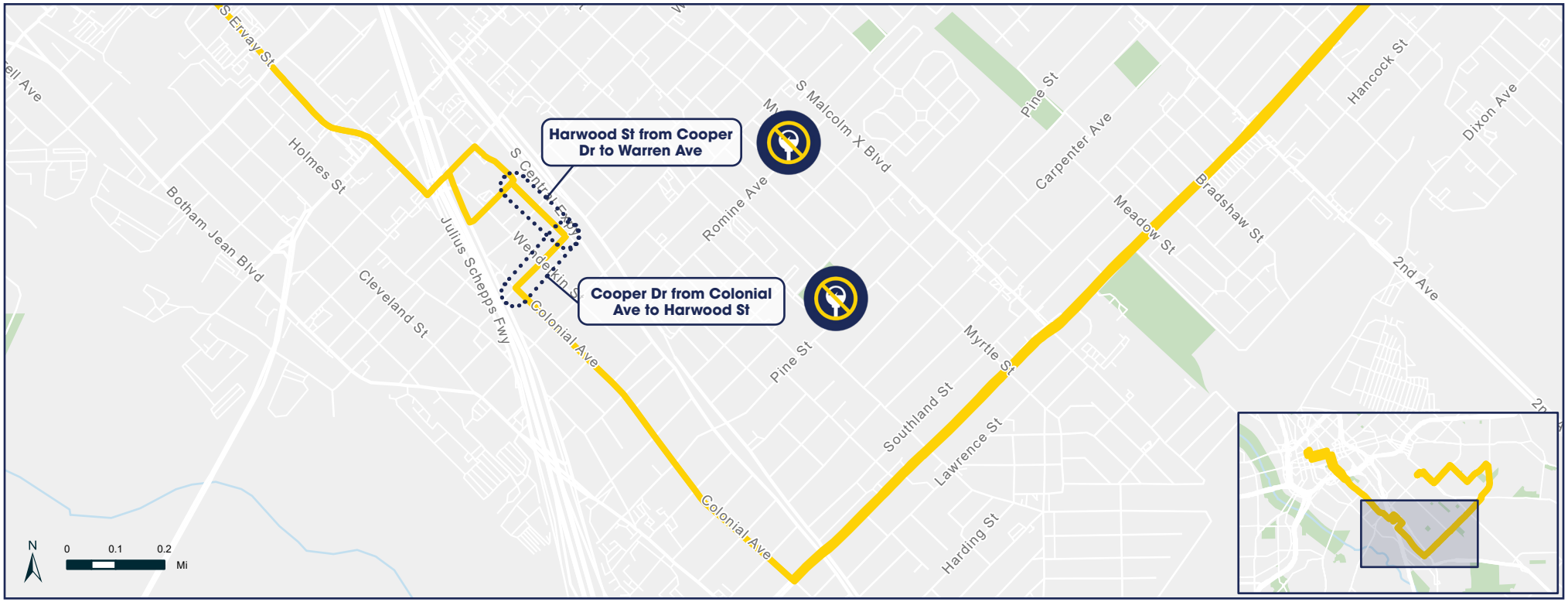
Route 13 – Ervay

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 13 – Ervay



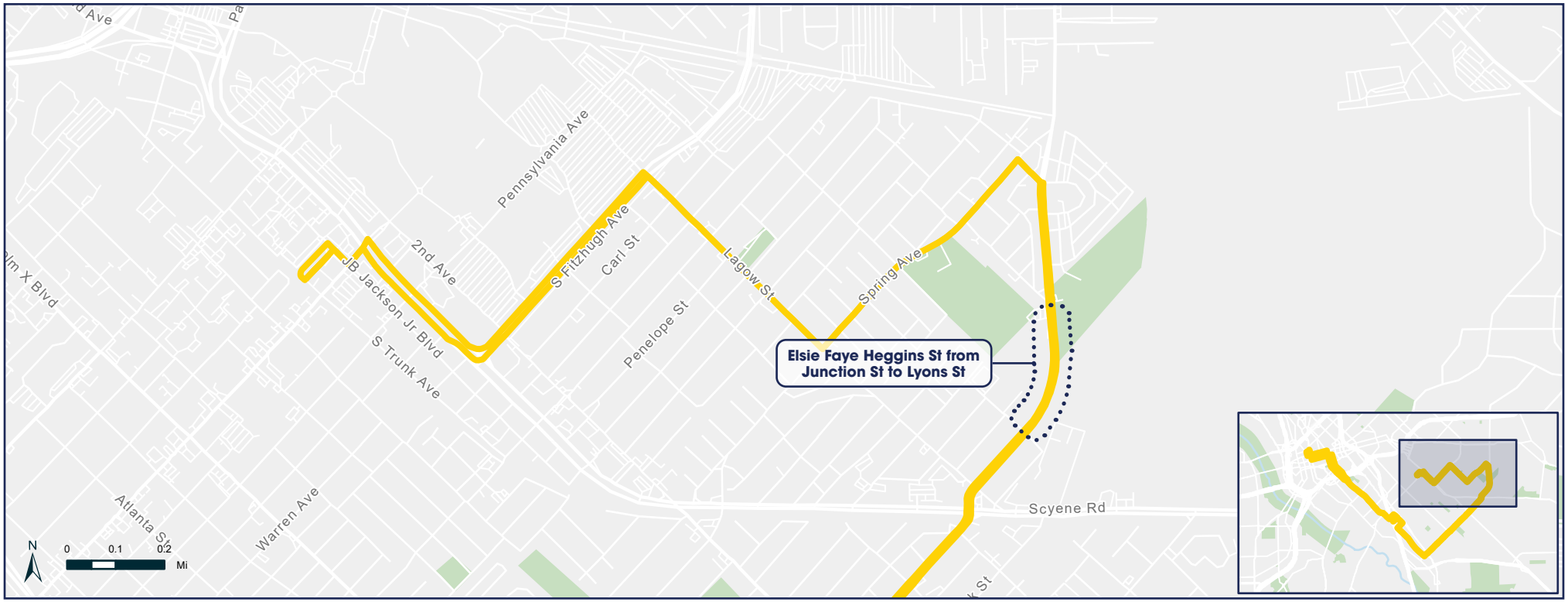
RECOMMENDATIONS

On-street parking should be prohobited on Cooper Dr and Harwood St to better acoommodate buses.

TOOLBOX ICON DEFINITION

PARKING REMOVAL

Route 13 – Ervay



RECOMMENDATIONS

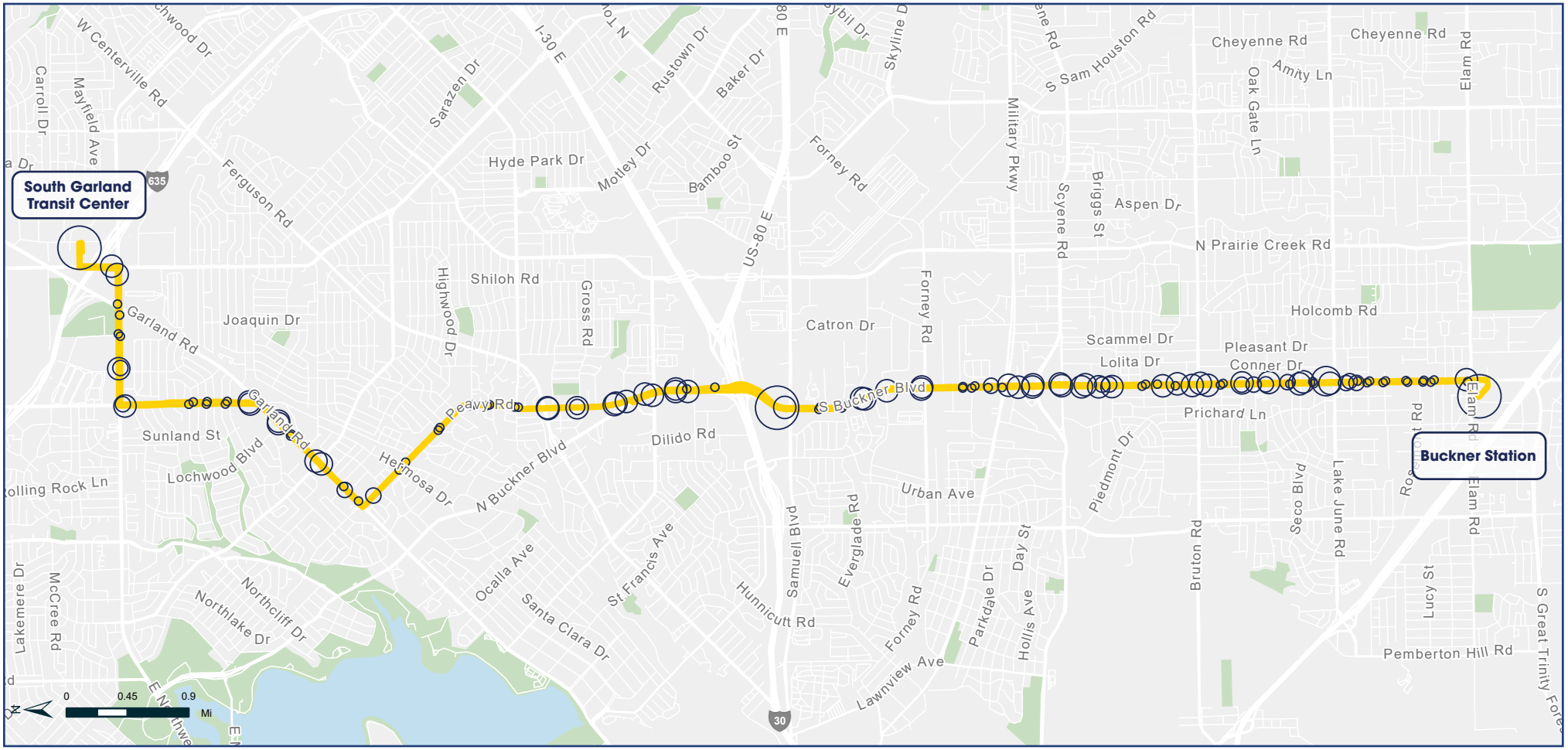
The portion of the rotue on Elsie Faye Heggins St between Junction St and Lyon St should be further examined to determine possible causes of consistently slow travel times.

There are no recommendations made for other segments of this route.

TOOLBOX ICON DEFINITION

Route 15 – Buckner

CORE
Corridor Optimization + Rider Experience



TERMINI

South Garland Transit Center
Buckner Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,802

ROUTE CONNECTIONS

Routes 16, 18, 20, 30, 203, 204, 212, 214, 216, 218, 220, 224, 242, 245, 247, 251

KEY DESTINATIONS

Dallas College Pleasant Grove Center
White Rock Market Place

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

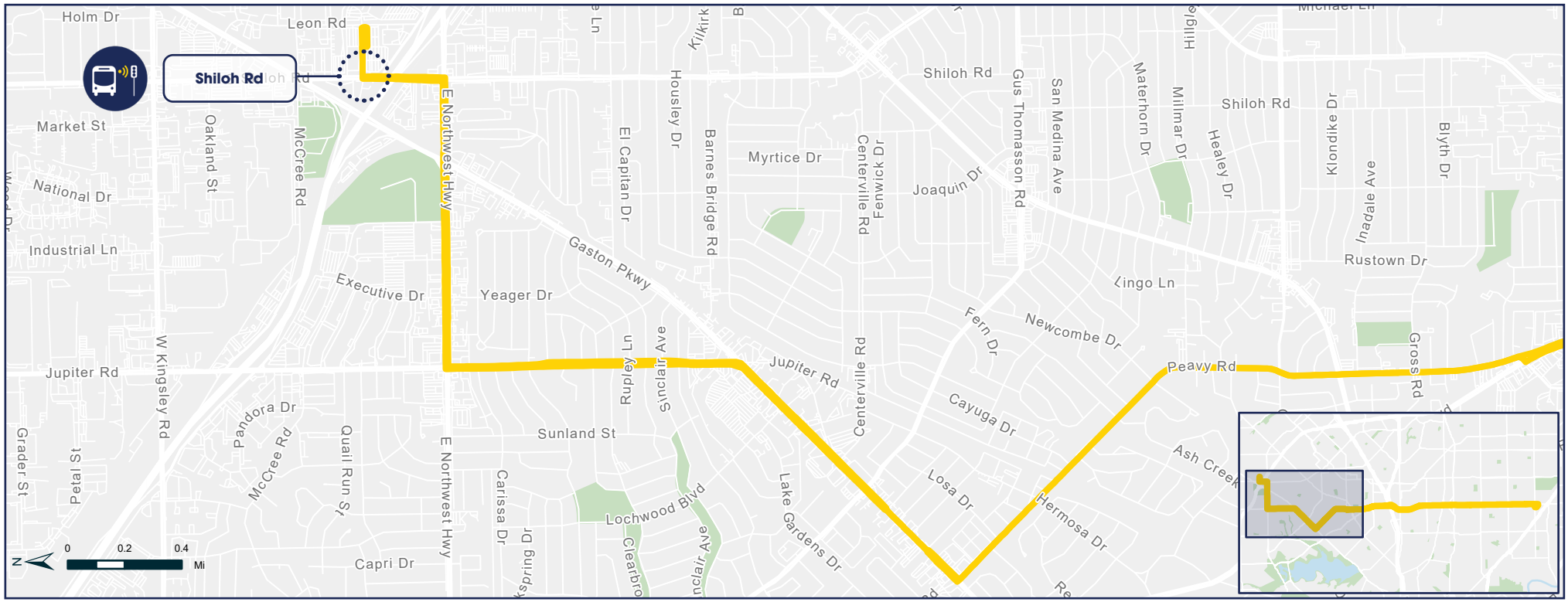
Route 15 – Buckner

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	HIGH
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	HIGH
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 15 – Buckner



RECOMMENDATIONS

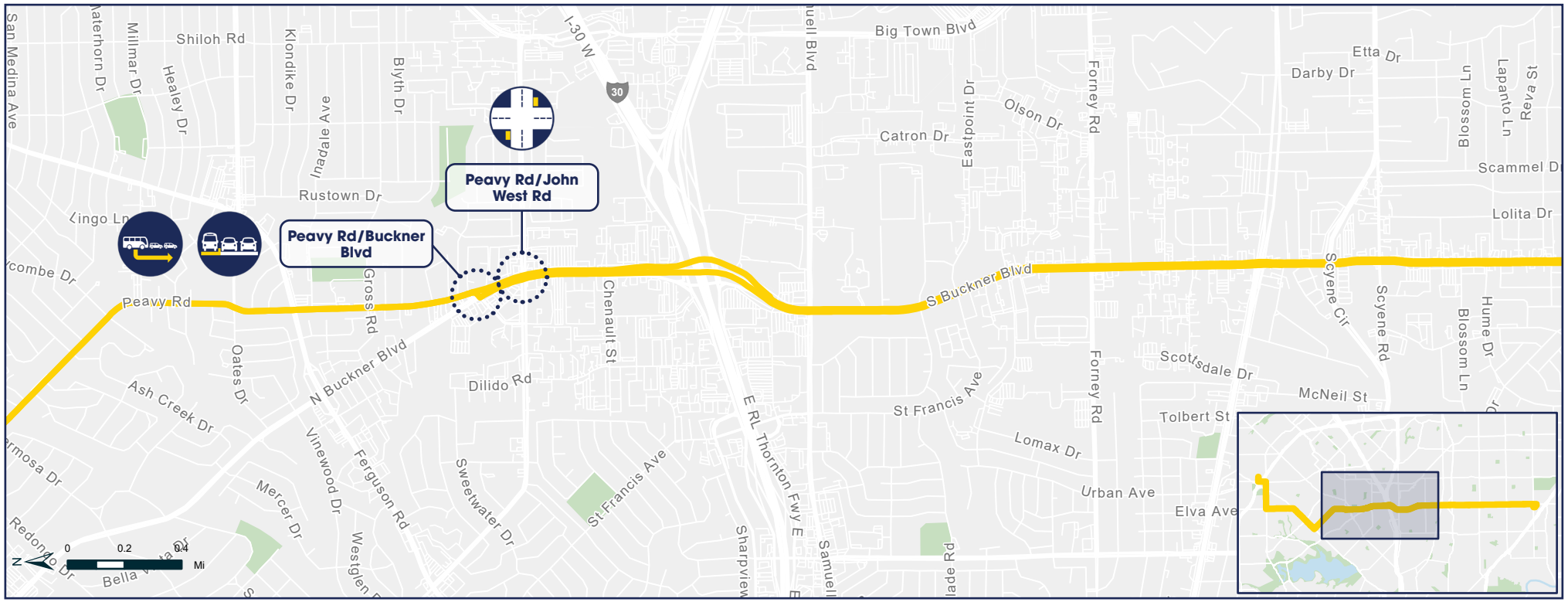
The northern end of Rotue 15 begins in South Garland. Transit Signal Priority at Shiloh Rd would improve efficiency of vehicles entering and exiting South Garland Transit Center.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 15 – Buckner

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 15 continues south on Peavy Rd and Buckner Blvd. The southbound vehicles turning onto Buckner would be supported by a queue jump lane in reallocated right-of-way. Reloacting bus stops closer to the intersection at Buckner and John West Rd would also facilitate easier transfers between Routes 15 and 18.

TOOLBOX ICON DEFINITION

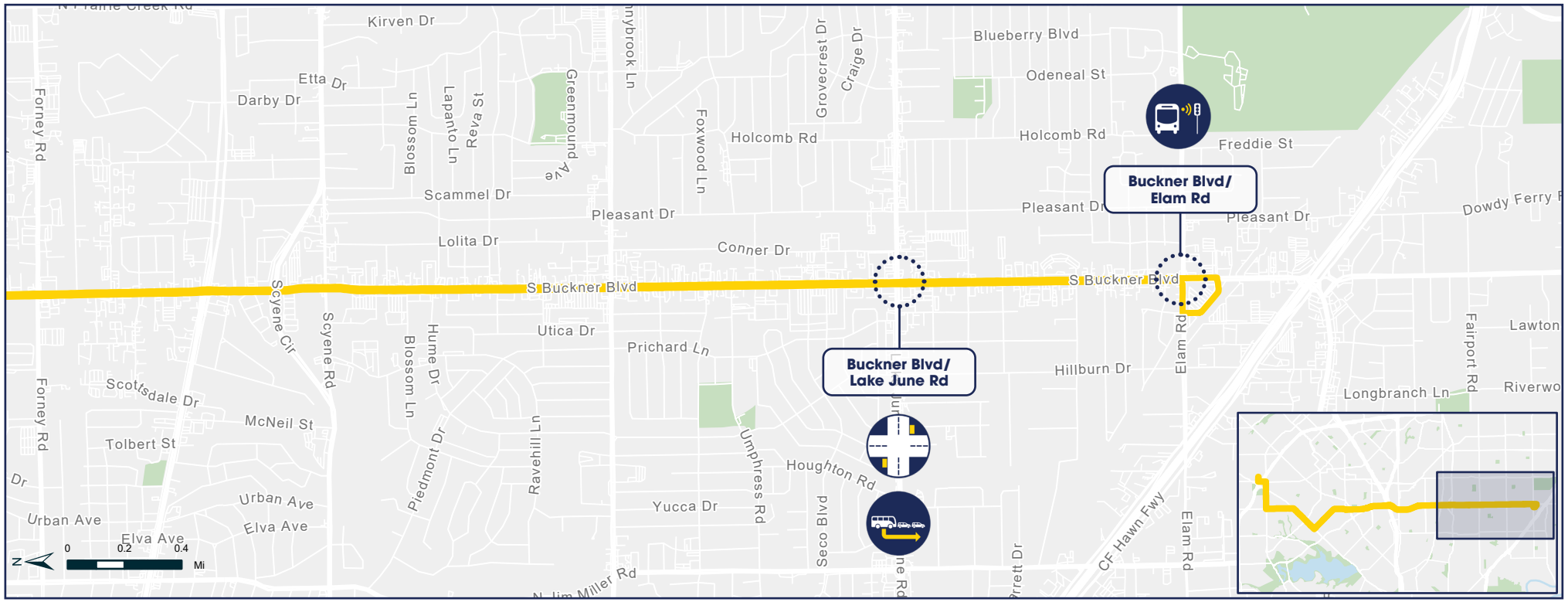
QUEUE JUMP

ROADWAY CHANNELIZATION

BUS STOP LOCATIONS

Route 15 – Buckner

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 15 serves the Elam neighborhood at its southern end. Relocating bus stops at Buckner and Lake June Rd would facilitate transfers between Routes 15 and 30, while a queue jump will help move northbound transit vehicles through the intersection more efficiently. Transit Signal Priority at Buckner and Elam Rd would help avoid missed connections at Buckner Station.

TOOLBOX ICON DEFINITION

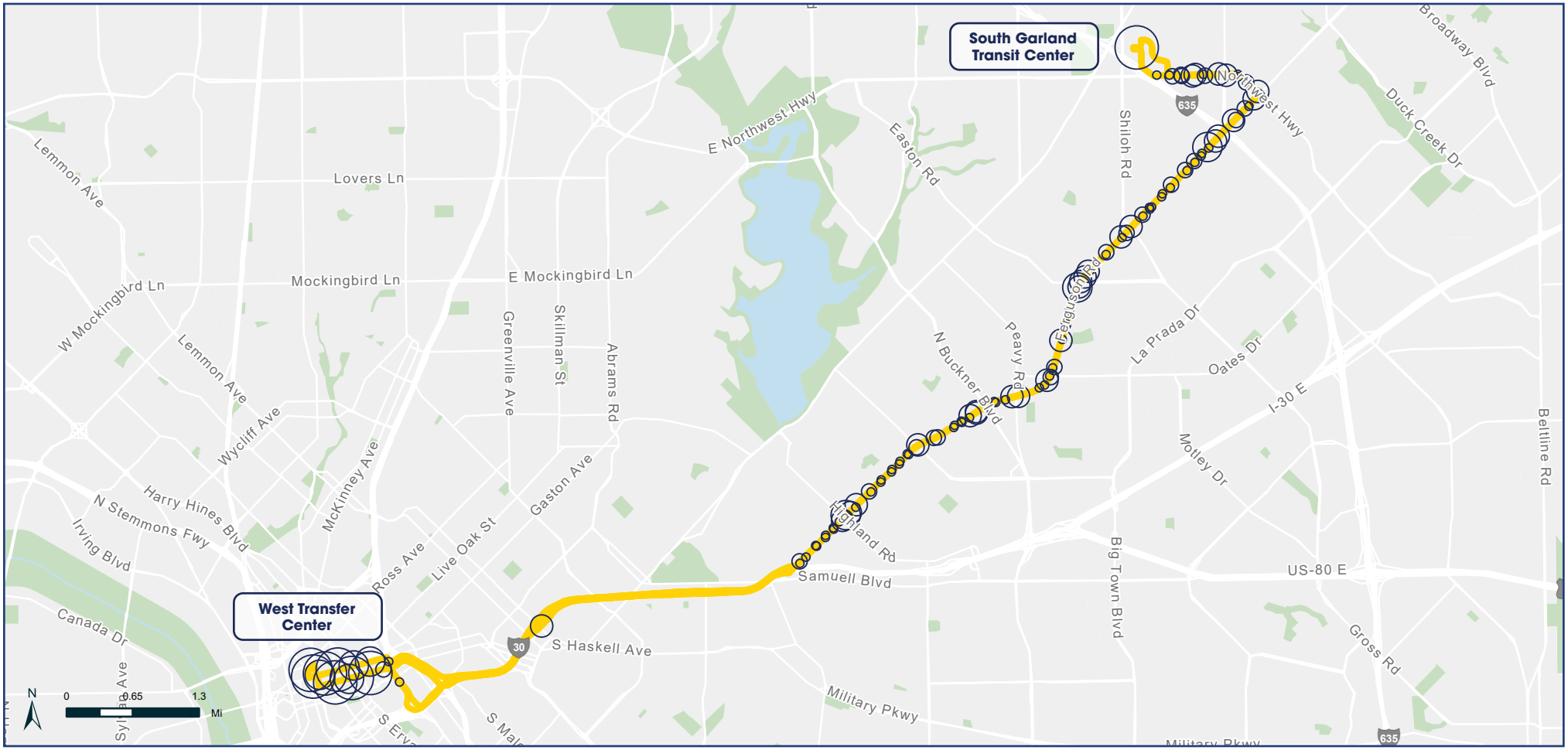
BUS STOP LOCATIONS

TRANSIT SIGNAL PRIORITY

QUEUE JUMP

Route 16 – Ferguson

CORE
Corridor Optimization + Rider Experience



TERMINI

West Transfer Center
South Garland Transit Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,730

ROUTE CONNECTIONS

Routes 3, 13, 15, 18, 20, 103, 105, 203, 204, 207, 209, 212, 214, 239, 242, 245, 247, 249, 251, 305

KEY DESTINATIONS

Casa View Shopping Center
Dallas College El Centro Campus
Amberton University

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

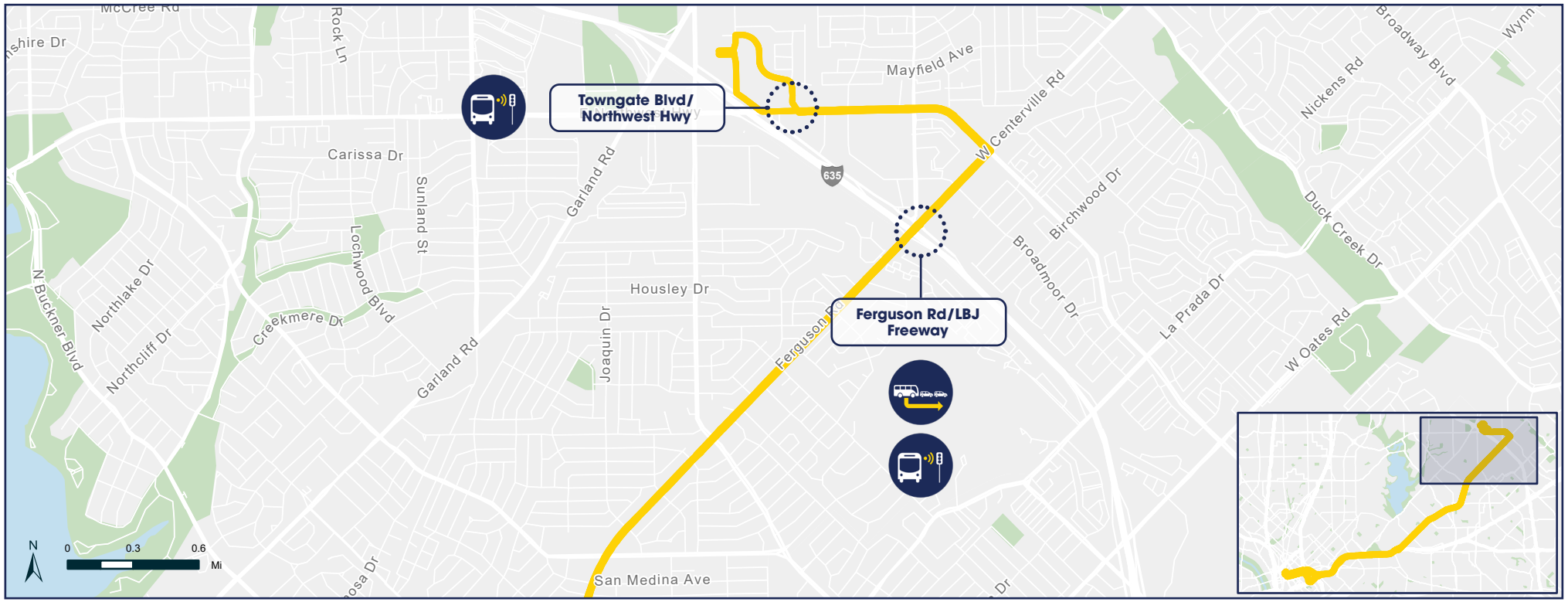
Route 16 – Ferguson

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	HIGH
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 16 – Ferguson



RECOMMENDATIONS

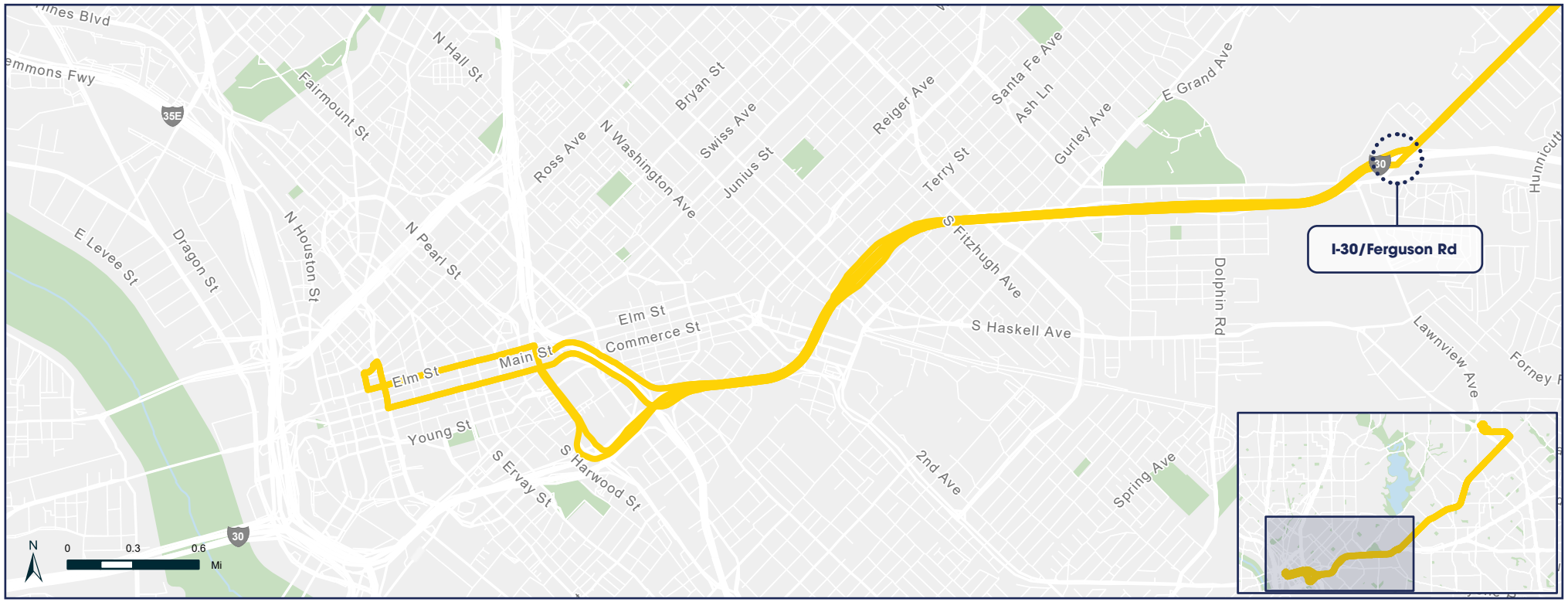
Route 16 connects south Garland with Downtown Dallas, running express on I-30 between Ferguson and Downtown Dallas. Transit Signal Priority at Towngate Blvd and Northwest Hwy will help vehicles turning left to start southbound trips, and TSP along with a queue jump at Ferguson Rd will prioritize transit vehicles moving through the intersection at the LBJ Freeway.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

QUEUE JUMP

Route 16 – Ferguson

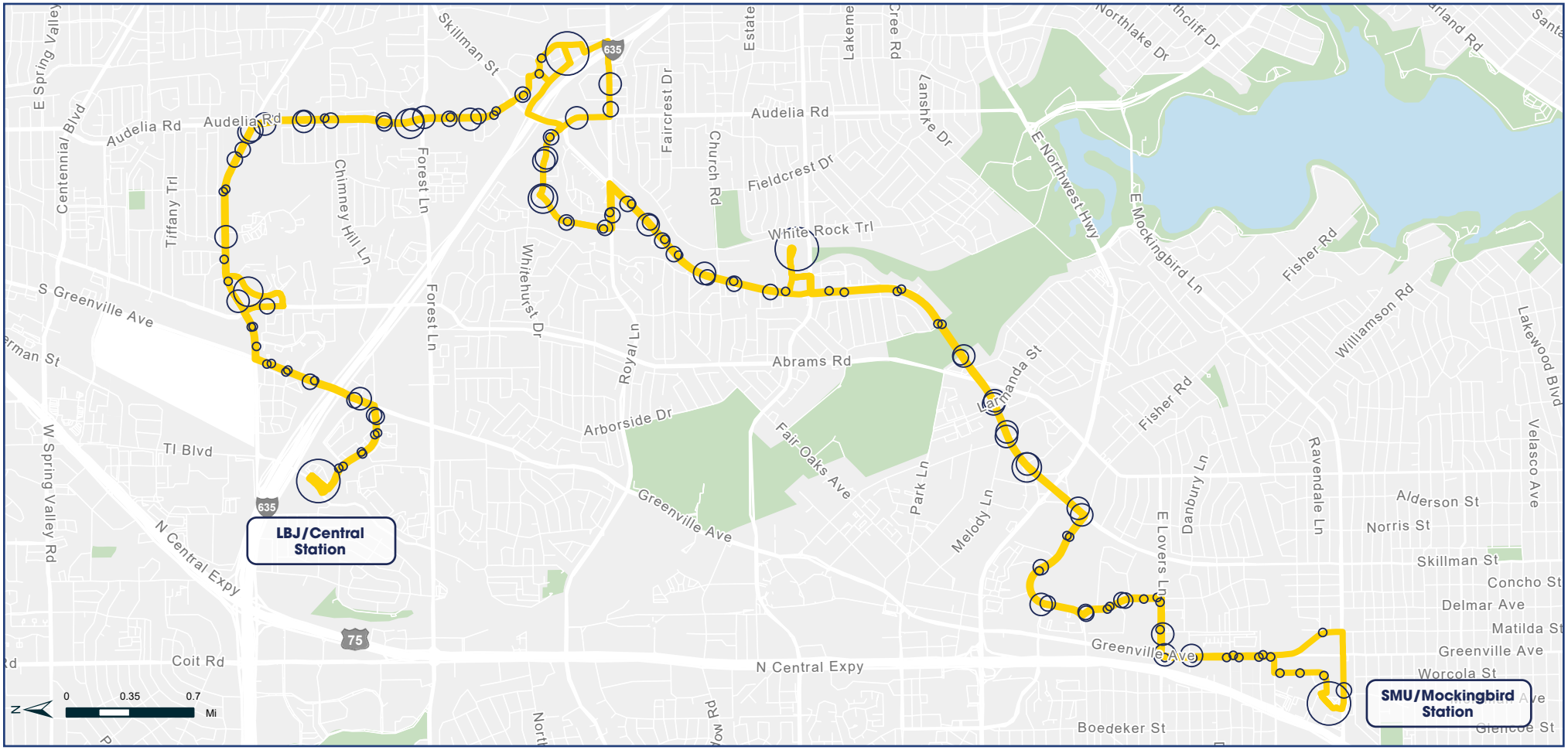


RECOMMENDATIONS

Accommodations could be made to allow buses to use the HOV reversible lane when entering I-30 from Ferguson Rd.

Route 17 – Skillman

CORE
Corridor Optimization + Rider Experience



TERMINI

LBJ/Central Station
SMU/Mockingbird Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,912

ROUTE CONNECTIONS

Routes 3, 20, 22, 105, 200, 204, 209, 242 243, 249, 413, 417, 419, 440, 442, North Central Dallas GoLink, Park Cities Lakewood GoLink

KEY DESTINATIONS

Southern Methodist University
Medallion Shopping Center
Lake Highlands Station
LBJ/Skillman Station
Dallas College Richland Campus

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

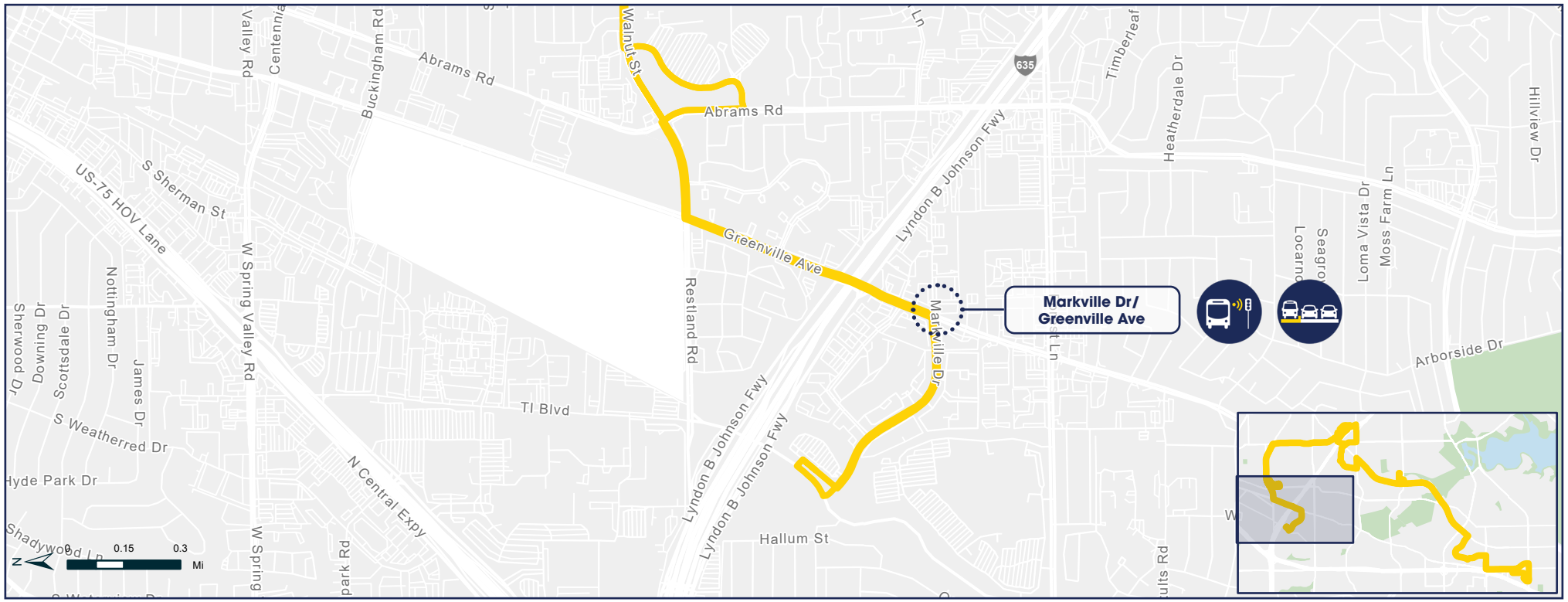
Route 17 – Skillman

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 17 – Skillman



RECOMMENDATIONS

Route 17 serves North Central Dallas and Lake Highlands. Transit Signal Priority at the intersection of Markville Dr and Greenville Ave will facilitate easier left turns for vehicles entering and leaving LBJ/Central Station. A left turn lane could also be created at the same intersection using the existing median to minimize LOS impacts to autos.

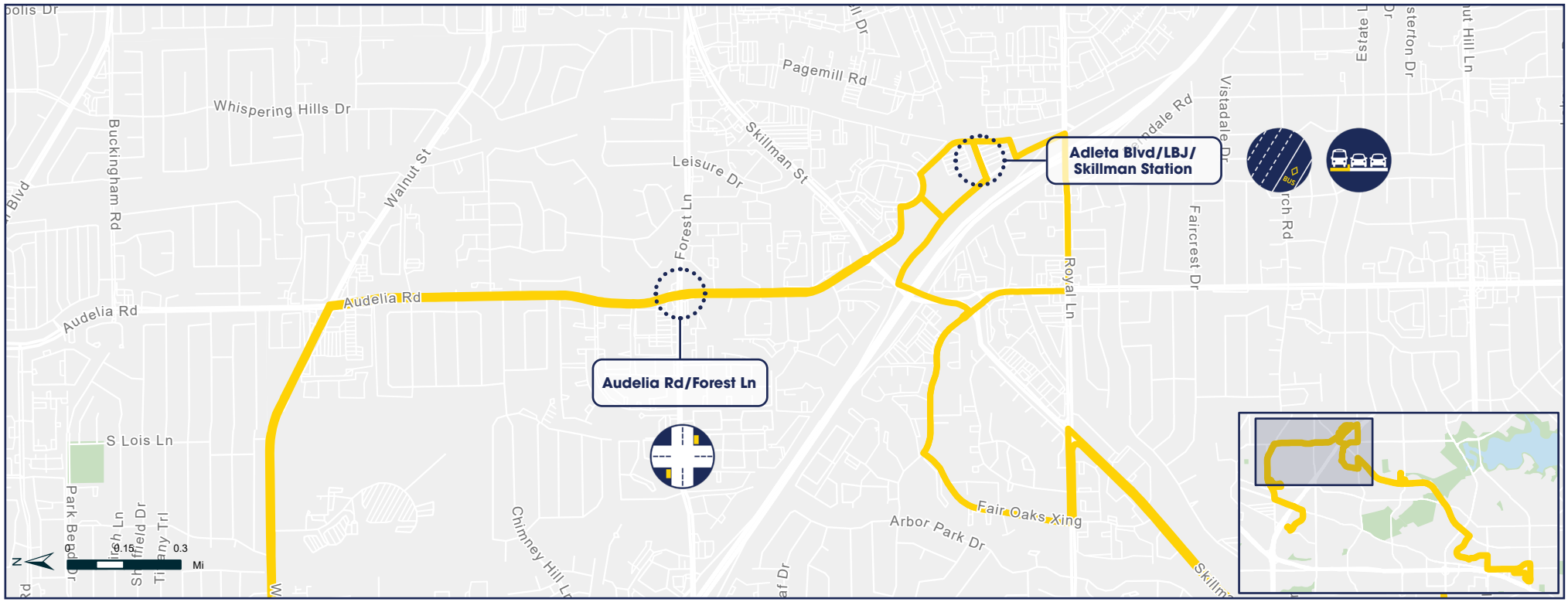
TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

ROADWAY CHANNELIZATION

Route 17 – Skillman

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Relocating bus stops closer to the intersection of Audelia Rd and Forest Ln will make transfers more convenient between Routes 17 and 22. Developing a short transit-only acceleration lane at the LBJ/ Skillman Station exit would also allow buses to exit freely, stop at rail tracks, and get up to speed before merging onto the 635 frontage road.

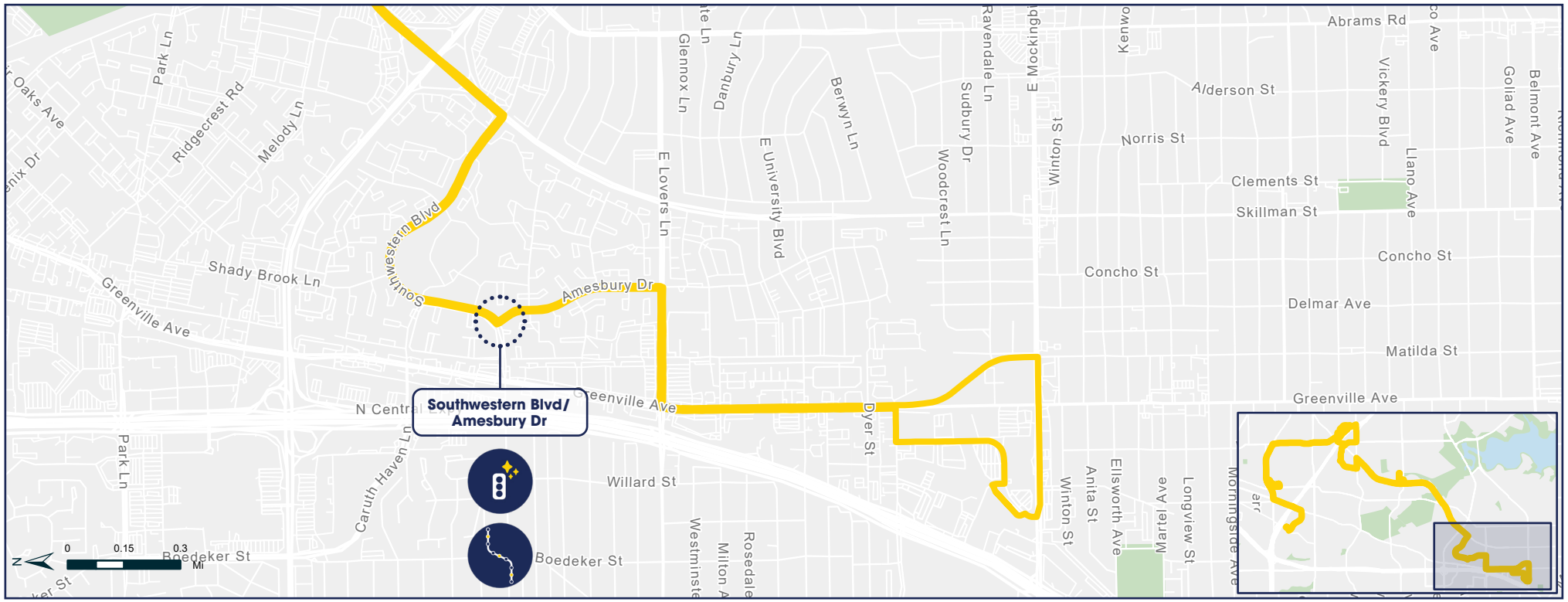
TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

DEDICATED BUS LANE

ROADWAY CHANNELIZATION

Route 17 – Skillman



RECOMMENDATIONS

A new signal with a protected left turn at the intersection of Southwestern Blvd and Amesbury Dr could mitigate potential safety issues and reduce delays in the southbound direction. Bus stops along this section of the route could also be consolidated to improve efficiency and travel times.

There are no recommendations made for other segments of this route.

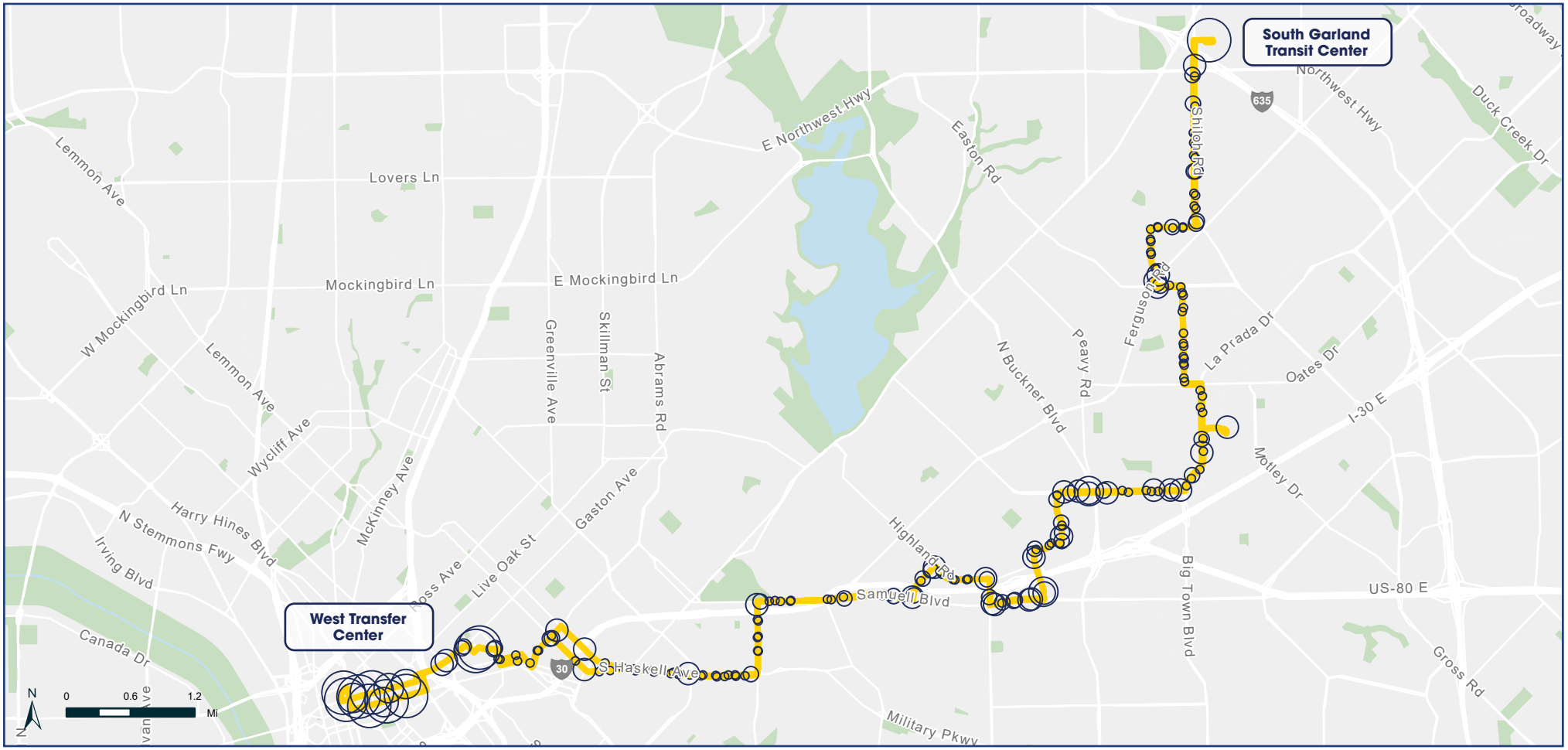
TOOLBOX ICON DEFINITION

NEW SIGNAL

STOP CONSOLIDATION

Route 18 – Samuell

CORE
Corridor Optimization + Rider Experience



TERMINI

West Transfer Center
South Garland Transit Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,951

ROUTE CONNECTIONS

Routes 3, 13, 15, 16, 20, 23, 103, 105, 203, 204, 207, 209, 212, 214, 216, 237, 239, 242, 245, 247, 249, 251, 305, North Central Dallas GoLink, Park Cities Lakewood GoLink, Red Line, Blue Line, Green Line, Orange Line

KEY DESTINATIONS

Dallas College Eastfield Campus
Baylor University Medical Center
Baylor Hospital
Deep Ellum
Samuell-Grand Park

LEGEND

Average Daily Boardings

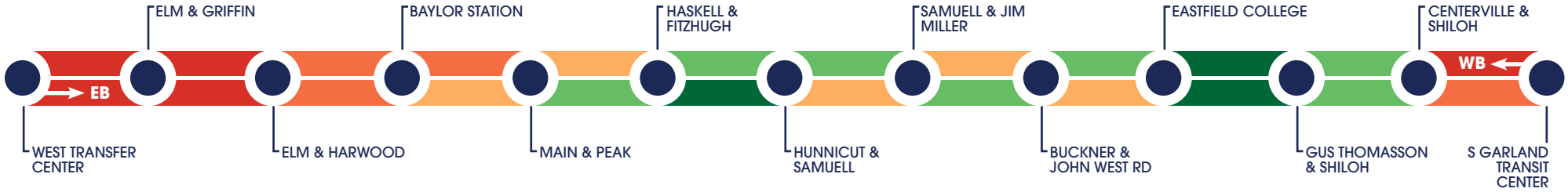
- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 18 – Samuell

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	LOW
Average Ridership Average daily stop-level boardings in each direction	LOW
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	LOW
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT



Route 18 – Samuell

CORE
Corridor Optimization + Rider Experience

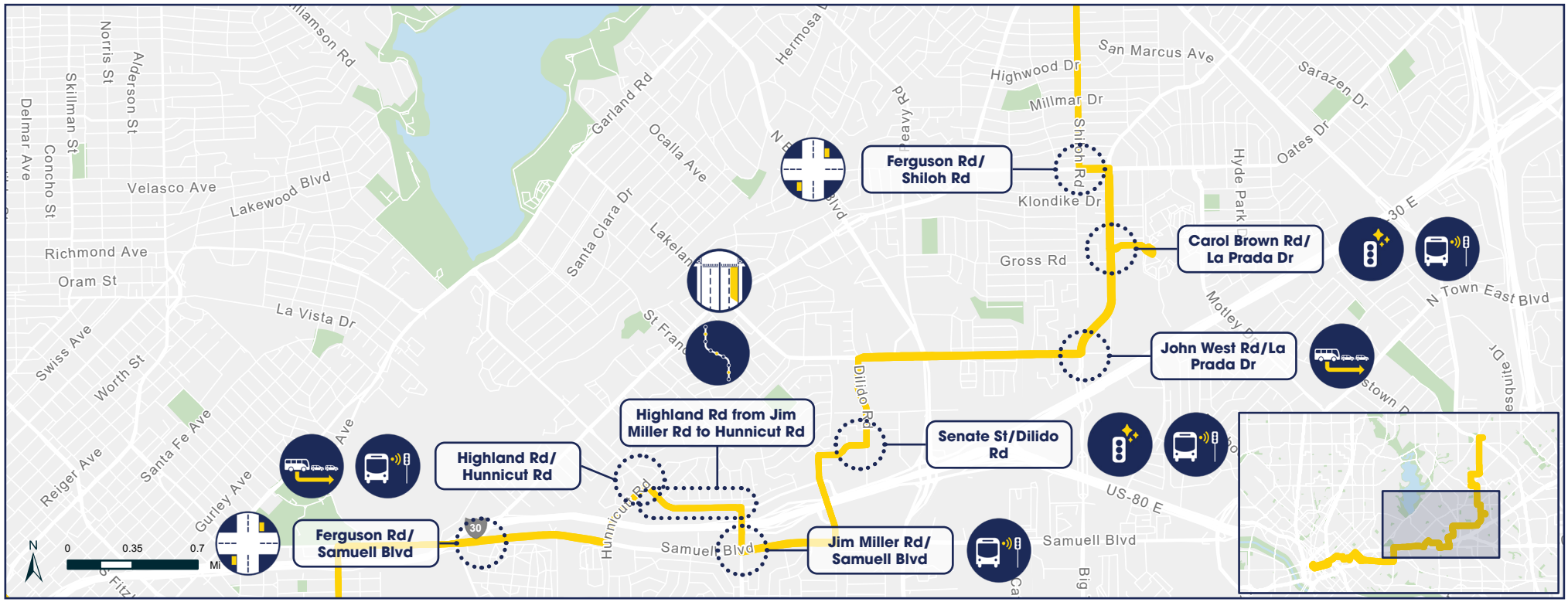
RECOMMENDATIONS

Route 18 connects South Garland Transit Center to Downtown Dallas. Transit Signal Priority at the western entrance of the South Garland Transit Center would help speed up vehicles turning in and out of the transit center on many routes. Relocating bus stops at Shiloh Rd and Northwest Hwy would also improve transfers between Routes 15, 18, and 20. A new signal with a protected left turn phase for vehicles at Shiloh Rd and Centerville Rd would reduce delays and increase safety. Right turn overlap phase for buses turning from Joaquin Dr to Ferguson Rd should be considered, as well as the removal of the Ferguson at Joaquin S bus stop. The turning radius at Ferguson Rd and Gus Thomasson Rd should also be improved to accommodate northbound transit vehicles.

TOOLBOX ICON DEFINITION

Route 18 – Samuell

CORE
Corridor Optimization + Rider Experience



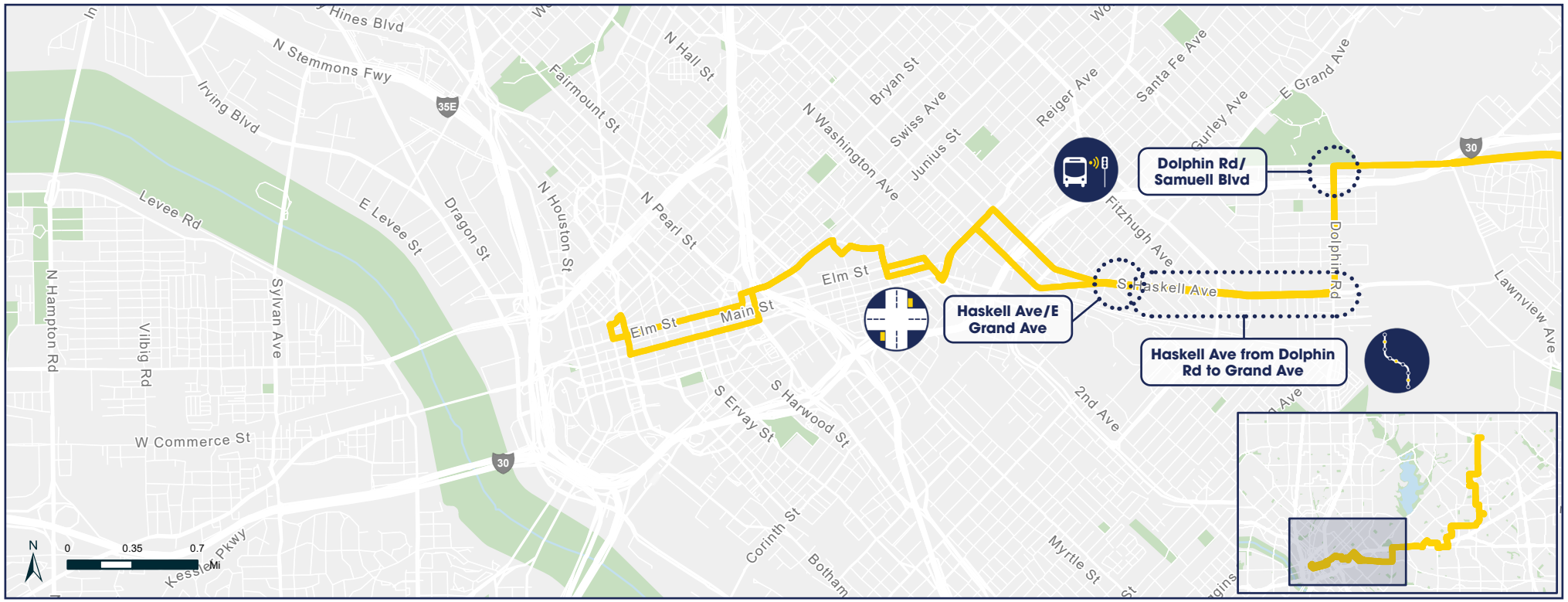
RECOMMENDATIONS

The bus stop at Shiloh north of Oates could be relocated to minimize buses needing to merge to the left lane in order to turn onto Oates. A queue jump could also be built in unused right-of-way at John West Rd and La Prada Dr. New signals with TSP should also be added at Carol Brown Rd & La Prada Dr and Senate St & Dilido Rd. Transit Signal Priority at Jim Miller Rd & Samuell Blvd and a new signal with a queue jump at Highland Rd & Hunnicut Rd would improve speed and reliability for turning vehicles.

Consolidating bus stops on Highland Rd between Jim Miller Rd and Hunnicut Rd would also improve efficiency for vehicles traveling on this segment. Bus bulbs should also be considered for this portion of the route to minimize delay re-entering traffic. The bus stops at Samuell Blvd and Ferguson Rd may also be relocated to reduce weaving required of buses traveling in the through lane.

TOOLBOX ICON DEFINITION

Route 18 – Samuell



RECOMMENDATIONS

Transit Signal Priority at the intersection of Dolphin Rd and Samuell Blvd would improve reliability for left-turning vehicles, while consolidating bus stops along Haskell Ave would also improve efficiency and travel times for vehicles appraoching and leaving Downtown. The bus stop at Haskell Ave and E Grand Ave may also be relocated to reduce weaving required of buses traveling in the through lane.

TOOLBOX ICON DEFINITION

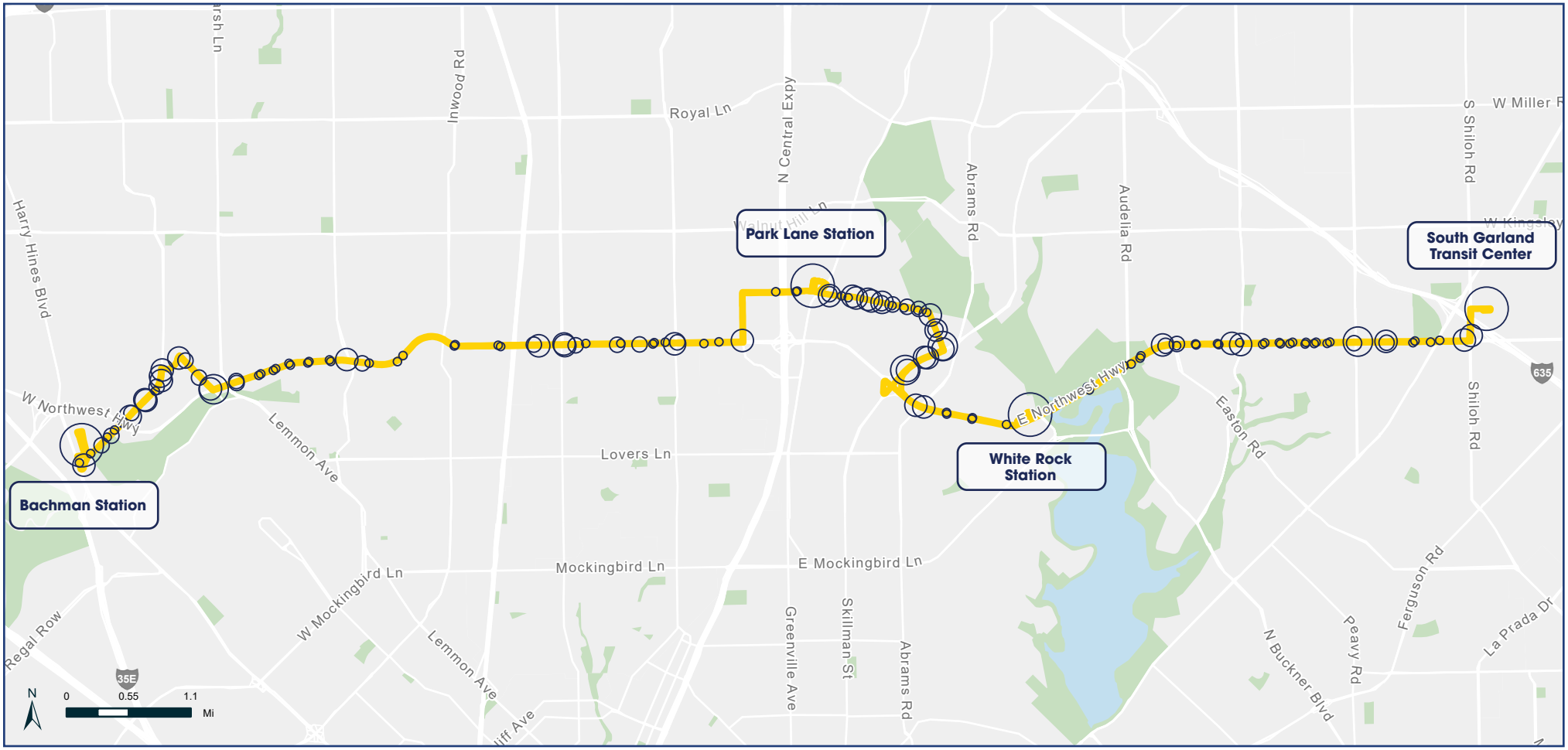
TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

BUS STOP LOCATIONS

Route 20 – Northwest Hwy

CORE
Corridor Optimization + Rider Experience



TERMINI

Bachman Station
South Garland Transit Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,830

ROUTE CONNECTIONS

Routes 15, 16, 18, 27, 203, 204, 212, 213, 233, 237, 242, 247, 251, 402, Lakewood GoLink, Lake Highlands GoLink, Red Line, Blue Line

KEY DESTINATIONS

Park Lane Station
White Rock Station
Dallas Children's Theater
Medallion Shopping Center
Amberton University
Bachman Lake Park
White Rock Lake Park
NorthPark Center

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 20 – Northwest Hwy

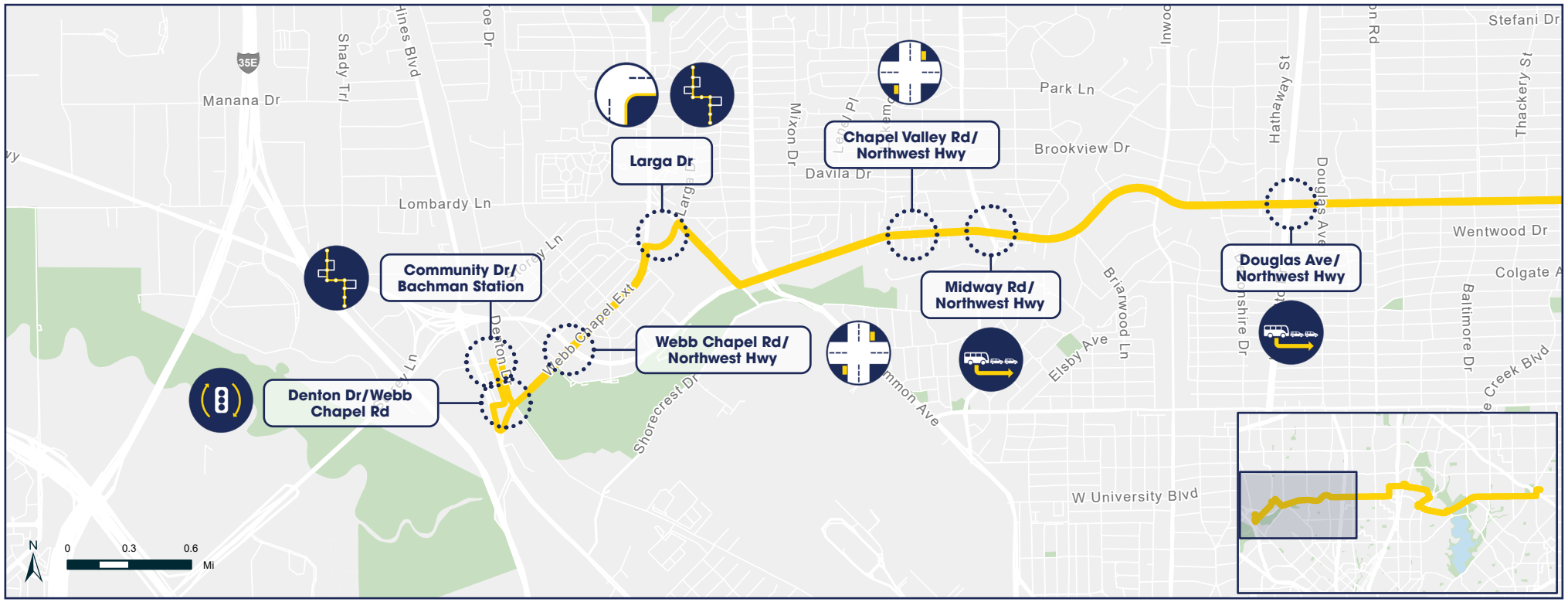
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	HIGH
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	VERY HIGH
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 20 – Northwest Hwy

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 20 runs east/west between Bachman Station and South Garland Transit Center. Adding a protected left turn signal at Denton Rd and Webb Chapel Rd or realigning the route to avoid Community Dr would help vehicles enter and exit Bachman Station more efficiently.

To address tight right turns to and from Larga Dr, the turning radii at Webb Chapel Rd and Webb Chapel Extension should be adjusted or the route should be realigned to continued north to Lombardy Ln.

Relocating bus stops to the far side of the intersection at Northwest Hwy & Webb Chapel and Northwest Hwy & Chapel Valley Rd will help vehicles move through the area more efficiently. Adding queue jumps on Northwest Hwy at Midway Rd and Douglas Ave will also move transit vehicles through the intersection faster as well.

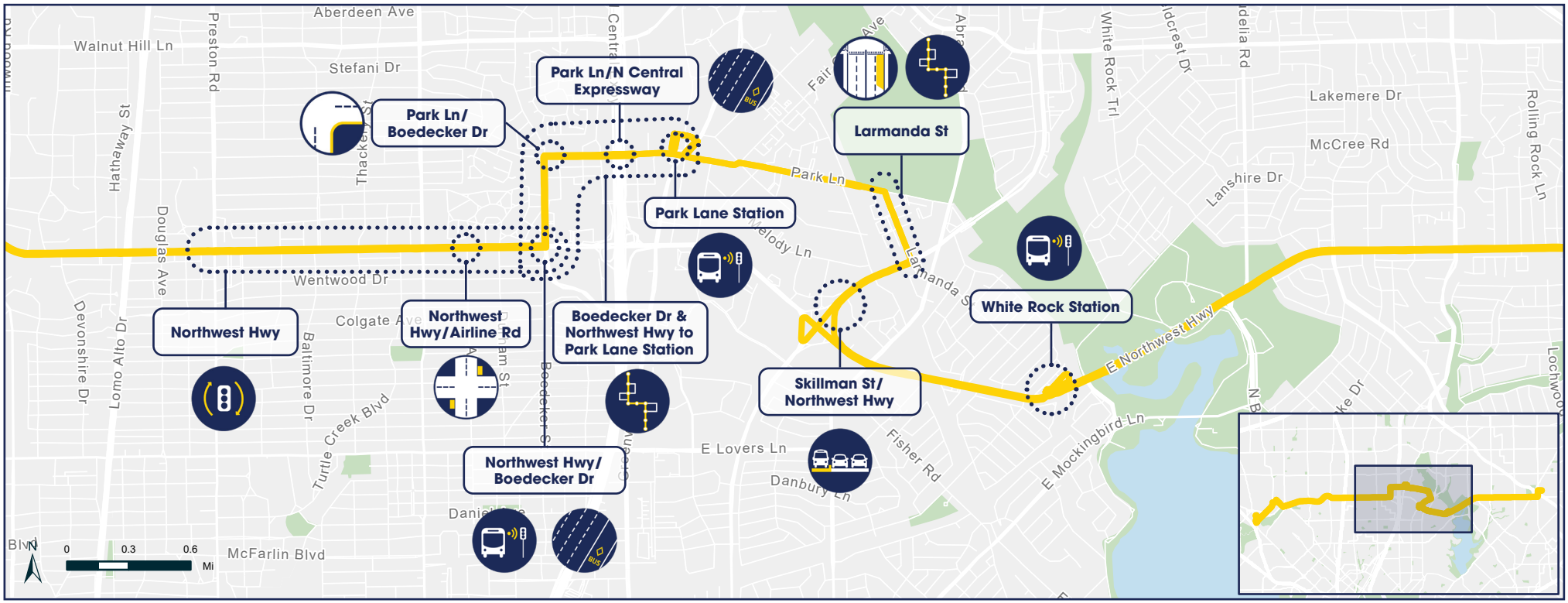
TOOLBOX ICON DEFINITON

- SIGNAL PHASE MODIFICATION
- ROUTE DESIGN
- BUS STOP LOCATIONS
- TURN RADIUS
- QUEUE JUMP

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 20 – Northwest Hwy

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 20 continues on Northwest Hwy, where improved green light timing would benefit transit vehicles traveling east toward Boedecker Dr.

The eastbound stop at Northwest Hwy and Airline Rd should be removed or shifted to the west. Transit Signal Priority and an acceleration lane should be considered at Boedecker Dr and Northwest Hwy for westbound buses. The right turn radius at Park Ln and Boedecker St should also be improved to accommodate transit vehicles, and the outside through lane along the Northwest Highway interchange could also be converted to a bus-only lane. Alternatively, the route could be realigned between Boedecker Dr & Northwest Hwy and Park Lane Station to use Caruth Haven Ln and Greenville Ave to get to Park Lane Station to avoid slow downs on Boedecker Dr and Park Ln.

To improve reliability along Larmanda St, bus bulbs should be added or the route should be moved to a nearby street. Adding TSP at the entrances to White Rock Station and Park Lane Station would improve reliability for vehicles turning into and out of stations.

Building an acceleration lane would also help buses moving from Skillman St onto Northwest Hwy get up to speed before merging with general traffic.

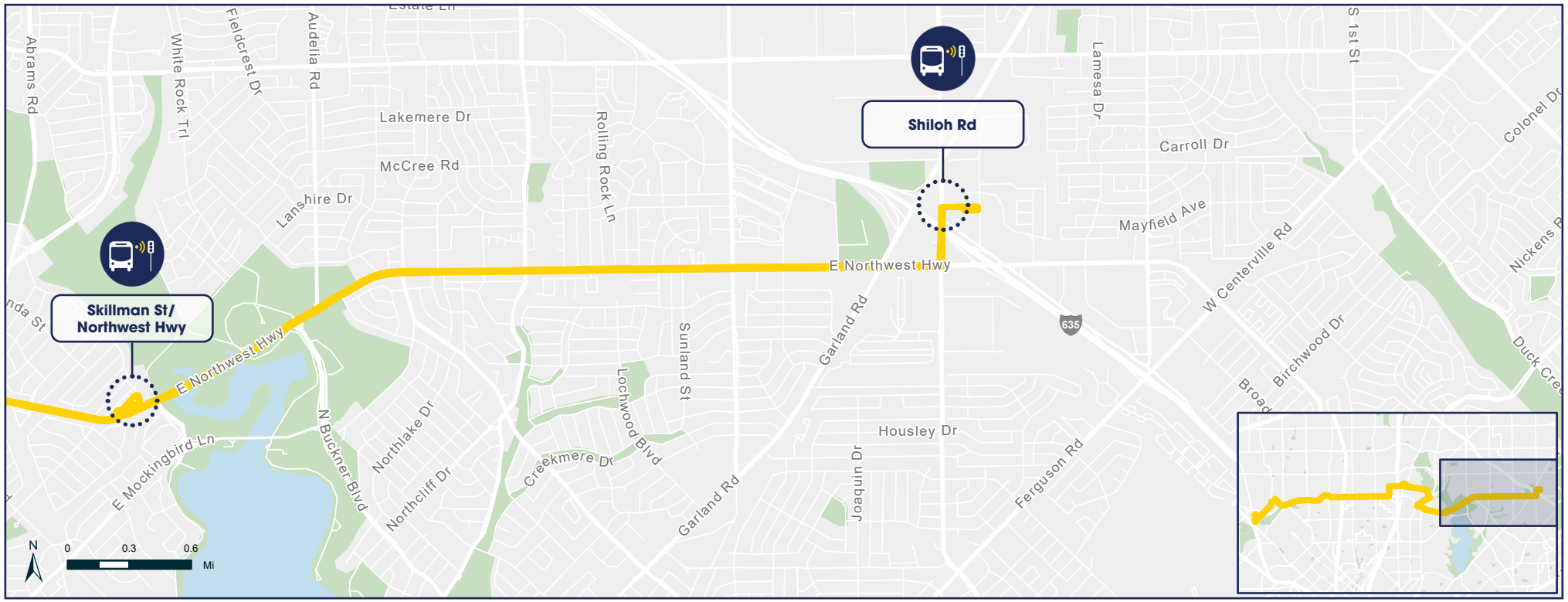
TOOLBOX ICON DEFINITION

- SIGNAL PHASE MODIFICATION
- ROADWAY CHANNELIZATION
- TRANSIT SIGNAL PRIORITY
- DEDICATED BUS LANE
- TURN RADIUS
- BUS BULB
- ROUTE DESIGN
- BUS STOP LOCATIONS

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 20 – Northwest Hwy

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Adding Transit Signal Priority at Shiloh Rd would help improve reliability of routes entering and exiting the South Garland Transit Center. Adding TSP at the entrances to White Rock Station would improve reliability for vehicles turning into and out of stations.

Additionally, stop consolidation is recommended along the entirety of Route 20.

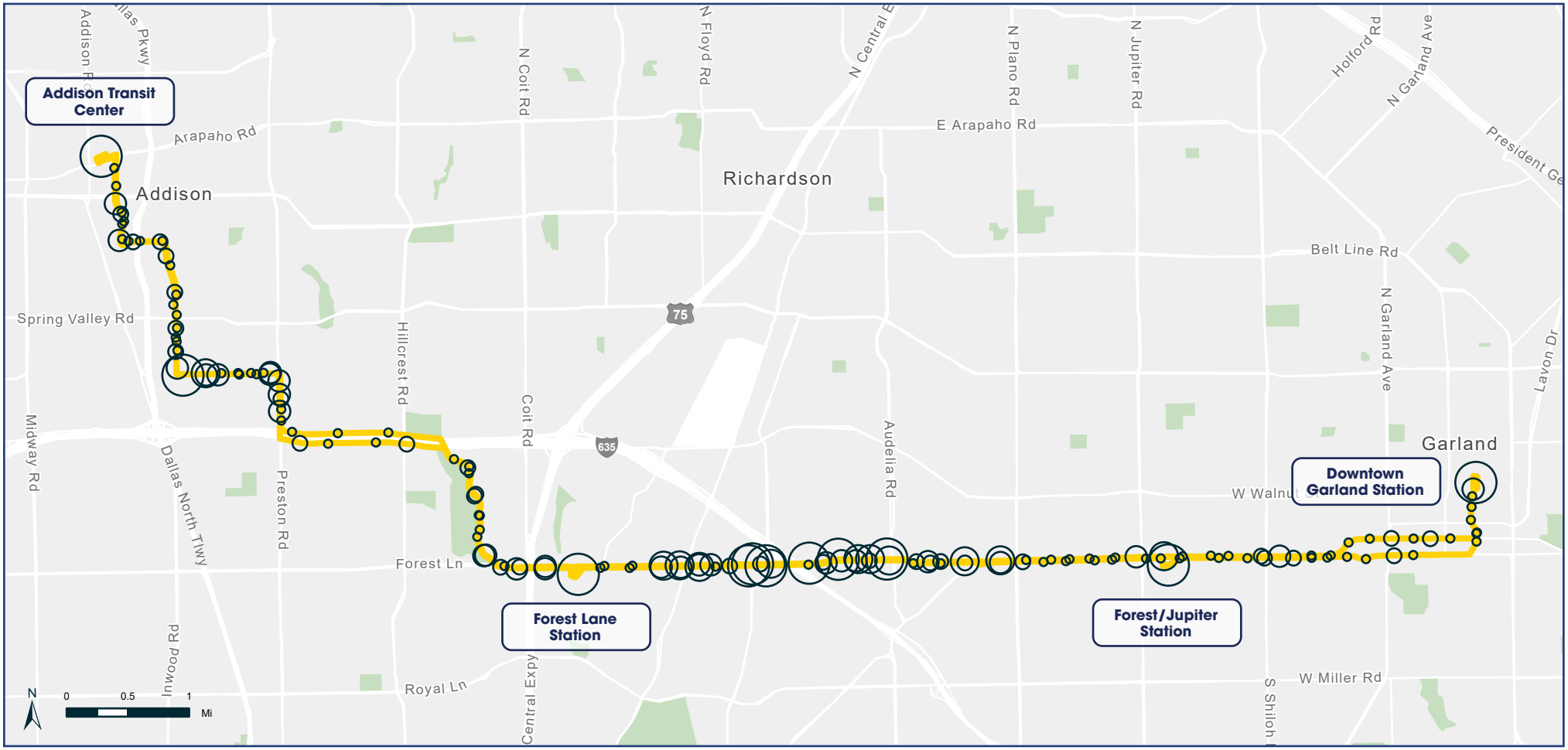
TOOLBOX ICON DEFINITON

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 22 – Forest Lane

CORE
Corridor Optimization + Rider Experience



TERMINI

Addison Transit Center
Downtown Garland Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

2,987

ROUTE CONNECTIONS

Routes 17, 200, 202, 203, 224, 227, 237, 238, 239, 241, 243, 245, 247, 250, 251, Medical City Shuttle, Red Line, Blue Line, Orange Line

KEY DESTINATIONS

Forest Lane Station
Forest/Jupiter Station
Galleria Dallas
Valley View Mall/Dallas Midtown
Medical City Hospital
Texas Instruments
Addison Aiport

LEGEND

Average Daily Boardings

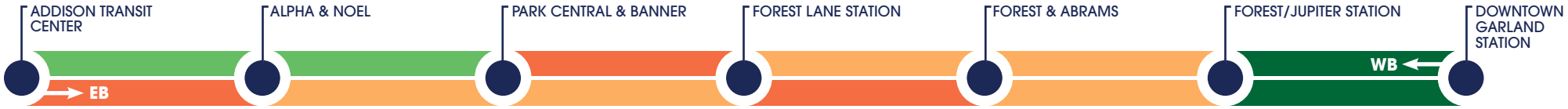
- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 22 – Forest Lane

CORE
Corridor Optimization + Rider Experience

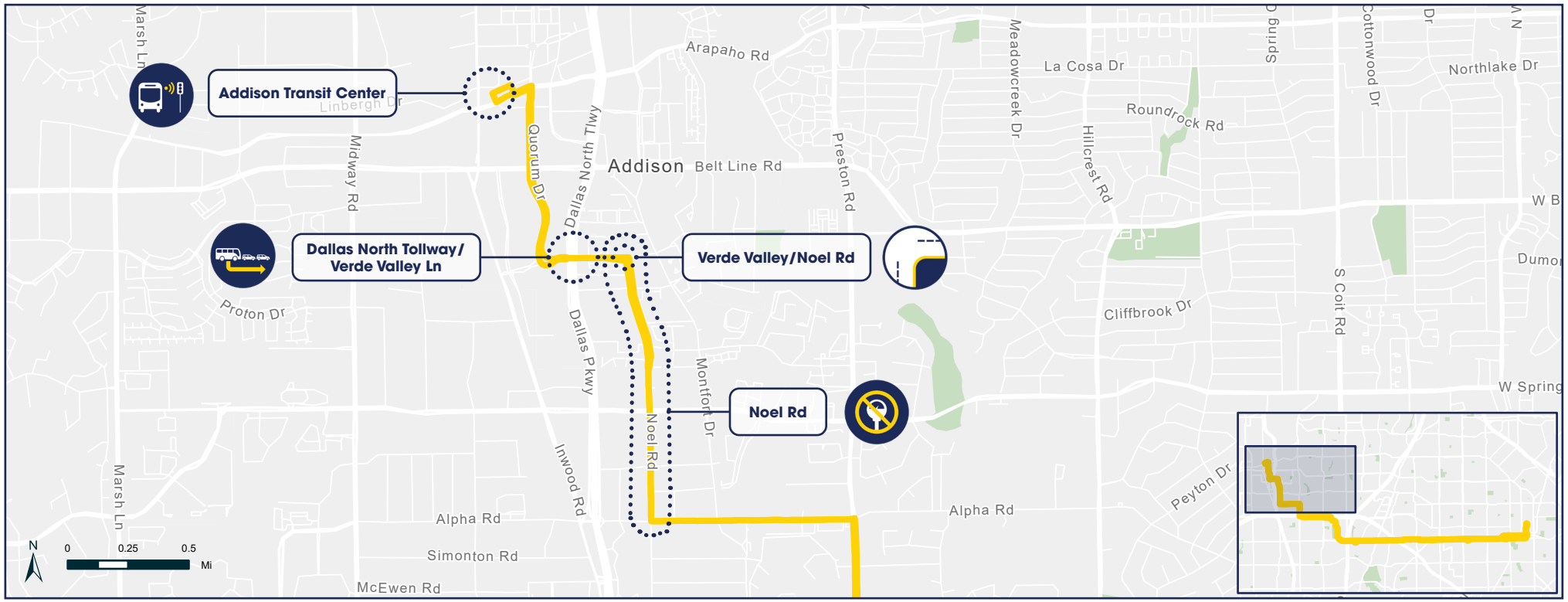
Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	LOW
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	VERY HIGH
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT



Route 22 – Forest Lane

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 22 connects Addison and Garland. A bus-activated signal at the Addison Transit Center entrance would speed up vehicles entering and exiting, and a potential queue jump on Verde Valley Ln would help move transit vehicles through the intersection with the Dallas North Tollway faster. The right turn radius at Verde Valley and Noel Rd should be improved to accommodate eastbound buses. Removing street parking on southbound Noel Rd would also enhance transit operations and improve access to stops along the route.

TOOLBOX ICON DEFINITION

QUEUE JUMP

TRANSIT SIGNAL PRIORITY

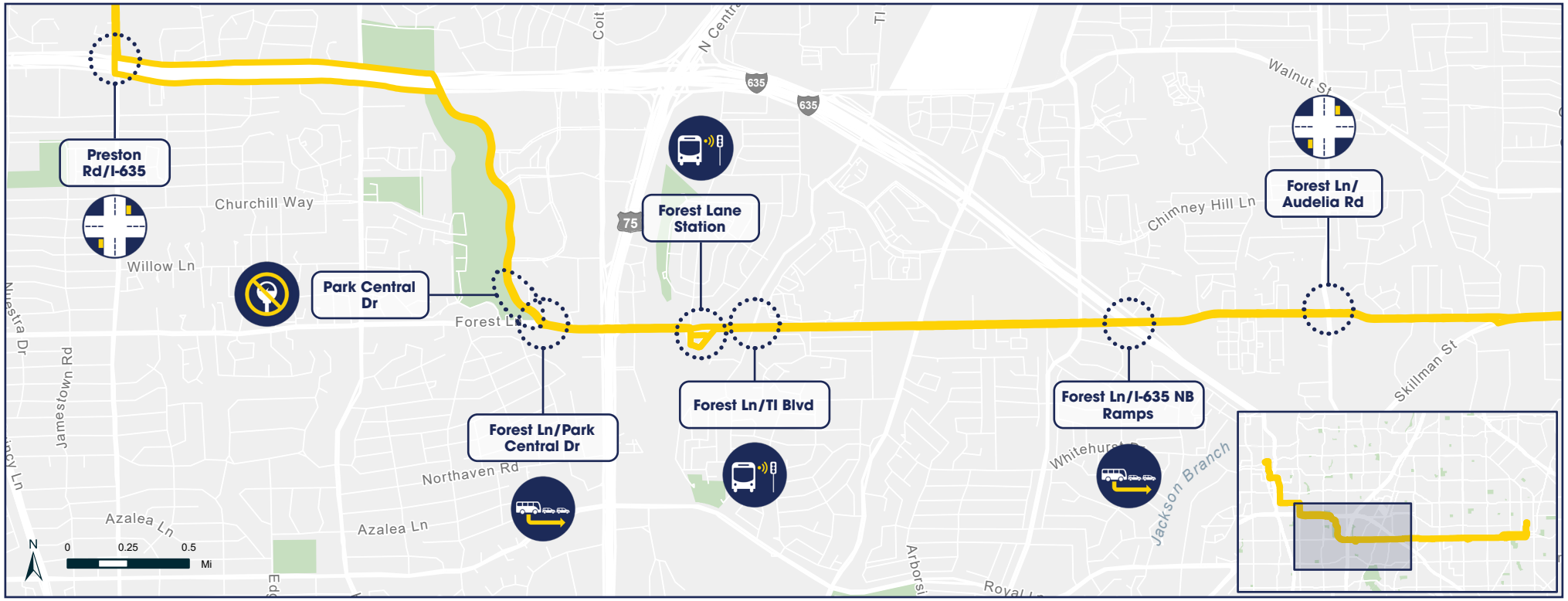
PARKING REMOVAL

TURN RADIUS

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 22 – Forest Lane

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

From Preston, Route 22 travels along the I-635 frontage road to Park Central Dr then remains on Forest Ln. The bus stop on Preston Rd just north of I-635 should be removed or relocated. On-street parking on Park Central Dr in front of Medical City Dallas Hospital should also be eliminated.

The area around Forest Lane Station sees continually slow speeds, which Transit Signal Priority at the station entrance and at Forest Ln & TI Blvd would improve. A queue jump adjacent to the median would also help vehicles turning from Park Central Dr onto Forest Ln and moving through the I-635 & Forest Ln intersection. Relocating bus stops at Forest Ln and Audelia Rd would also facilitate easier transfers between Routes 17 and 22.

TOOLBOX ICON DEFINITION

QUEUE JUMP

TRANSIT SIGNAL PRIORITY

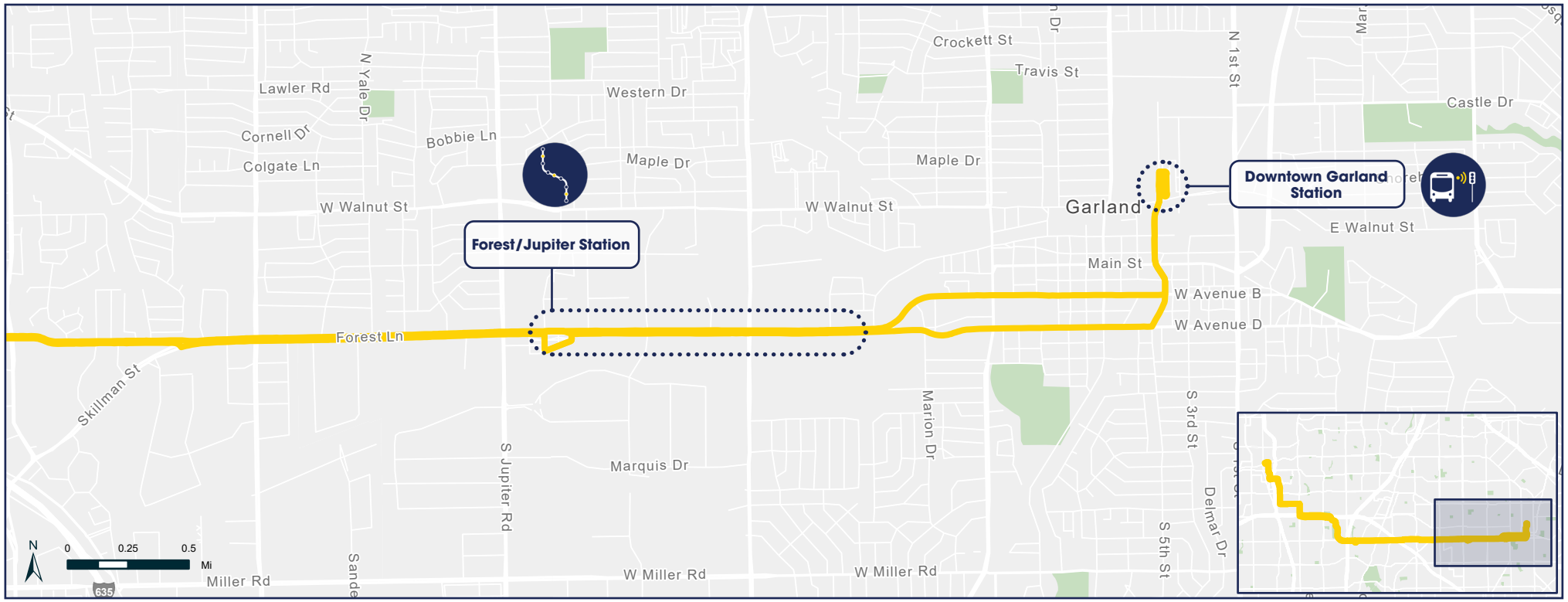
BUS STOP LOCATIONS

PARKING REMOVAL

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 22 – Forest Lane

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Continuing eastward, Route 22 serves the Forest/Jupiter Station and Downtown Garland Station. A bus-activated signal at the entrance to Downtown Garland Station would improve reliability for transfering riders. Bus stop optimization and consolidation opportunities exist along entire route based on spacing and ridership, and would be particularly beneficial along Forest Ln where speeds are slower.

TOOLBOX ICON DEFINITION

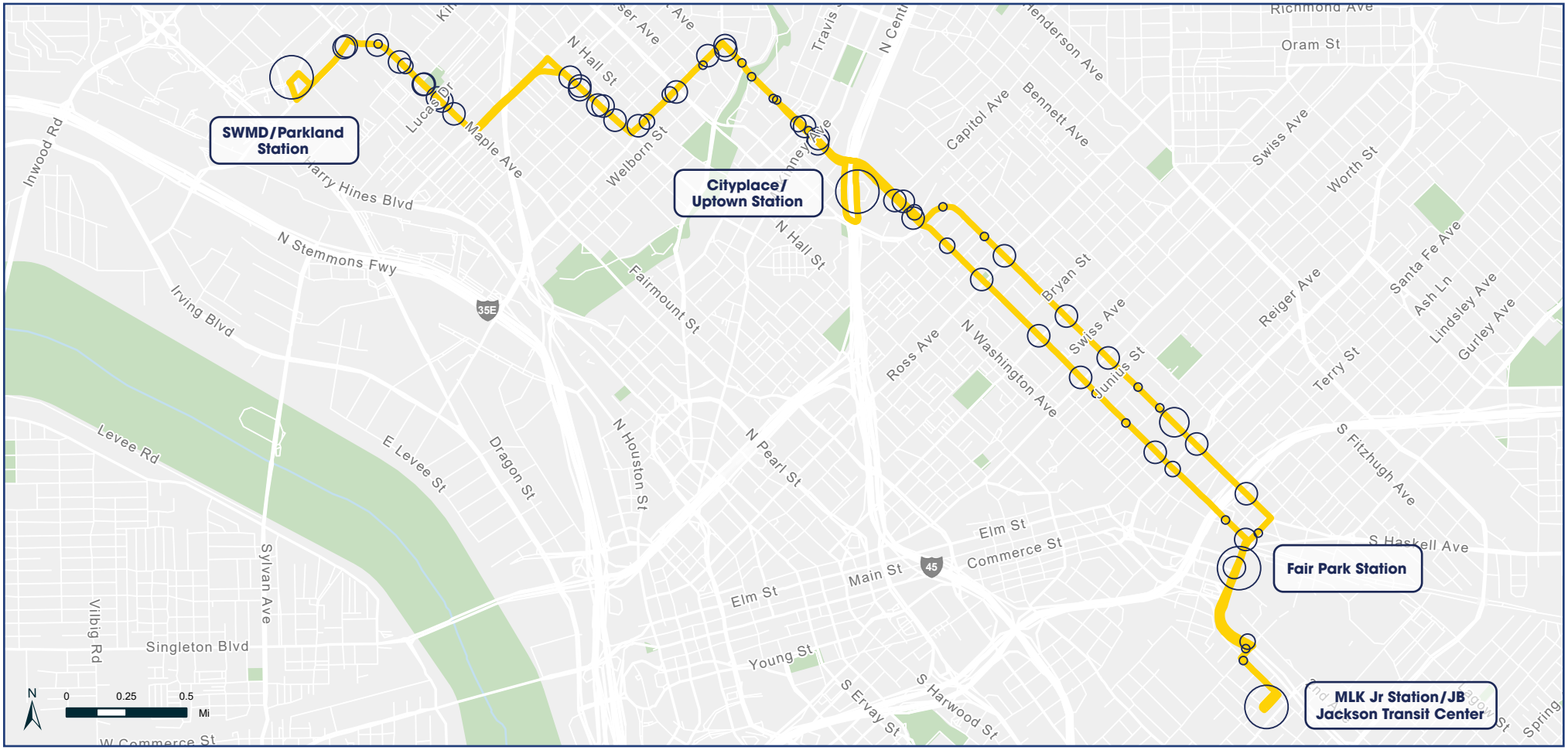
TRANSIT SIGNAL PRIORITY

BUS STOP OPTIMIZATION

ADDITIONAL STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 23 – Haskell

CORE
Corridor Optimization + Rider Experience



TERMINI

SWMD/Parkland Station
MLK Jr Station/J.B. Jackson Transit Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,303

ROUTE CONNECTIONS

Routes 1, 3, 9, 13, 57, 10, 103, 104, 105, 207, 209, 213, 214, 216, 219, 222, 230, 237, 249, 422, 434, 435, 436, South Dallas GoLink, Red Line, Blue Line, Orange Line, Green Line

KEY DESTINATIONS

Cityplace/Uptown Station
Fair Park Station
Baylor University Medical Center
Baylor Medical Center Uptown
Parkland Hospital
Children's Medical Center

LEGEND

Average Daily Boardings

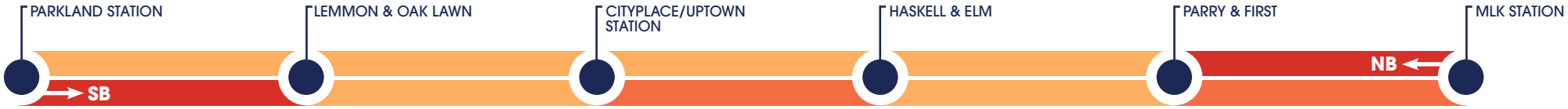
- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 23 – Haskell

CORE
Corridor Optimization + Rider Experience

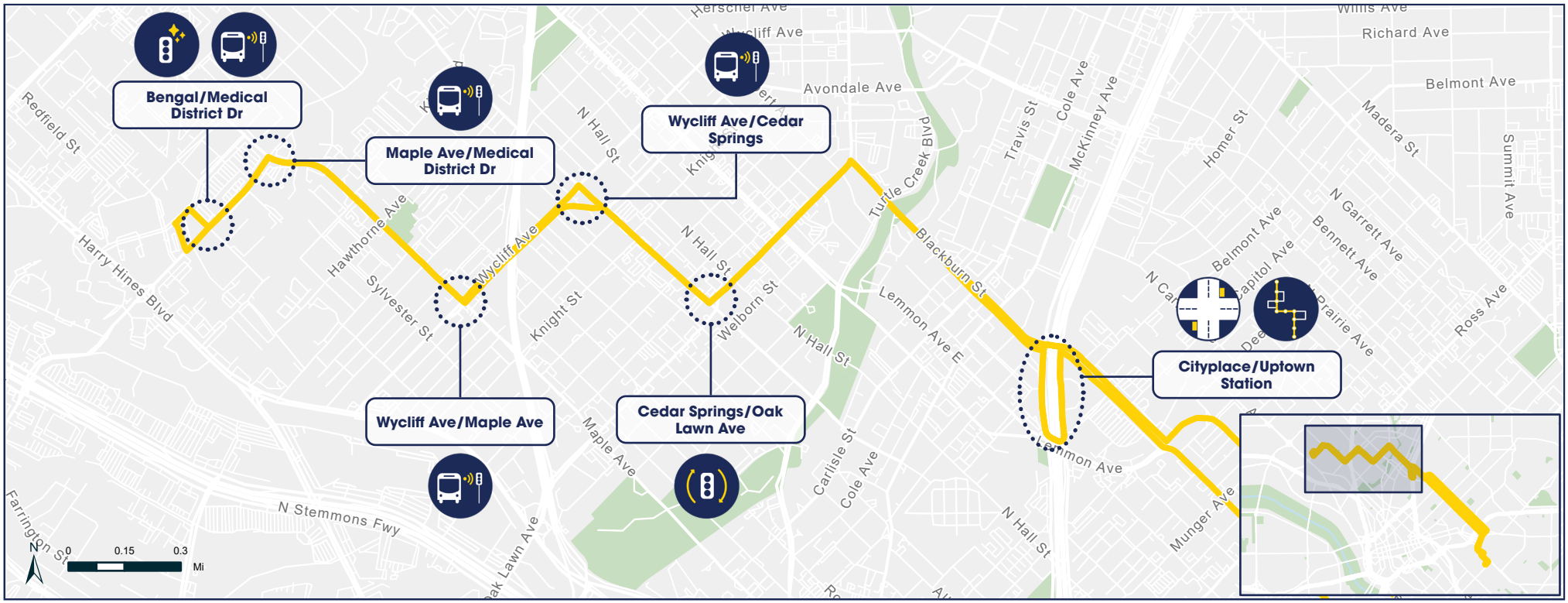
Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	HIGH
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	LOW
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	LOW

SCORES BY SEGMENT



Route 23 – Haskell

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 23 connects Parkland Station with MLK Station. A new signal that replaces the existing signal and accomodates protected left-turns and Transit Signal Priority is recommended at Bengal & Medical District Dr. TSP is also recommended at the Maple Ave & Medical District Dr, Wycliff Ave & Maple Ave and Wycliff Ave & Cedar Springs intersections. A permanent protected left turn is recommended at the Cedar Springs and Oak Lawn signal. Removing route deviations down to Lemmon Ave for City Place Station stop is recommended to improve efficiency, but adding a new bus stop on Haskell near US 75 would preserve walking access to the station.

There are no recommendations made for other segments of the route.

TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

ROUTE DESIGN

SIGNAL PHASE MODIFICATION

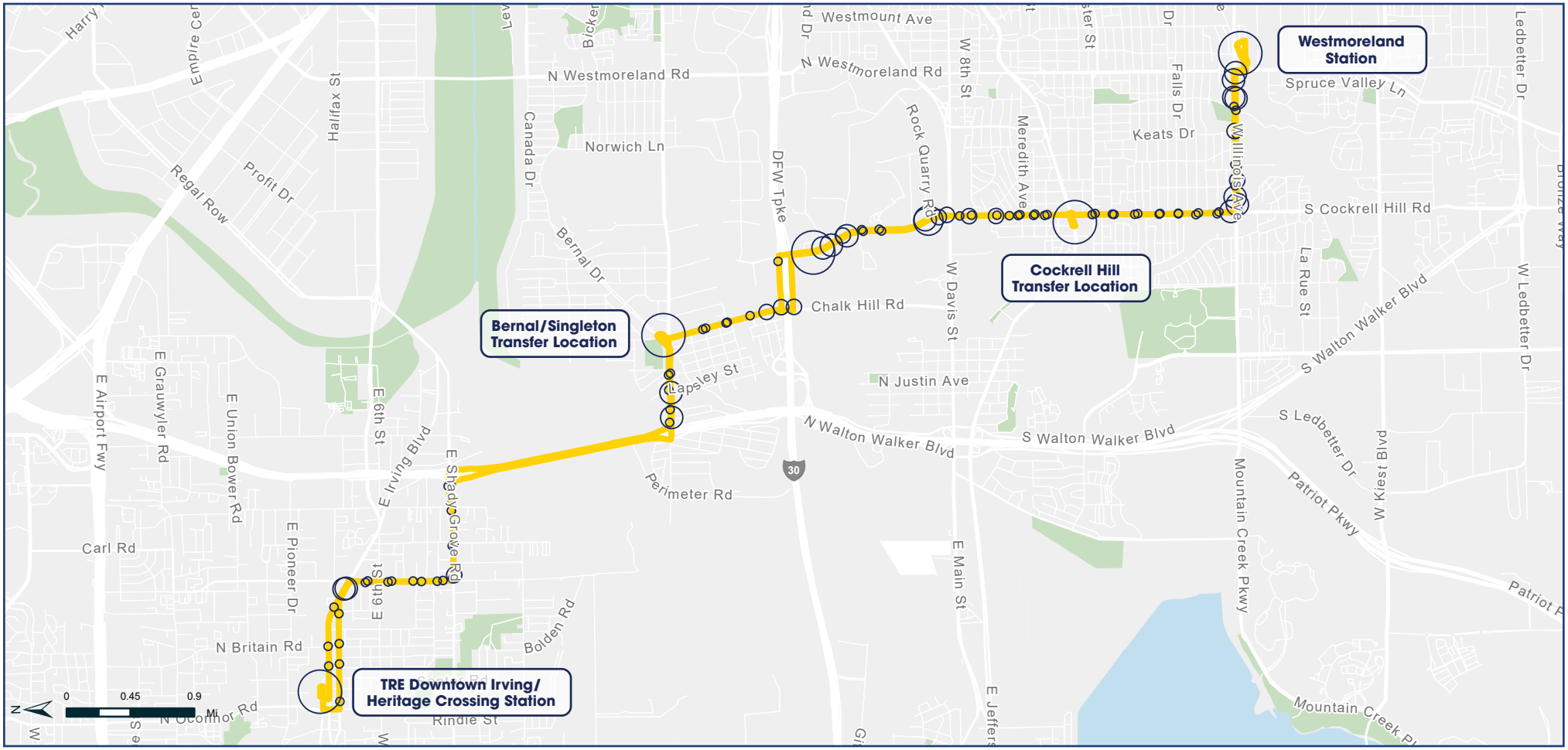
TRANSIT SIGNAL PRIORITY

NEW SIGNAL

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 25 – Cockrell Hill North

CORE
Corridor Optimization + Rider Experience



TERMINI

Westmoreland Station
Downtown Irving/Heritage Crossing Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,235

ROUTE CONNECTIONS

Routes 9, 28, 57, 104, 108, 221, 223, 225, 226, 227, 229, 230, 231, South Irving & East Irving GoLink, West Dallas GoLink, Mountain Creek GoLink, Red Line

KEY DESTINATIONS

Dallas College Irving Center
Dallas College Mountain View Campus
Pinnacle Park
Cockrell Hill Transfer Location

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 25 – Cockrell Hill North

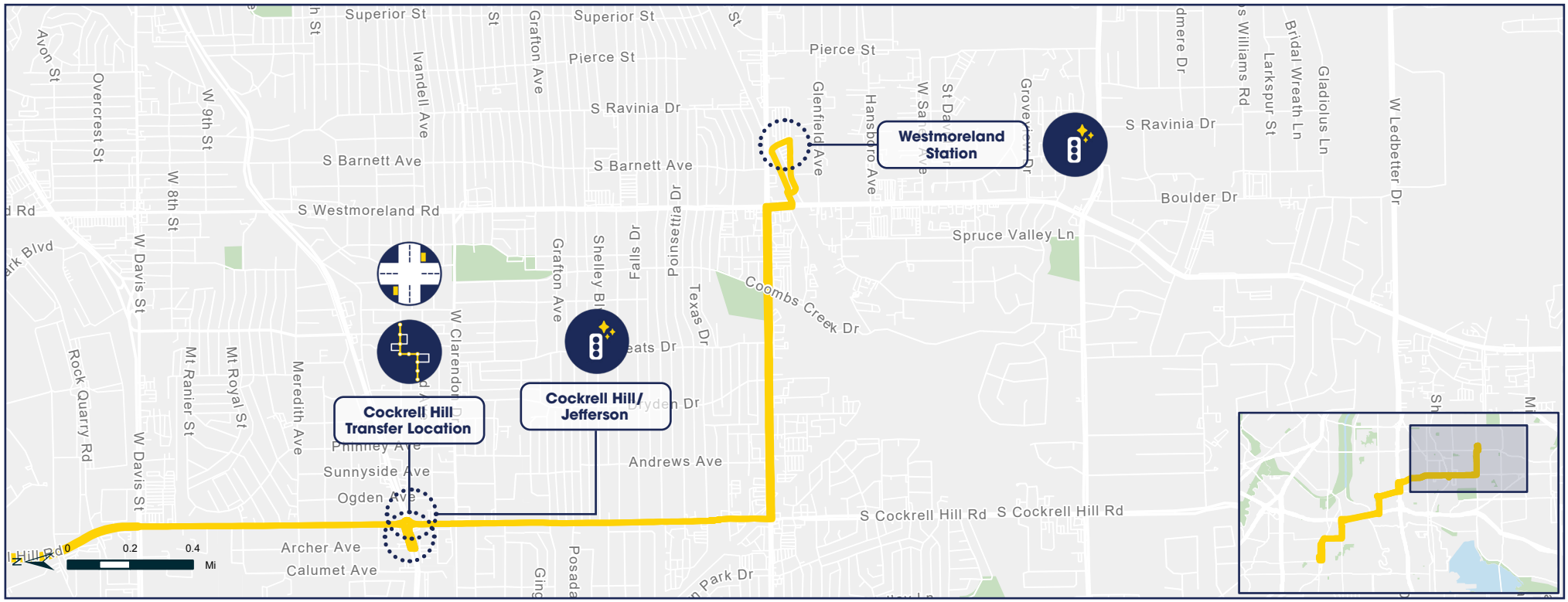
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	HIGH
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 25 – Cockrell Hill North

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 25 serves West Dallas with termini at Westmoreland Station and Downtown Irving/Heritage Crossing. Removing the deviation to Cockrell Hill Transfer Location would enhance the route's efficiency, while adding a bus stop nearby would maintain walkng access to the transfer station. A new signal for buses entering Westmoreland station on the western side of the facility from Cockrell Hill Transfer Station should also be considered. The roundabout at Cockrell Hill/Jefferson intersection should be replaced with a new traffic signal.

TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

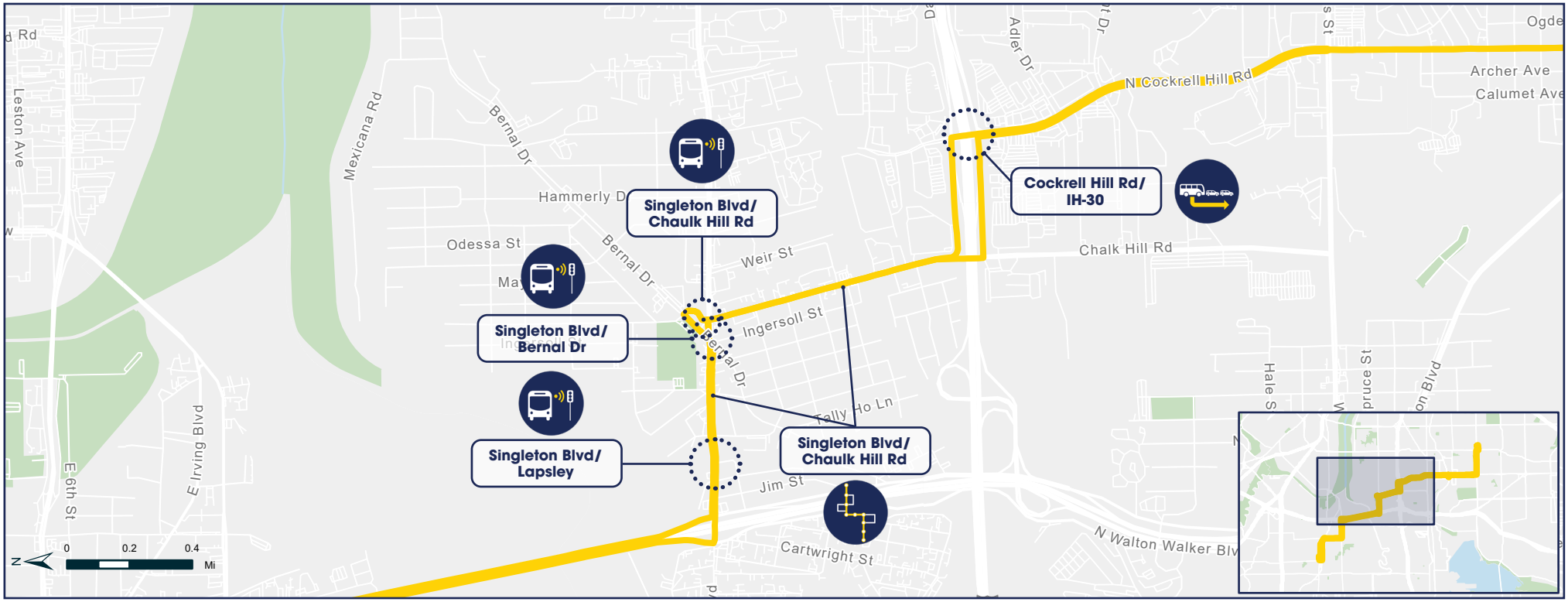
ROUTE DESIGN

NEW SIGNAL

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 25 – Cockrell Hill North

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Further north on Route 25, a northbound queue jump is recommended at Cockrell Hill Rd and the eastbound IH-30 ramp. Buses should be prohibited from stopping for an extended period on eastbound Singleton west of Lapsley when running early to avoid sight distance issue for automobiles on Lapsley. Additional changes should either provide Transit Signal Priority at the Singleton Blvd & Bernal Dr and Singleton Blvd & Chaulk Hill intersections OR realign the portion of the route on Singleton and Chaulk Hill to Loop 12 and I-30 to avoid freight rail-related delays on Chaulk Hill Rd.

TOOLBOX ICON DEFINITION

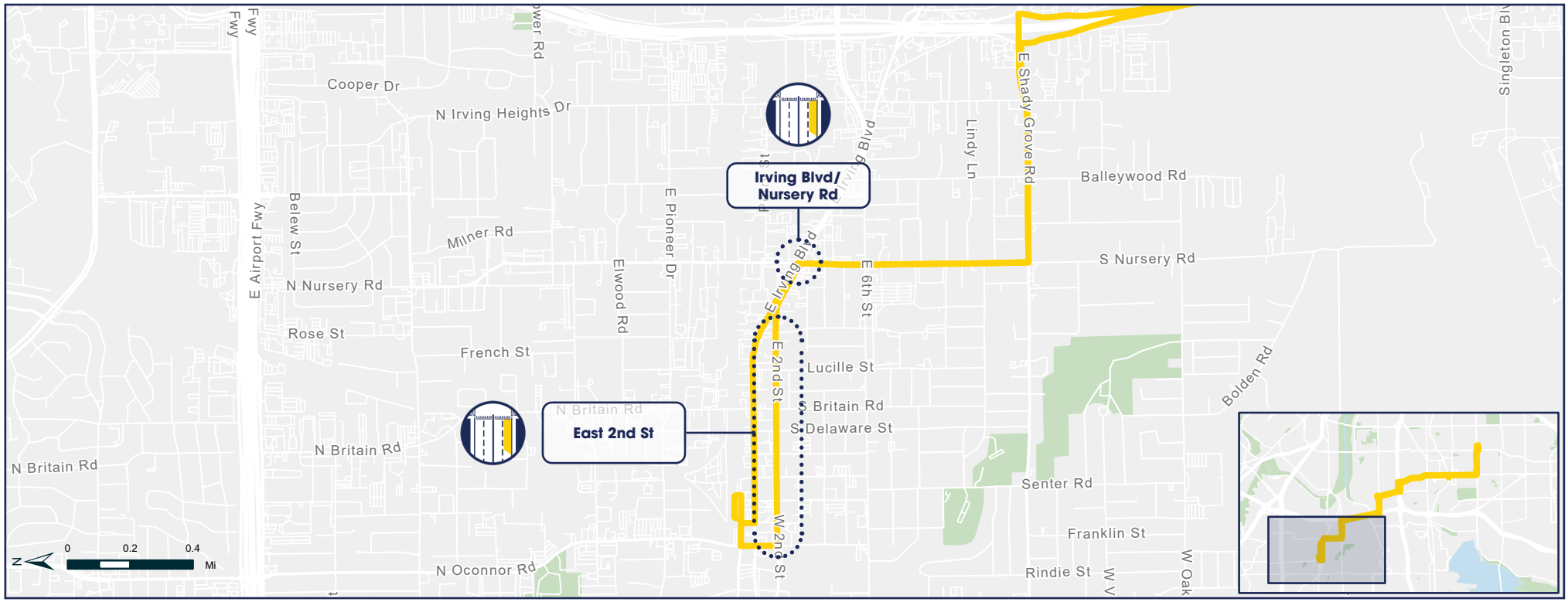
QUEUE JUMP

TRANSIT SIGNAL PRIORITY

ROUTE DESIGN

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 25 – Cockrell Hill North



RECOMMENDATIONS

At the northern end of the route, bus bulbs are recommended at the Irving Blvd and Nursery Rd intersection, the Downtown Irving/ Heritage Crossing stop and on parts of E 2nd St that have right side parking (e.g., Britain, Falcon stops).

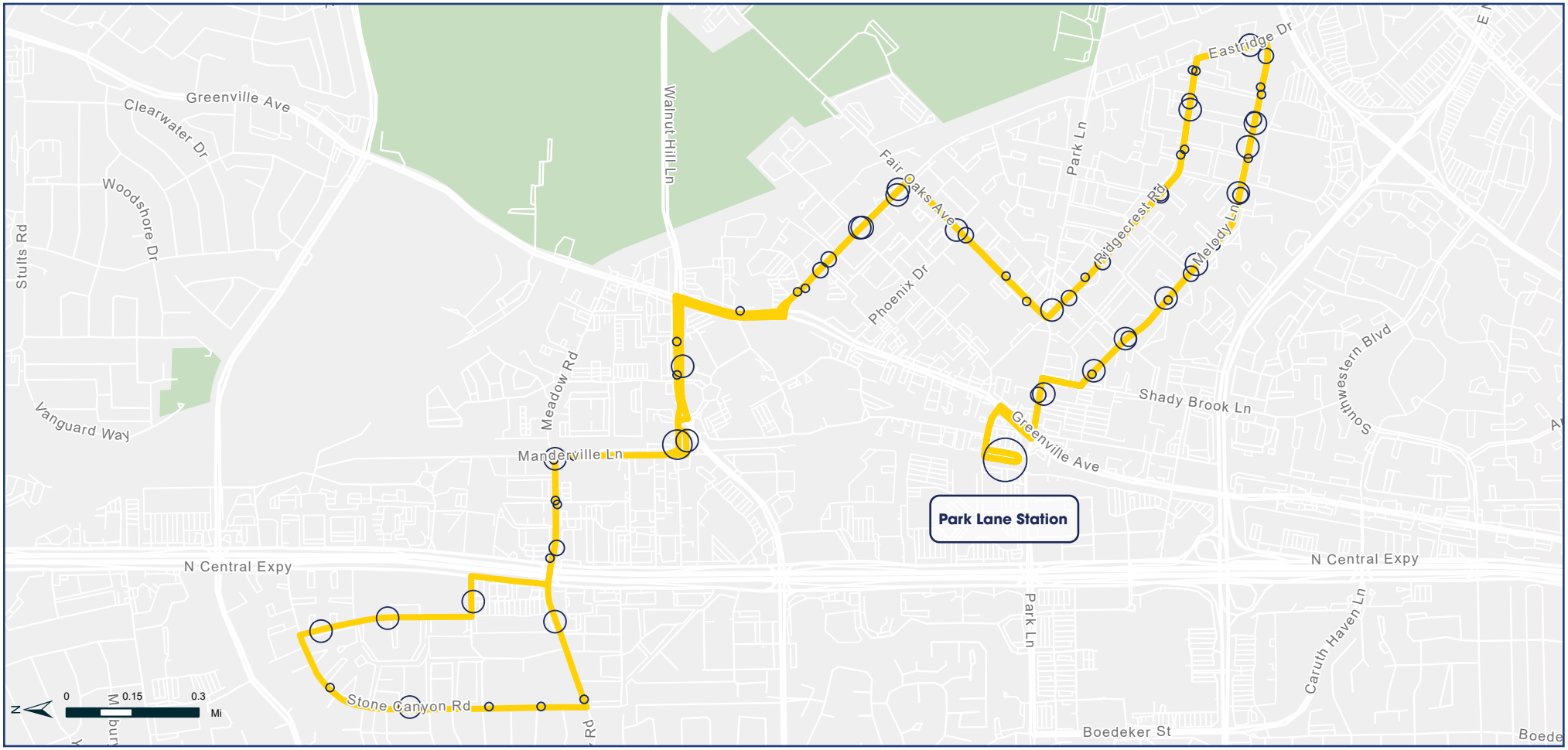
TOOLBOX ICON DEFINTION

BUS BULB

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 27 – Ridgecrest

CORE
Corridor Optimization + Rider Experience



TERMINI

Park Lane Station
Stone Canyon & Steppington

FREQUENCY

15 min Peak
20 min Off-Peak

AVERAGE DAILY BOARDINGS

1,029

ROUTE CONNECTIONS

Routes 20, 402, North Dallas GoLink, North Central Dallas GoLink, Red Line, Orange Line

KEY DESTINATIONS

The Art Institute of Dallas
NorthPark Shopping Center
Texas Health Presbyterian Hospital Dallas

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 27 – Ridgecrest

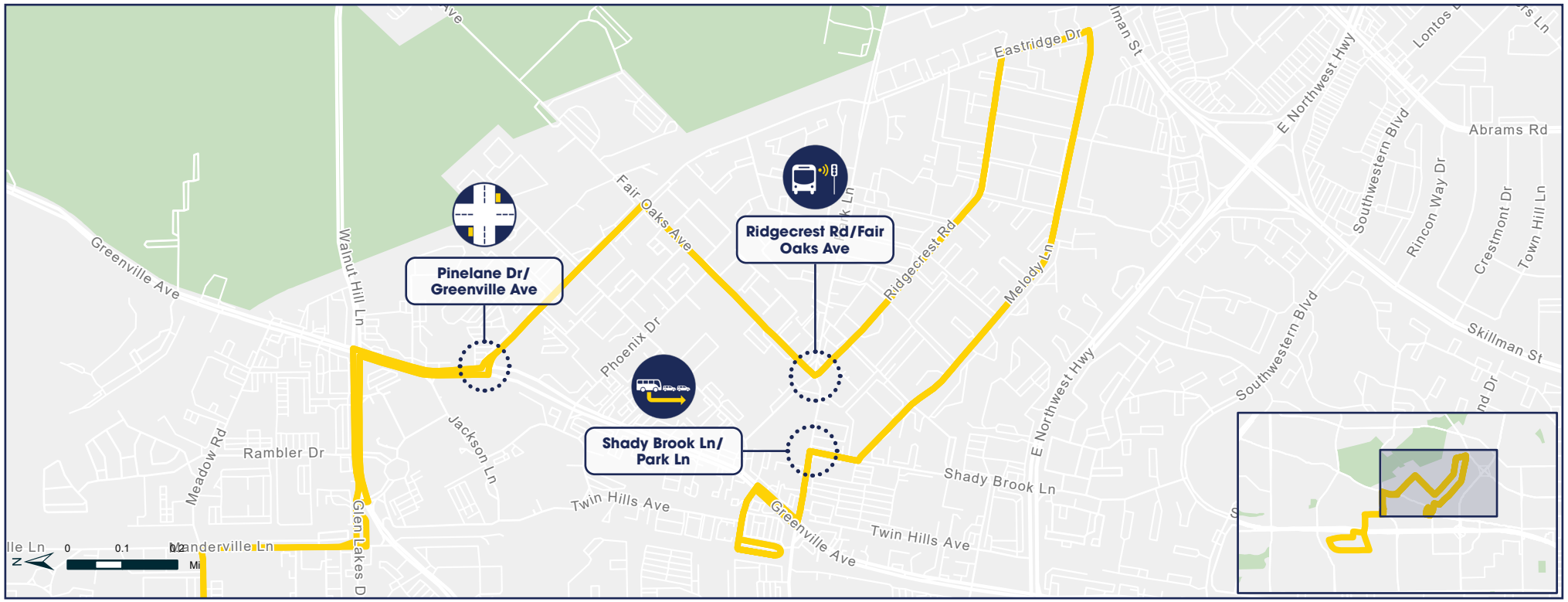
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	LOW
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	MEDIUM

SCORES BY SEGMENT

Route 27 – Ridgecrest

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 27 serves Vickery Meadow with termini at Park Lane Rail Station and Stone Canyon & Steppington. A northbound queue jump should be considered at Shady Brook Ln and Park Ln in the existing right turn lane. Transit Signal Priority should be provided for northbound and southbound bus movements through the Ridgecrest/Fair Oaks intersection. The bus stop on Greenville Ave north of Pineland Dr should also be moved closer to the intersection to allow more time for buses to merge to make the left turn at Walnut Hill Ln. Throughout the corridor, bus stop relocation and consolidation is recommended.

There are no recommendations made for other segments of this route.

TOOLBOX ICON DEFINITION

QUEUE JUMP

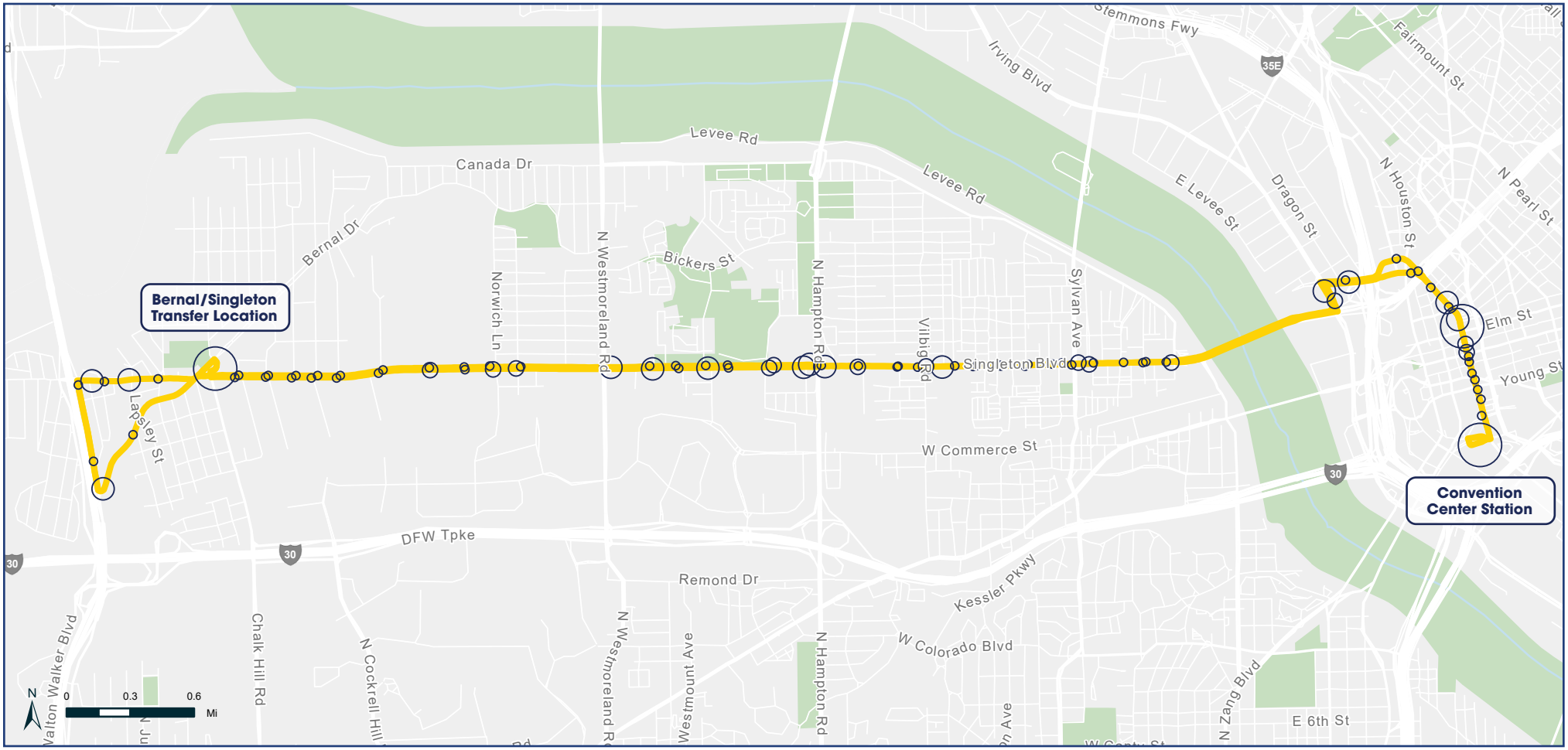
TRANSIT SIGNAL PRIORITY

BUS STOP LOCATIONS

STOP CONSOLIDATION RECOMMENDED ALONG THE ENTIRE ROUTE

Route 28 – Singleton

CORE
Corridor Optimization + Rider Experience



TERMINI

Walton Walker & Singleton
Convention Center Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,012

ROUTE CONNECTIONS

Routes 57, 101, 106, 125, 219, 230, West Dallas GoLink, Red Line, Blue Line, Green Line, Orange Line

KEY DESTINATIONS

Dealey Plaza
JFK Memorial Plaza
Civic Garden
Pioneer Plaza
Pegasus Plaza
Trinity Grove
Victory Park
Kay Bailey Hutchison Convention Center
West End Historic District

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

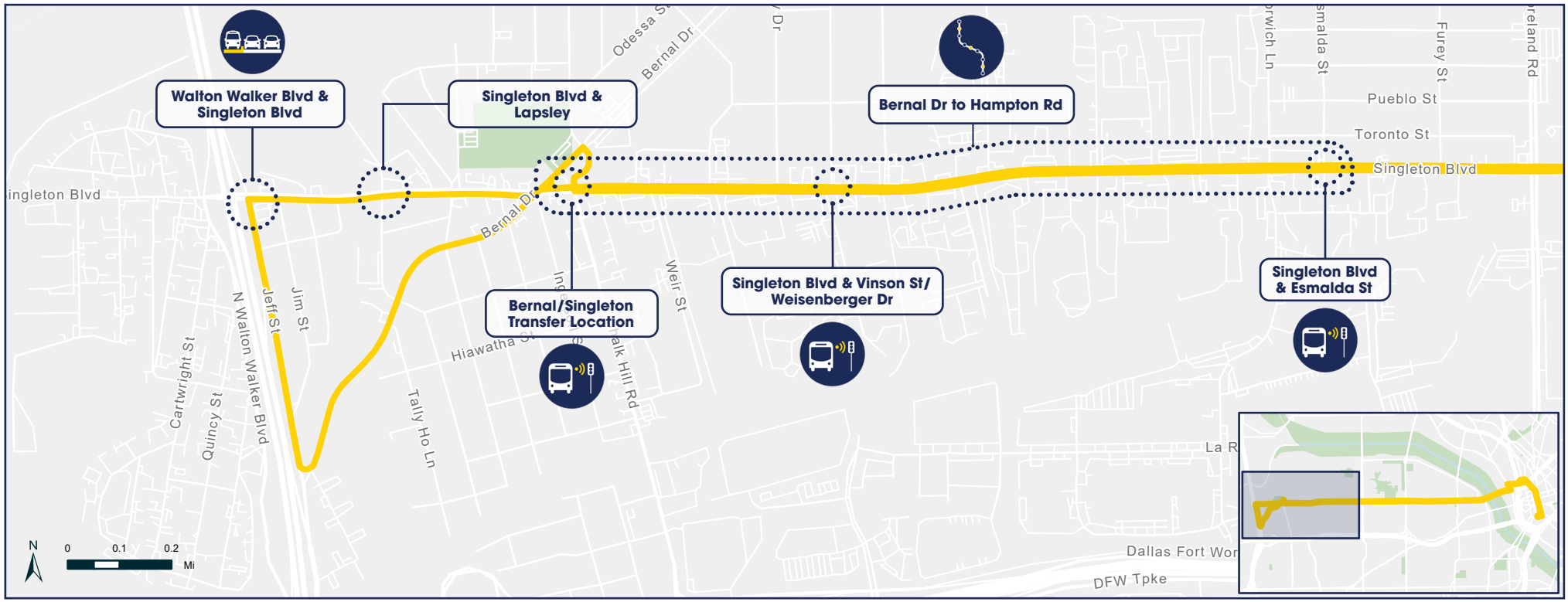
Route 28 – Singleton

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	LOW
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	LOW
Average Ridership Average daily stop-level boardings in each direction	LOW
Max Passenger Load Average maximum passenger load along the route	LOW
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	LOW
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	LOW

SCORES BY SEGMENT

Route 28 – Singleton



RECOMMENDATIONS

Route 28 serves West and Downtown Dallas with termini at Walton Walker & Singleton and the Convention Center. A bus and right turn only lane should be considered at N. Walton Walker Blvd and Singleton Blvd. Transit Signal Priority should be considered at the Bernal/Singleton Transfer Location, Singleton & Vinson St and Weisenberger Dr, and Singleton & Esmalda St. Bus stop consolidation is also recommended on Singleton Blvd between Bernal Dr and Esmalda St. Transit vehicles should be prohibited from stopping for an extended period on eastbound Singleton Blvd west of Lapsley when running early to avoid sight distance issue for northbound Lapsley automobiles turning left.

TOOLBOX ICON DEFINITION

ROADWAY CHANNELIZATION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

Route 28 – Singleton

RECOMMENDATIONS

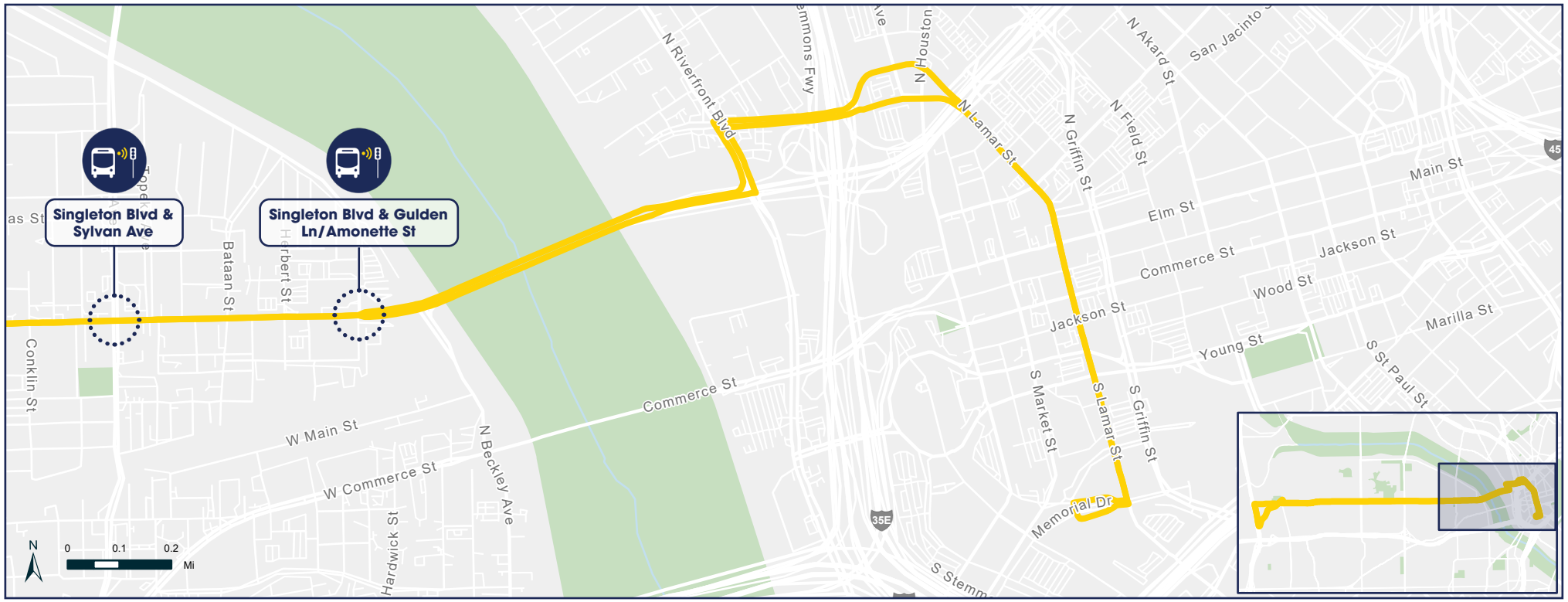
Transit Signal Priority is also recommended on SIngleton Blvd at Kingsbridge, Hampton, Vilbig Rd and Sylvan Ave intersections. Bus stop consolidation is recommended between Esmalda St and Hampton Rd and between Hampton Rd and Sylvan Ave.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

Route 28 – Singleton



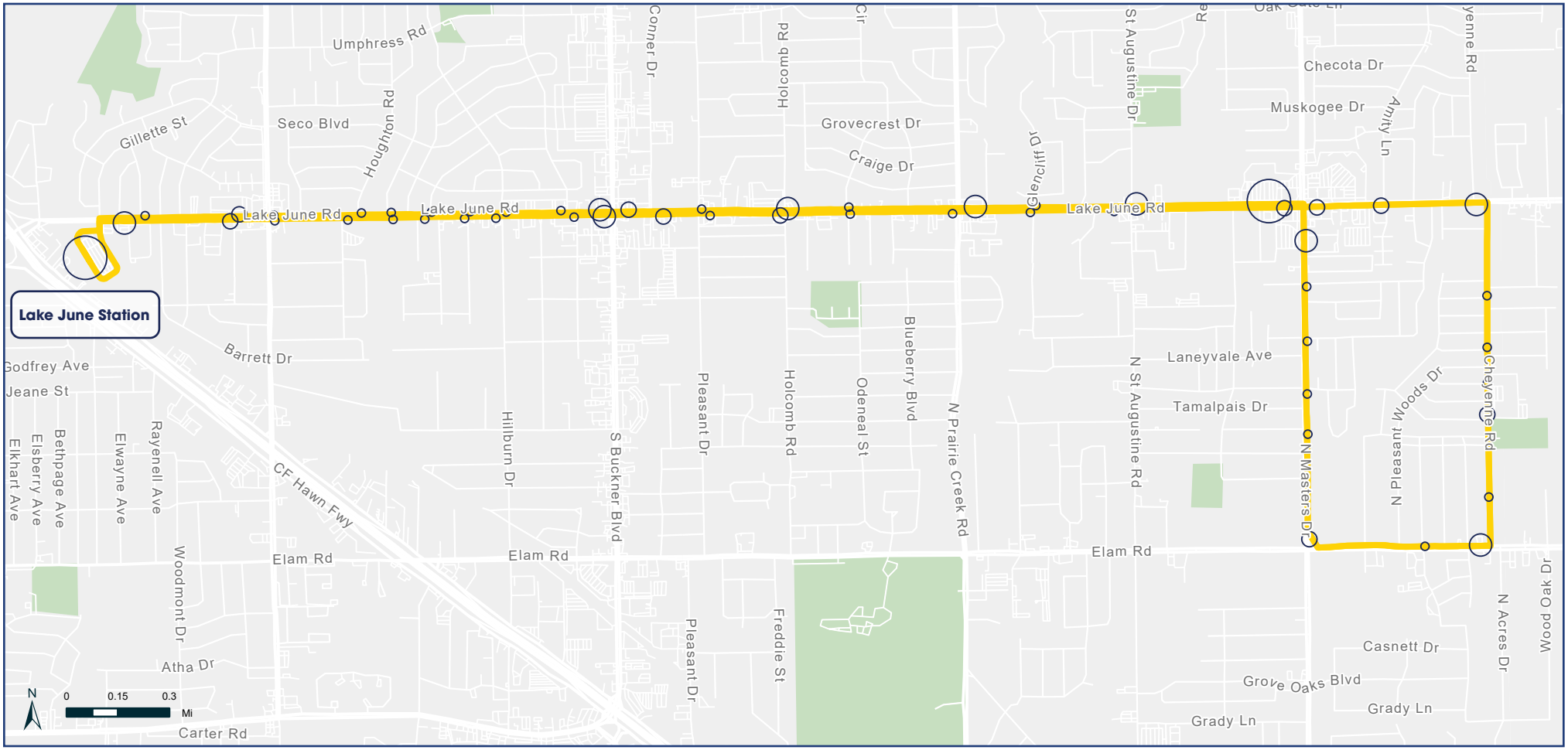
RECOMMENDATIONS

On the eastern end of the route, Transit Signal Priority should be considered on Singleton Blvd at Gulden Ln/ Amonette St.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 30 – Lake June



TERMINI

Lake June Station
Elam & Cheyenne

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

434

ROUTE CONNECTIONS

Routes 115, 218, Rylie GoLink, Green Line

KEY DESTINATIONS

Pleasant Grove Branch Library
Dallas College Pleasant Grove Center
River Ranch at Texas Horse Park
Trinity River Audubon Center

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 30 – Lake June

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	LOW
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	LOW
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 30 – Lake June

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

Route 30 serves East Dallas with termini at Lake June Station and Elam & Cheyenne. Bus stop consolidation is recommended on Lake June Rd between Buckner Blvd and Lake June Station. Transit Signal Priority is also recommended at the intersections of Lake June Rd with Jim Miller Rd, Hillburn Dr, Conner Dr, Pleasant Dr, and Holcomb Rd.

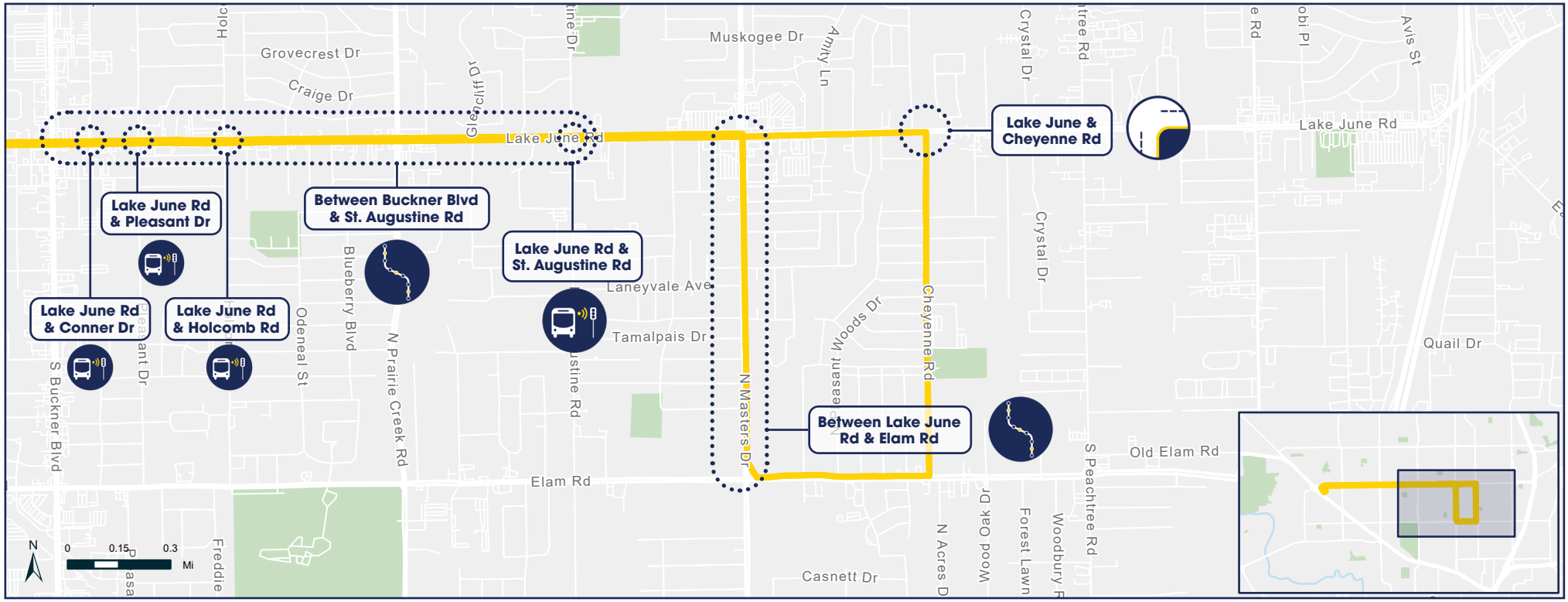
TOOLBOX ICON DEFINITION

STOP CONSOLIDATION

TRANSIT SIGNAL PRIORITY

Route 30 – Lake June

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Transit Signal Priority is also recommended on Lake June Rd at St. Augustine Rd, along with turn radius improvements at Lake June Rd & Cheyenne Rd. Bus stop consolidation is recommended along Lake June Rd between Bucner Blvd and St. Augustine Rd and along Masters Dr between Lake June Rd and Elam Rd.

TOOLBOX ICON DEFINITIONS

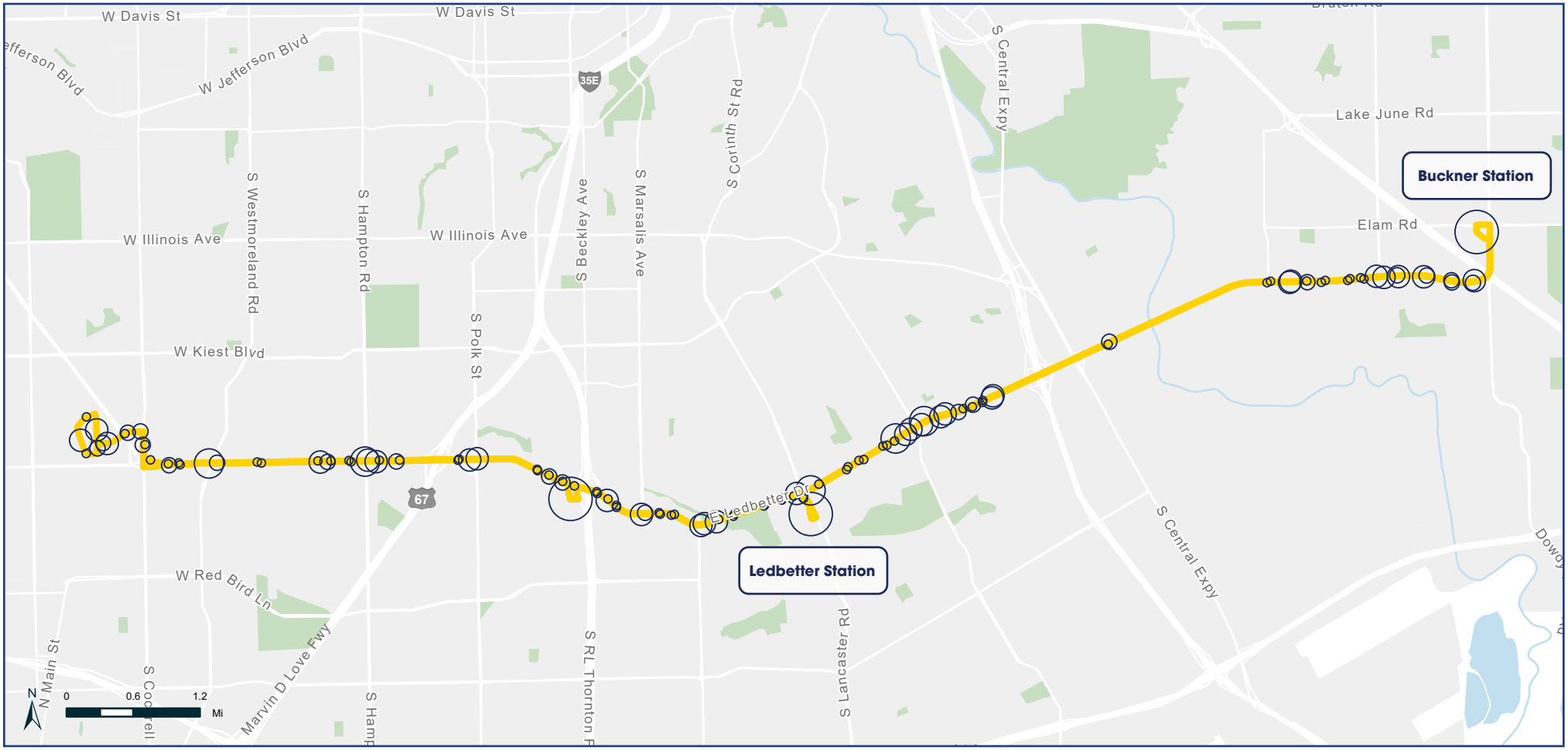
TURN RADIUS

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

Route 38 – Ledbetter

CORE
Corridor Optimization + Rider Experience



TERMINI

Joseph Hardin AAFES Northbound
Buckner Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

2,657

ROUTE CONNECTIONS

Routes 15, 41, 45, 47, 57, 101, 108, 114, 217, Inland Port GoLink, Inland Port Connect GoLink, Blue Line, Green Line

KEY DESTINATIONS

University of North Texas at Dallas
Oak Cliff Community Center
River Ranch at Texas Horse Park
Trinity River Audubon Center

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 38 – Ledbetter

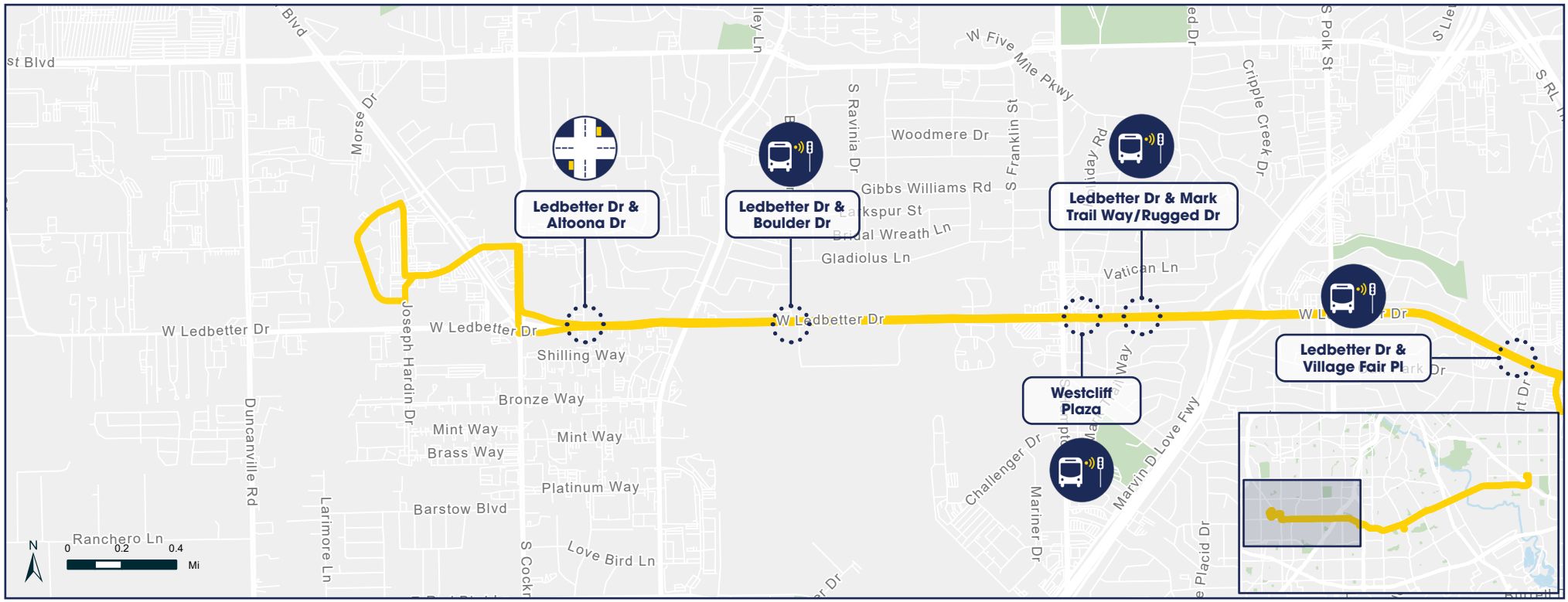
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	LOW
Safety Percentage of the route located within the Dallas High Injury Network	HIGH
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 38 – Ledbetter

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 38 serves South Dallas with termini at Joseph Hardin AAFES and Buckner Station. Transit Signal Priority is recommended on Ledbetter Dr at Boulder Dr, the Westcliff Plaza entrance signal, Mark Trail Way/Rugged Dr, and Village Fair Pl. The westbound bus stop on Ledbetter Dr on Altoona Dr is partially in the merge lane, presenting a safety concern, and should be moved to location further east.

TOOLBOX ICON DEFINITION

BUS STOP LOCATIONS

TRANSIT SIGNAL PRIORITY

Route 38 – Ledbetter

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

Transit Signal Priority is also recommended at the I-35 service road entrances, University Hills Blvd, Singing Hills Dr, the Ledbetter Station bus exit on Lancaster Rd, Veterans Dr, Bonnie View Rd, and Wadsworth Dr intersections.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 38 – Ledbetter

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

The bus stops on Ledbetter near Carbondale St should be removed due to safety concerns. Transit Signal Priority is recommended on Ledbetter Dr at Pemberton Hill and Jim Miller Rd. At Buckner Station, TSP is recommended at the Kipling Dr exit. A bus left turn signal should be placed at Elam Rd and Rowland Ave/Buckner Station.

TOOLBOX ICON DEFINITION

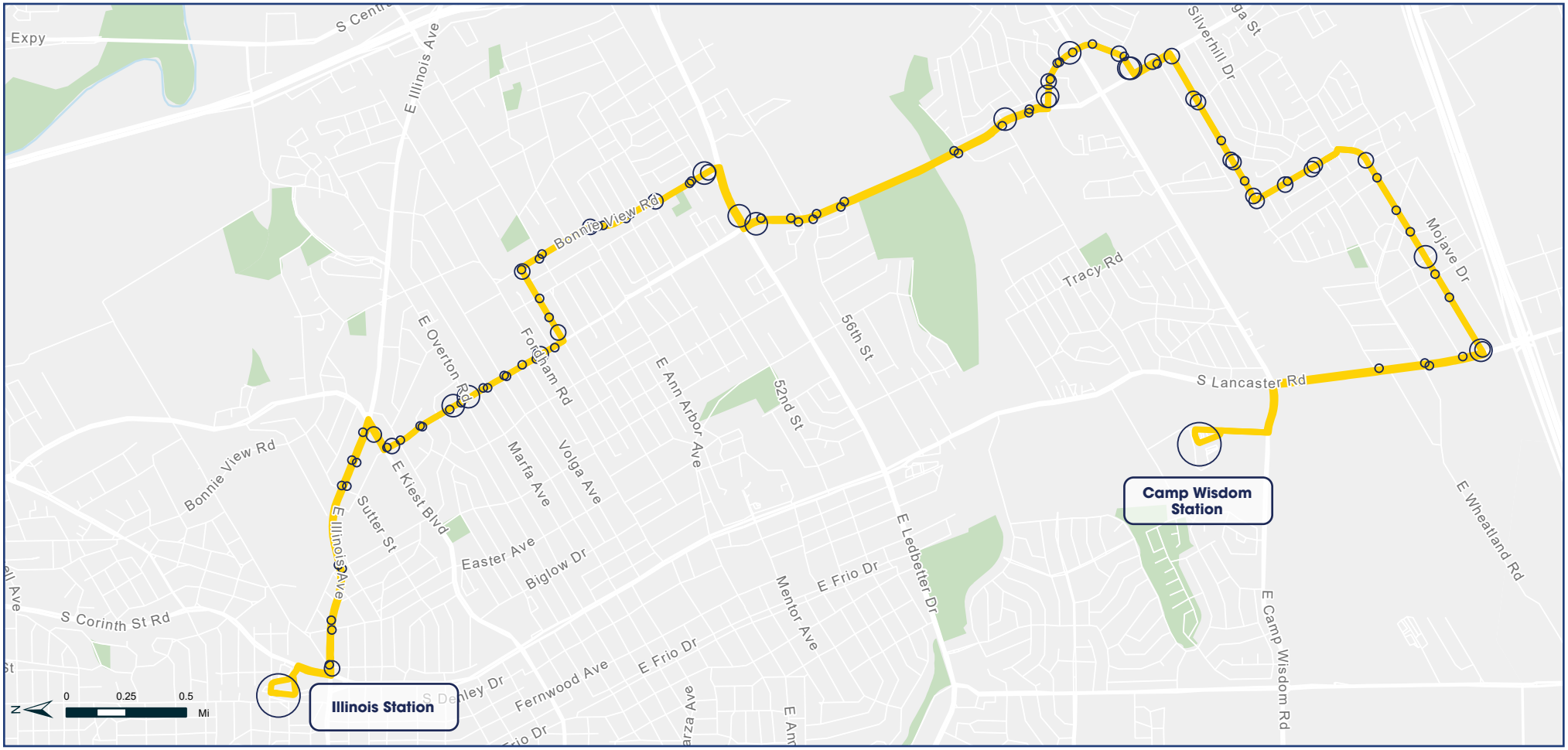
BUS STOP LOCATIONS

TRANSIT SIGNAL PRIORITY

NEW SIGNAL

Route 41 – Bonnie View

CORE
Corridor Optimization + Rider Experience



TERMINI

Camp Wisdom Station
Illinois Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

914

ROUTE CONNECTIONS

Routes 38, 45, 104, 108, 114, 215, 217, 228, Inland Port GoLink, Inland Port Connect GoLink, Blue Line

KEY DESTINATIONS

Dallas VA Medical Center
Paul Quinn College
University of North Texas at Dallas

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 41 – Bonnie View

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	LOW
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	LOW
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 41 – Bonnie View

RECOMMENDATIONS

Route 41 serves South Dallas with termini at Camp Wisdom Station and Illinois Station. Transit Signal Priority is recommended at the Illinois Station exit at S. Corinth St, at Kiest Blvd & Sunnyvale St, and at Sunnyvale St & Overton Rd. Bus stop consolidation is recommended from Illinois Station to Overton Rd & Sunnyvale St.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

Route 41 – Bonnie View

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

A new signal with Transit Signal Priority should be considered at Bonnie View Rd & Highland Hills Dr and Patrol Way & Camp Wisdom Rd. On-street parking should be removed and bus stop consolidation implemented on Willhurt Ave between Sunnyvale St and Bonnie View Rd.

TOOLBOX ICON DESCRIPTION

TRANSIT SIGNAL PRIORITY

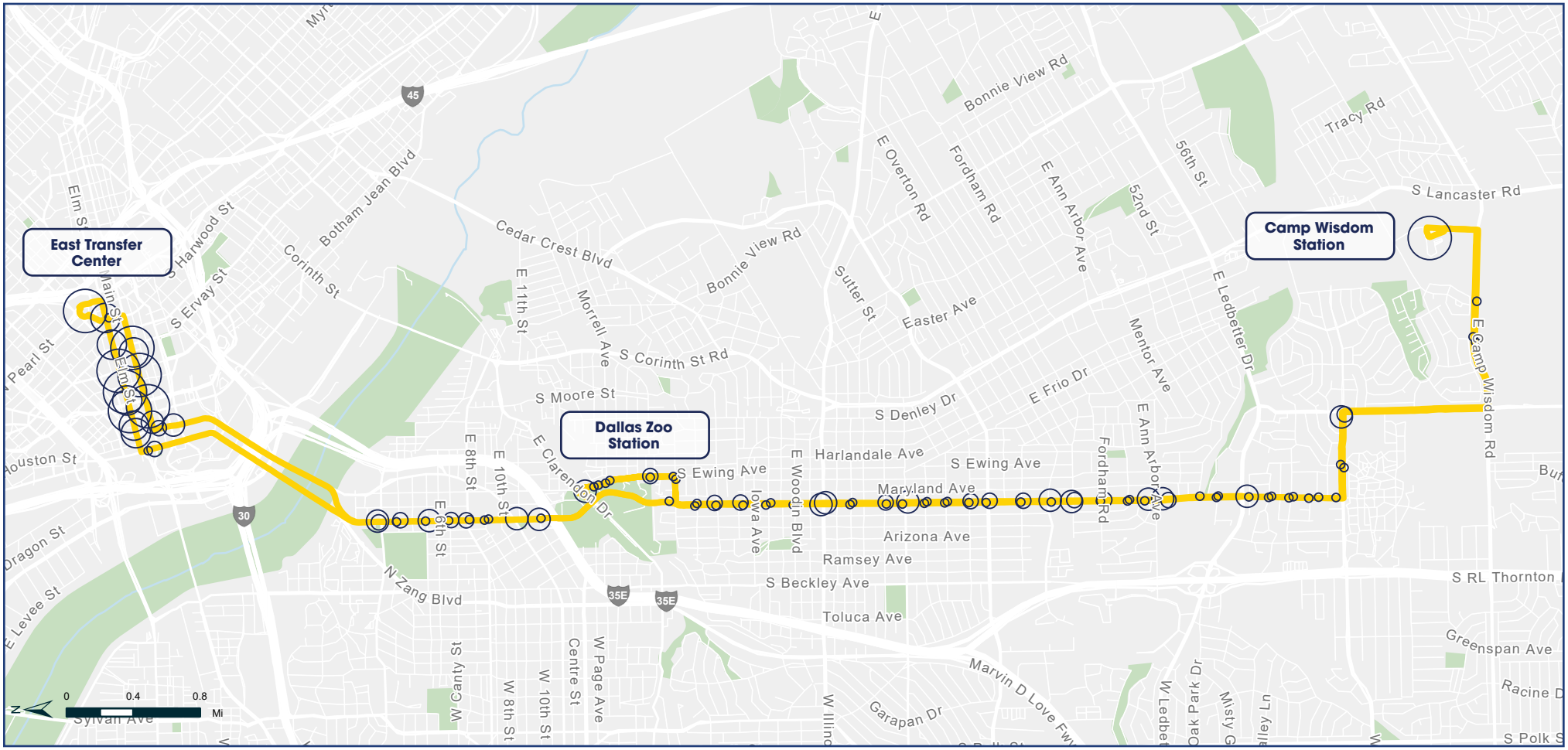
NEW SIGNAL

PARKING REMOVAL

STOP CONSOLIDATION

Route 45 – Marsalis

CORE
Corridor Optimization + Rider Experience



TERMINI

Camp Wisdom Station
East Transfer Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

859

ROUTE CONNECTIONS

Routes 9, 38, 41, 104, 108, 228, 215, 226, Inland Port GoLink, Inland Port Connect GoLink, Red Line

KEY DESTINATIONS

Methodist Dallas Medical Center
Dallas County Tax Office
University of North Texas at Dallas
Dallas Zoo

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 45 – Marsalis

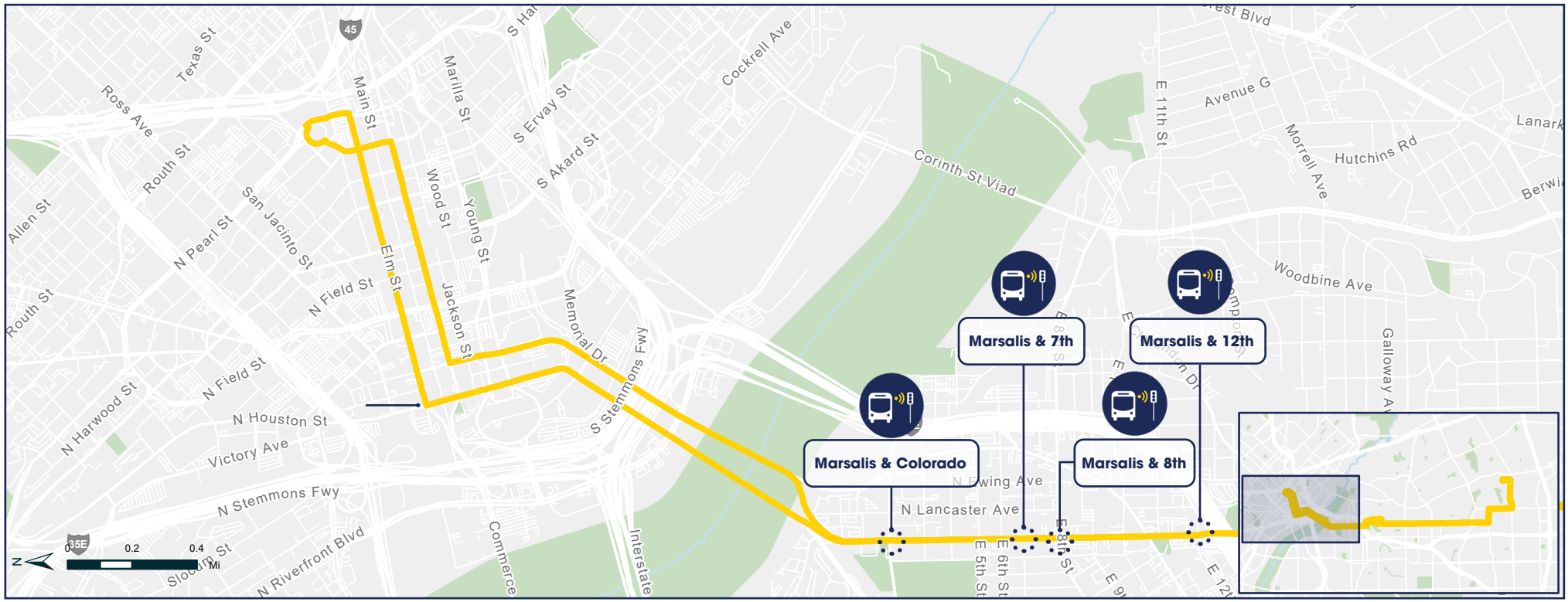
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	LOW
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	LOW
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 45 – Marsalis

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

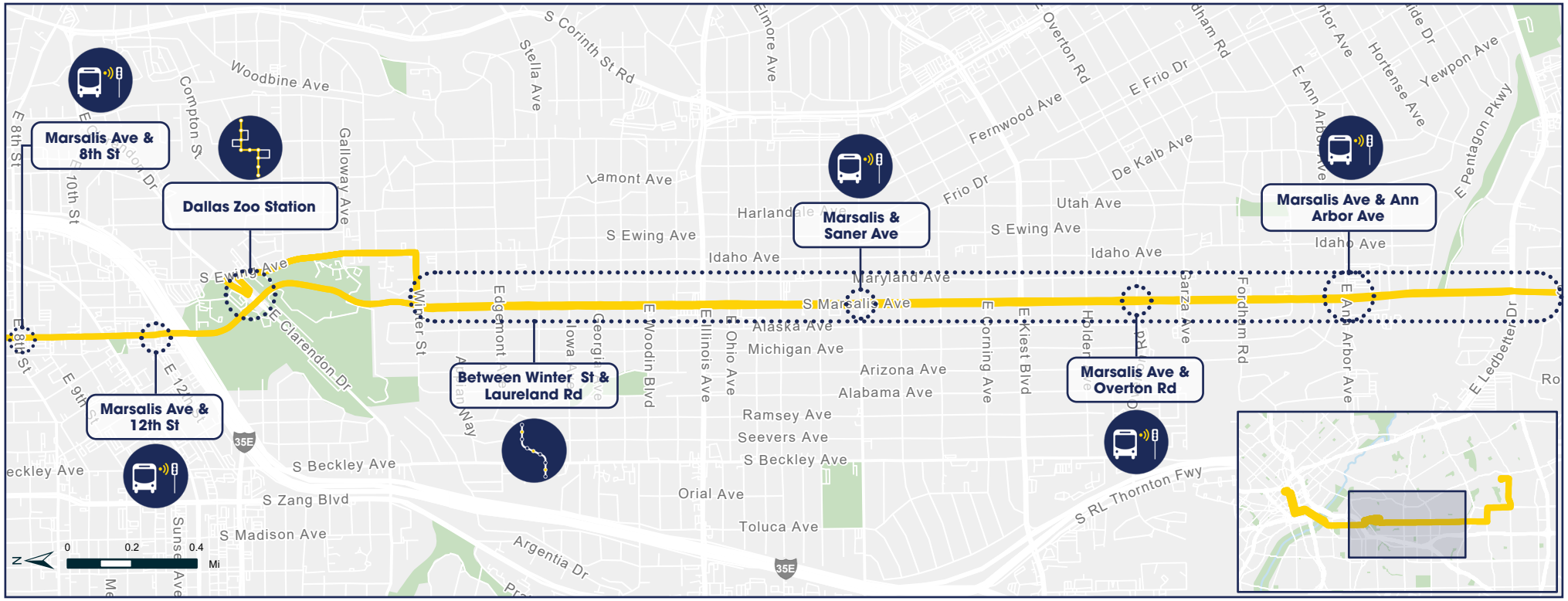
Route 45 serves South Dallas into Downtown, with termini at Camp Wsidom Station and the CBD East Transfer Center. Transit Signal Priority on Marsalis Ave at Colorado Blvd, 7th St, 8th St and 12th St should also be considered.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 45 – Marsalis

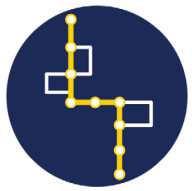
CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

The route alignment to Ewing Ave and Dallas Zoo Station should be reconsidered to minimize deviation. Transit Signal Priority should be considered on Marsalis Ave at Saner Ave, Overton Rd, and Ann Arbor Ave. Bus stop consolidation also recommended along Marsalis between Winter St and Laureland Rd.

TOOLBOX ICON DEFINITION



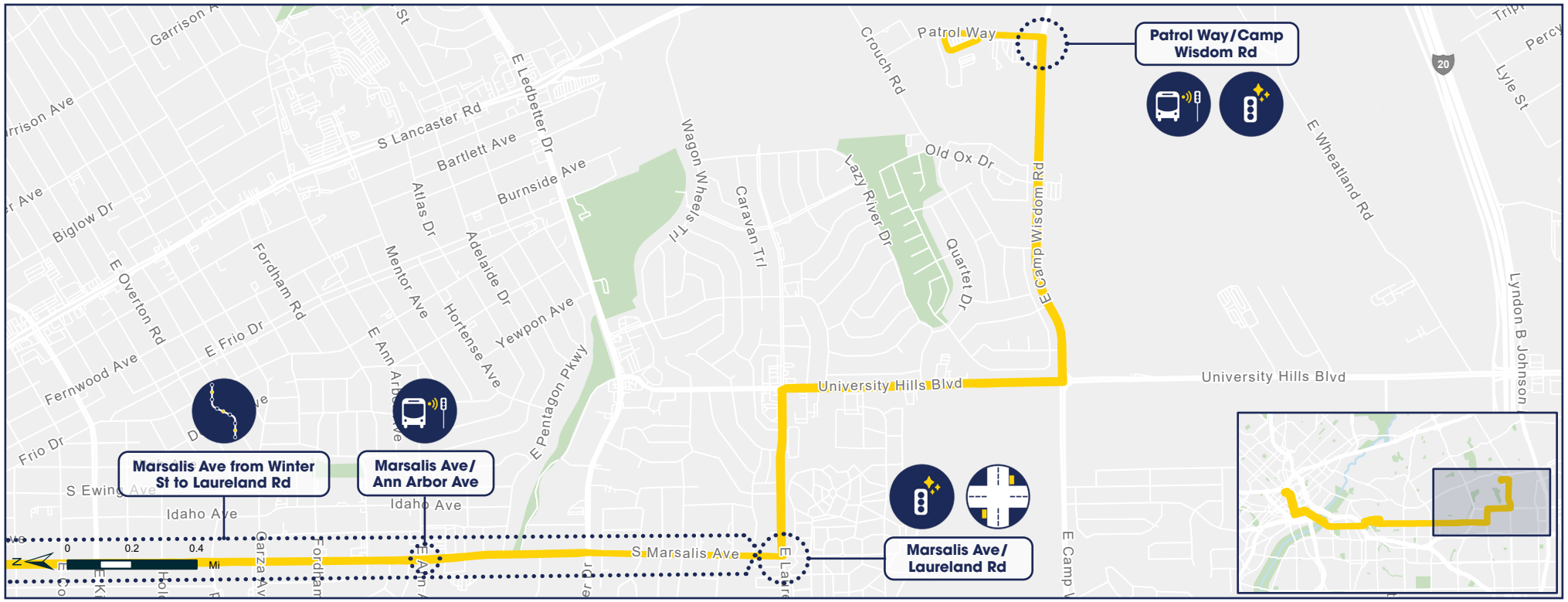
ROUTE DESIGN

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

Route 45 – Marsalis

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

New signals are recommended at Marsalis Ave & Laureland Rd and Patrol Way & Camp Wisdom Rd. Transit Signal Priority may also be considered at Patrol Way & Camp Wisdom to improve efficiency at the beginning and end of the route. Bus stop relocation is also recommended for the stop at Marsalis Ave and Laureland Rd.

TOOLBOX ICON DEFINITION

STOP CONSOLIDATION

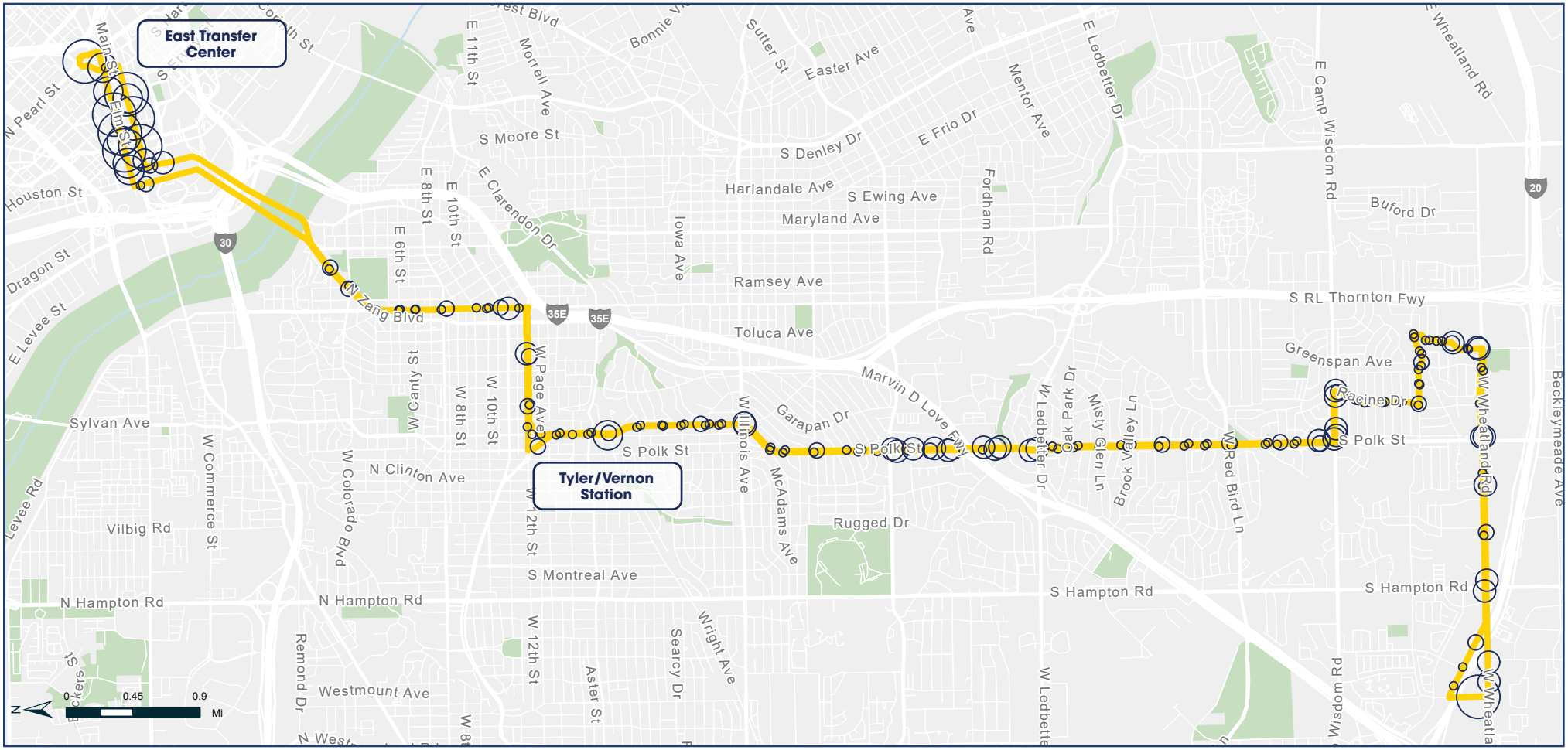
TRANSIT SIGNAL PRIORITY

NEW SIGNAL

BUS STOP LOCATIONS

Route 47 – Polk

CORE
Corridor Optimization + Rider Experience



TERMINI

Kirnwood & Wheatland
East Transfer Center

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

1,370

ROUTE CONNECTIONS

Routes 9, 38, 57, 101, 104, 108, 109, 219, 226, Red Line

KEY DESTINATIONS

Methodist Dallas Medical Center
Dallas County Tax Office
University of North Texas at Dallas
Carpenter Park
Tyler/Vernon Station

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 47 – Polk

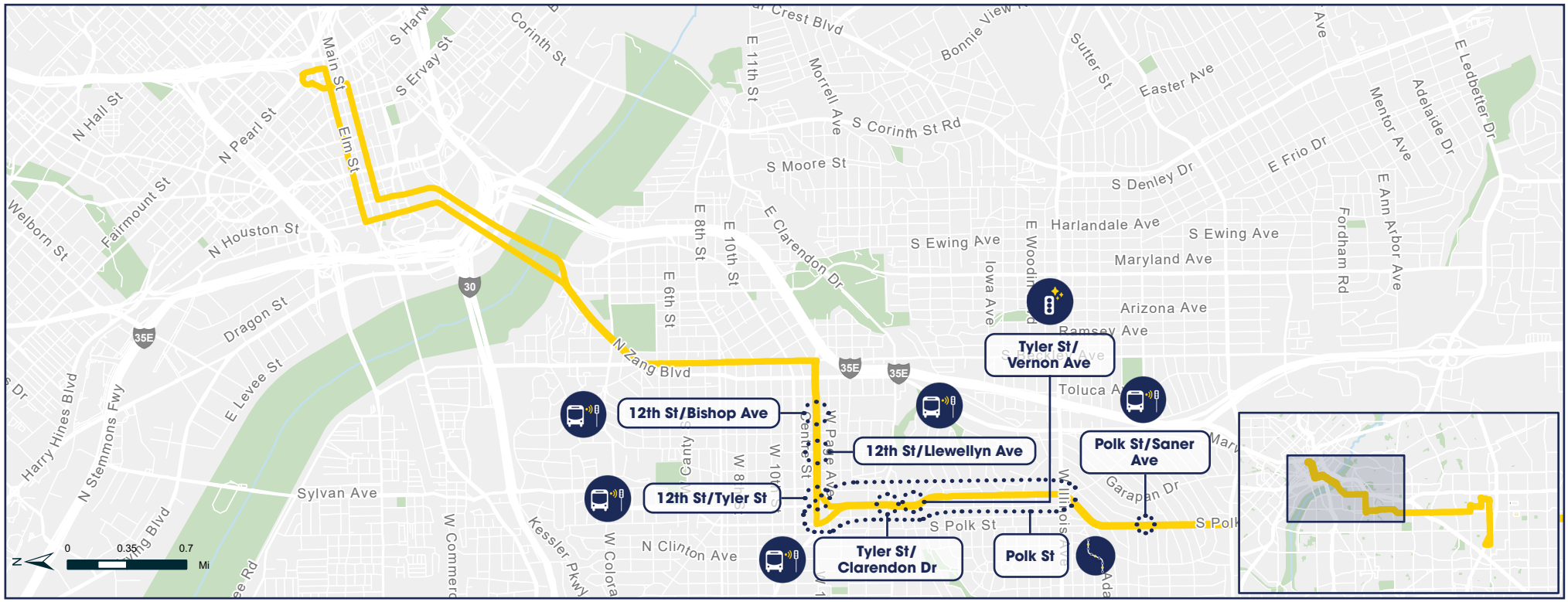
CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	MEDIUM
Bus Volume Average number of vehicles per hour on weekdays	MEDIUM
Average Ridership Average daily stop-level boardings in each direction	MEDIUM
Max Passenger Load Average maximum passenger load along the route	MEDIUM
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	MEDIUM
Safety Percentage of the route located within the Dallas High Injury Network	MEDIUM
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 47 – Polk

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

Route 47 serves South Dallas into Downtown with termini at Kirnwood & Wheatland and the East Transfer Center. Transit Signal Priority should be considered on 12th St at Bishop Ave, LLewellyn Ave, Tyler St, as well as at Tyler St & Clarendon Dr and Polk St & Saner Ave. Bus stop consolidation is also recommended on Polk St between 12th and Illinois. A pedestrian signal should be provided at Tyler St and Vernon Ave to accomodate bus riders alighting to board Red Line train.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

NEW SIGNAL

Route 47 – Polk

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

At the southern segment of the route, further Transit Signal Priority should be considered on Polk St at Saner Ave, Pentagon Pkwy, Reynoldston Ln, and Red Bird Ln. Bus stop consolidation is also needed on Racine Dr. On-street parking on Leigh Ann between Kirnwood and Wheatland should be prohibited on at least one side of the street.

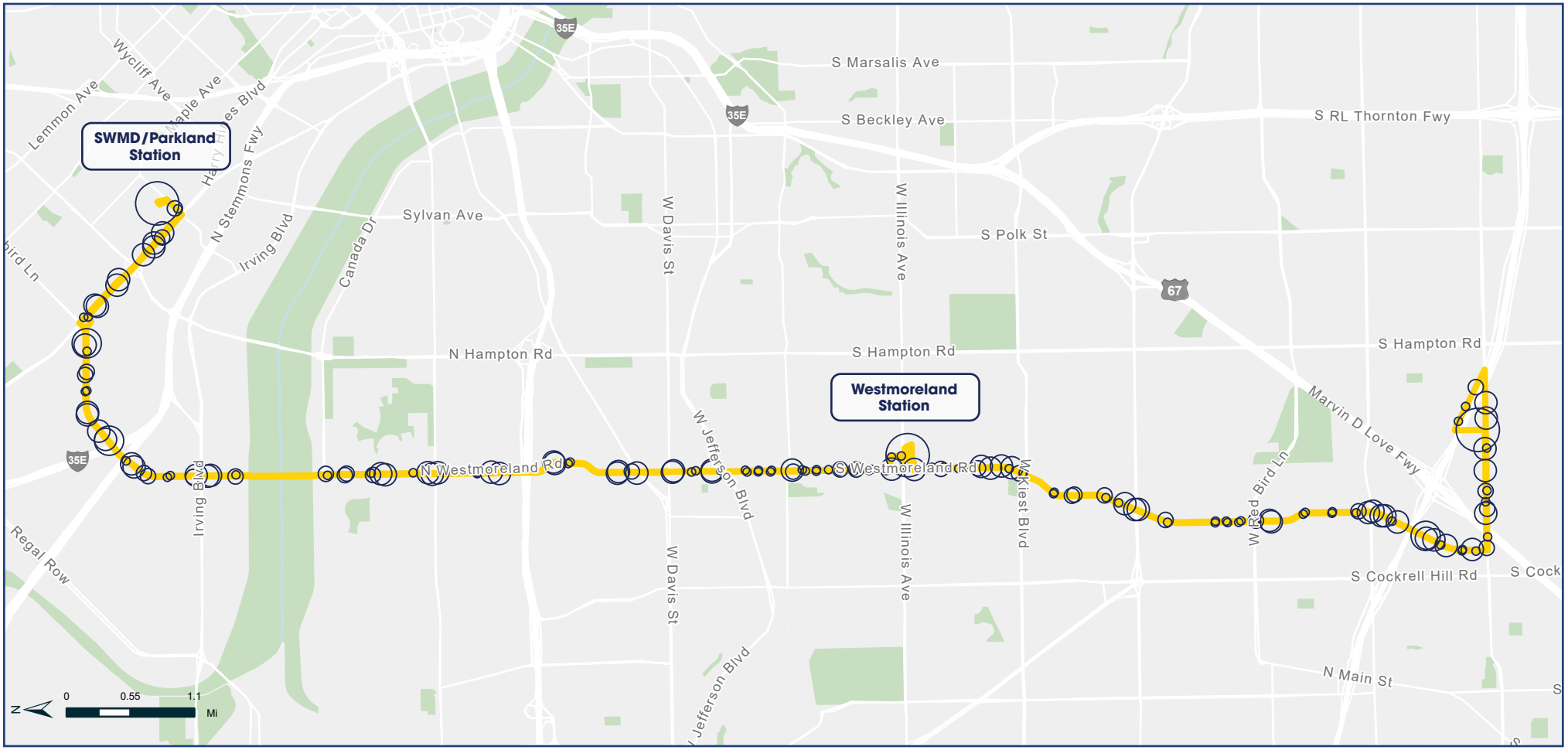
TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

PARKING REMOVAL

Route 57 – Westmoreland



TERMINI

Kirnwood & Wheatland
SWMD/Parkland Station

FREQUENCY

15 min Peak
20 min Midday

AVERAGE DAILY BOARDINGS

3,005

ROUTE CONNECTIONS

Routes 1, 9, 23, 28, 38, 47, 57, 101, 102, 106, 108, 213, 219, 221, 222, 226, 230, 230, 422, 434, 435, 436, Red Line, Green Line, Orange Line

KEY DESTINATIONS

Dallas College West Dallas Center
Dallas Executive Airport-RBD
Methodist Charlton Medical Center
Methodist Medical Center

LEGEND

Average Daily Boardings

- 5 or fewer boardings
- 6 – 10 boardings
- 11 – 50 boardings
- 51 – 100 boardings
- Over 100 boardings

Route 57 – Westmoreland

CORE
Corridor Optimization + Rider Experience

Performance Measure	Route Total Score
Transit Delay Amount of delay buses experience compared to the posted speed limit	MEDIUM
Travel Time Variance High score indicates high variability in travel times along the route	HIGH
Bus Volume Average number of vehicles per hour on weekdays	HIGH
Average Ridership Average daily stop-level boardings in each direction	HIGH
Max Passenger Load Average maximum passenger load along the route	VERY HIGH
Existing Population and Employment Amount of residents and jobs within 1/4 mile of the route	HIGH
Safety Percentage of the route located within the Dallas High Injury Network	VERY HIGH
Equity/Ridership Profile Route proximity to Justice40 Census tracts	HIGH

SCORES BY SEGMENT

Route 57 – Westmoreland

CORE
Corridor Optimization + Rider Experience

RECOMMENDATIONS

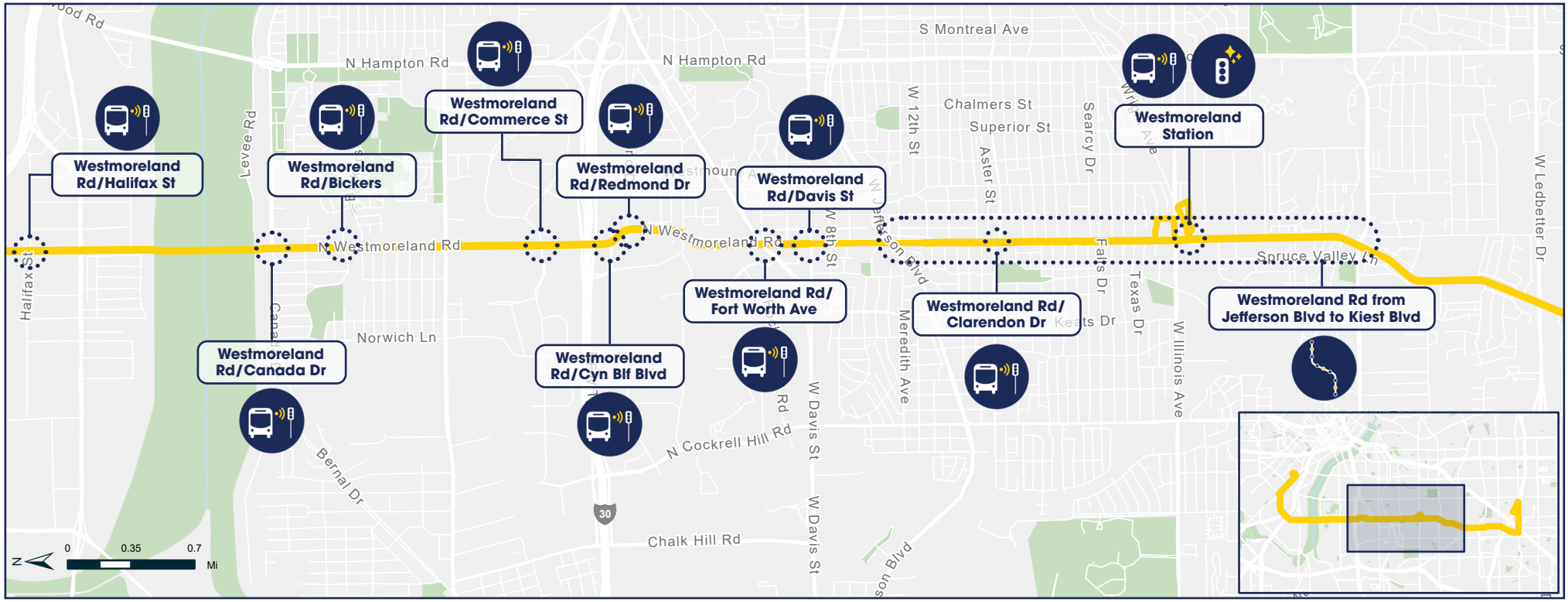
Route 57 serves South and Central Dallas with termini at Kirnwood & Wheatland and Parkland Station. Transit Signal Priority should be considered at Harry Hines and Lofland Blvd, Butler St, Record Crossing, and Mockingbird Ln, as well as at Mockingbird Ln and Oakbrook Dr, Elmwood Dr, Brookriver Dr, Halifax St, Canada Dr, and Bickers St.

TOOLBOX ICON DEFINITION

TRANSIT SIGNAL PRIORITY

Route 57 – Westmoreland

CORE
Corridor Optimization + Rider Experience



RECOMMENDATIONS

A new signal at the western entrance/exit to Wesmoreland Station with added Transit Signal Priority for exiting buses should be considered to improve reliability at the station. TSP should also be considered on Westmoreland Rd and Commerce St, Cyn Blf Blvd, Redmond Dr, Fort Worth Ave, Davis St, and Clarendon Dr. Stop consolidation should also be considered on Westmoreland Rd between Jefferson Blvd and Kiest Blvd.

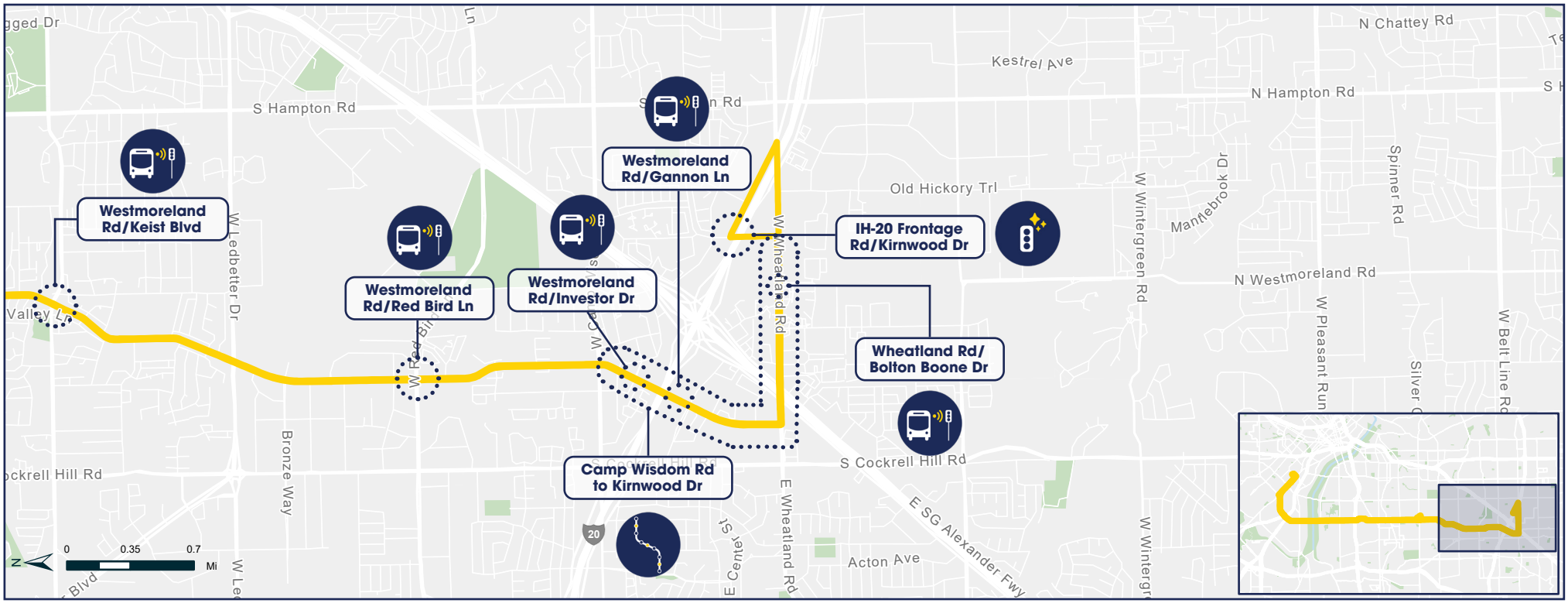
TOOLBOX ICON DEFINTION

TRANSIT SIGNAL PRIORITY

NEW SIGNAL

STOP CONSOLIDATION

Route 57 – Westmoreland



RECOMMENDATIONS

At the southern segment of the route, bus stop consolidation should be considered on Westmoreland between Camp Wisdom Rd and Wheatland and on Wheatland between Westmoreland and Kirnwood Dr. Transit Signal Priority should be considered at Red Bird Ln, Wheatland & Bolton Boone Dr, Westmoreland at Gannon Ln, and at Investor Dr. A new signal at Kirnwood Dr and the IH-20 frontage road would also help speed up transit vehicles.

TOOLBOX ICON DEFINTION

TRANSIT SIGNAL PRIORITY

STOP CONSOLIDATION

NEW SIGNAL