

memorandum

DATE: Tuesday, October 26, 2021

TO: Direct Bus Project Steering Committee, SEPTA Staff, DVRPC Staff, and other interested parties

FROM: Amy Bernknopf and Logan Axelson, DVRPC

SUBJECT: Direct Bus Feasibility - Phase 2

Executive Summary

Direct Bus is the Southeastern Pennsylvania Transportation Authority's (SEPTA) enhanced bus service, providing frequent, limited-stop service. Direct Bus is an overlay service designed to provide travel time savings over the local service. The first [Direct Bus route, on Roosevelt Boulevard](#) in Northeast Philadelphia and Bucks County, was launched in 2017.

In Fiscal Year 2020, the Delaware Valley Regional Planning Commission (DVRPC) led Phase 1 of the [Direct Bus Feasibility Study](#) on SEPTA's behalf. That analysis used quantitative indicators to gauge the feasibility of various corridors for future Direct Bus service. The Direct Bus candidate corridors were selected by a Steering Committee, and were scored based on a collaboratively-developed analysis using multiple datasets. Following the technical analysis of Phase 1, SEPTA asked DVRPC to continue working with interested partners throughout SEPTA's service area to identify additional qualitative indicators that could advance Direct Bus and the future implementation of this mode.

DVRPC formed a new condensed committee from participating staff in Phase 1 who were interested in continuing this work. The goal of this Phase 2 group was to help regional partners prepare for successful Direct Bus implementation. The analysis conducted in Phase 1 illustrated the quantitative factors that make a Direct Bus route successful, and the committee's work in Phase 2 addressed the qualitative factors for Direct Bus success through discussion, case study reviews, and collaborative exercises.

This memo documents the Steering Committee’s work during Phase 2. A series of three meetings were held in Spring 2021. Each Steering Committee meeting was focused on a key topic, listed below.

- **Meeting #1:** The factors that make a corridor ready for Direct Bus, such as:
 - Potential operational efficiency and accessibility benefits
 - Zoning
 - Local partnerships
 - Limited or no programmed construction projects

- **Meeting #2:** How to coordinate as a committee across counties and municipalities.

- **Meeting #3:** The differences between the existing Boulevard Direct route and any future Direct Bus routes.

In coordination with the Steering Committee and SEPTA the project team created a readiness list intended to guide communities interested in Direct Bus service through a series of brainstorming questions. This is a checklist to guide an initial conversation between SEPTA and the interested party (municipalities, corridor coalitions) and is the first step in considering any corridor for Direct Bus service.

Table 1: Readiness Considerations for Direct Bus Corridor

Ridership Generation	
	Does the residential and commercial density support transit?
	Are major destinations (i.e., employment centers, institutions, and transportation centers) along the corridor and/or at the end-points?
	Who is your target rider? Long-distance riders taking the service from end-point to end-point? Or riders who take the service a shorter distance of one-to-two miles between their origin and destination?
	Could this service pull ridership or complement nearby routes?
Transit Market and Service	
	What is the transit improvement you are trying to make? Who will benefit?
	What will the financial and lifestyle costs be to existing riders of the local service?
	Are you trying to speed up service or make it more reliable? Or both?
	Are you trying to provide public transit access to people who do not have it now, but do need it?
	Are there opportunities to transfer to other transit services?
Community Support	
	Are there dense planned developments along the corridor or proposed route?
	Does the local zoning allow for mixed-use and dense development along the corridor?
Local Infrastructure	
	Who owns the roadway?
	Does existing bus infrastructure (shelters, stops, etc) exist?
	Does the roadway have sidewalks? Are they ADA accessible? Is it connected to a larger sidewalk network?
	Who owns the adjacent sidewalk? Is it the landowners, the municipality, the roadway owner, or a combination?

Source: DVRPC (2021).

Background

How do we get a corridor ready for Direct Bus implementation? What does that mean exactly? At the conclusion of DVRPC's [Direct Bus Feasibility Study](#) there was interest among Steering Committee members in continuing the project's focus on evaluating, preparing, and prioritizing future Direct Bus lines. In an effort to preserve and continue this work a new Steering Committee was formed to focus on Direct Bus future implementation in SEPTA's service area. This was one of the "next steps" cited in the Direct Bus Feasibility Study. This committee serves as a partnership between SEPTA, PennDOT District 6-0, Bucks County, Delaware County, Chester County, Montgomery County, and Philadelphia. This Direct Bus Phase 2 effort was meant to complement the analysis performed during Phase 1. In Phase 2, Steering Committee members were led in a series of three meetings made up of planners in SEPTA's service area to try to answer questions and further Direct Bus future implementation.

At these three sessions staff from DVRPC, SEPTA, Bucks County Planning Commission, Chester County Planning Commission, Delaware County Transportation Management Association, Delaware County Planning Department, Montgomery County Planning Commission, Office of Transportation, Infrastructure, and Sustainability in the City of Philadelphia (OTIS), Philadelphia City Planning Commission (PCPC), and TMA Bucks represented SEPTA's service area and worked toward answering some questions at the macro level question of where and which corridor makes sense to implement Direct Bus in the region. At the completion of Phase 1, Steering Committee members agreed that each proposed Direct Bus Corridor requires further analysis to address contextual aspects such as determining end points and route frequency.

Summary of Direct Bus Expansion Report - Phase 1 and Findings

SEPTA is considering expanding Direct Bus service as part of its planned Comprehensive Bus Network Redesign, [Bus Revolution](#). SEPTA's Bus Revolution project will take a broad and detailed look at SEPTA's bus network with the goal of making it easier to understand and use. Direct Bus offers an efficient and reliable travel option, with frequent service and limited stops. While Roosevelt Boulevard is unique within the region—with many lanes, both local and express, high speed traffic, etc.—SEPTA determined that other regional corridors also have characteristics which would make a Direct Bus service successful. SEPTA provided the project team and Steering Committee members with the Direct Bus core and secondary attributes¹ as well as with insights from the first successful implementation. SEPTA requested DVRPC identify corridors within its service area where future limited stop service would be valuable and successful. Initial Direct Bus candidate corridors were proposed by the Steering Committee. The project team then evaluated each corridor's potential for success as a Direct Bus route through two different analyses, depending on available datasets, using data from 2019.

Due to the onset of the COVID-19 pandemic in March 2020, SEPTA bus ridership decreased suddenly and severely. At the time this report was published, daily transit passenger counts were about 50 percent of pre-pandemic. As ridership begins to return as commercial and office spaces re-open, we may see new travel trends and find new ways to measure them. Due to the timing of this study, the project team used pre-pandemic Spring 2019 ridership for all analyses.

¹ DVRPC, Direct Bus Feasibility Report, page 6 (2021).

Corridors being served by SEPTA as of Spring 2021

Using SEPTA's Direct Bus core and secondary attributes as guidance, the project team collected 11 relevant data sets to assess the feasibility of future Direct Bus service on these corridors. Each corridor was created by combining these data sets and scoring them by half-mile segments using three weighting schemes, see Table 2. A final score was calculated by averaging the score of all half-mile segments within each corridor. Each of the 15 corridors' scores and rankings under each weighting scheme can be found in [this online map](#). Figure 1 is a static version of this map.

The results of this analysis revealed that corridors where existing SEPTA bus routes operated through high population and job density scored well in all three weighting schemes—even those where population and employment metrics were deprioritized. Generally, these high-scoring corridors (such as Rising Sun and Ogontz Avenues and Erie and Torresdale Avenues) serve Philadelphia and its innermost suburbs (see Table 2). The corridors that scored well across all weighting schemes also had connections to either the Market-Frankford Line or the Broad Street Line, indicating that the ridership strength of Direct Bus candidate corridors is closely tied to the strong ridership base that transportation centers with multiple transfer opportunities provide.

Figure 1: Map of Evaluated Corridors with Existing SEPTA Bus Service



Sources: Esri, HERE, Garmin, FAP, USGS, OpenStreetMap contributors, and the GIS User Community

Table 2: Evaluated Corridors with Existing SEPTA Service - Rank by Weighting Scheme

Corridor	Corridor # on map	Rank by Weighting Scheme (1 is high rank, 15 is low)		
		Ridership/Transit Reliability	Reverse Commute	Roadway Characteristics
Rising Sun and Ogontz Avenues	5	1	1	1
Erie and Torresdale Avenues	6	2	2	2
Frankford Avenue	8	3	6	4
Bustleton Avenue	1	4	5	3
City Avenue to Wissahickon Transportation Center and 69th Street	4	5	3	7
City, Montgomery, and Lancaster Avenues	7	6	4	6
Old York Road	15	7	8	5
MacDade Boulevard	3	8	7	9
69th Street to Chester	11	9	9	8
Germantown Pike & Stenton Avenue to Plymouth Meeting	13	10	10	11
Ridge Pike	12	11	11	10
Lancaster Pike	9	12	12	12
US-202 (Dekalb Pike)	2	13	13	14
West Chester Pike	14	14	14	13
Conshohocken to Plymouth Meeting	10	15	15	15

Source: DVRPC (2020).

Corridors not being served by SEPTA as of Spring 2021

Origin-destination pairs and corridors without bus service connecting them, but whose potential transit demand was of interest to Steering Committee members, were also evaluated for potential Direct Bus implementation. Using DVRPC’s [Regional Transit Screening Platform \(RTSP\) Transit Network Gap Analyzer tool](#), the project team found there is demand for travel between some of these pairs, in particular, to Trenton from Lower and Central Bucks County.²

Phase 1 Conclusion

Following the Phase 1 analysis there were still some underlying questions about what it meant to score high or low and whether a quantitative analysis was the only way to determine if a corridor was “ready” for Direct Bus service. Steering Committee members and staff discussed whether the Direct Bus brand could be adapted to provide different types of service on different regional corridors to meet the needs of current and potential riders.

Committee Meetings and Lessons Learned

The purpose of Phase 2 of this project was to host a series of meetings to discuss unanswered questions about prioritizing Direct Bus implementation in corridors throughout SEPTA’s service area. This section summarizes the purpose, discussion, and lessons learned of each committee meeting.

² DVRPC, Direct Bus Feasibility Report, page 20 (2021).

Committee Meeting 1: Purpose of Committee and Desired Outcomes

The focus of the first committee meeting was to discuss the purpose and possible outcomes of the assembled stakeholder group. Committee members were asked to respond to questions in small groups and to define group and member expectations. Below are the questions and a summary of the responses.

- What do you want the outcome of this committee to be?
 - Narrow options down to a couple corridors and actively pursue them for Direct Bus implementation
 - Identify a process to decide qualitative "ripeness" of corridors and pinpoint aspects and priority beyond scoring and ranking.
 - Create and establish the goals of expanding Direct Bus. This could be a method to categorize the next best corridor.

- How can this group influence implementation of the Direct Bus mode?
 - Work together to make the move from talking about implementation to testing it. Try out different models, see what's adaptable, it doesn't have to look exactly like Boulevard Direct.
 - Guide municipalities how to Refine zoning codes to support corridors for implementation.
 - Develop a process to define what a "winning" corridor is and means.
 - Ensure that all corridors are captured in some way even if they are not dense.
 - Inform municipal staff on capital projects and policy changes to pursue as a result of the outcome of what this committee does.

- How can Direct Bus implementation have influence in an area?
 - Act as a catalyst for growth for an area.
 - Help streamline and improve existing bus service.
 - Attract new riders to bus service in the area.
 - Understand how to capitalize on existing infrastructure and transit.

Key Takeaways: Listed above are key characteristics that the Steering Committee members can act on to guide Direct Bus implementation in the region that does not require SEPTA leadership. In addition, the members seemed to be interested in acting on implementation, such as piloting a service, rather than continuing further studying before taking action.

Committee Meeting 2: MetroTransit (Minneapolis and St. Paul) Case Study Presentation This meeting centered on a peer practice example. Kyle O'Donnell Burrows, Senior Planner of BRT Projects, a staffer at MetroTransit, the transit agency for the Minneapolis/St.Paul metro area, discussed the expansion of MetroTransit's Arterial Bus Rapid Transit service, a service comparable to SEPTA's Direct Bus. This meeting helped the Steering Committee understand what steps another region took between quantitative analysis and implementation in expanding BRT service. MetroTransit, the transit agency serving the region of Minneapolis and St. Paul presented their process and future expansion plans for BRT in their region to the Direct Bus

Steering Committee.³ The most impactful information shared with the group was the criteria used to screen and evaluate the corridors for BRT expansion near-term, as well as the process to prioritize once the first two steps were complete.

Currently MetroTransit has three BRT lines in service. Their goal is to have up to 15 Arterial BRT Lines by 2040. Route development has followed a four-step process (identify, screen, evaluate, and prioritize). 19 corridors were **identified** using the existing high-frequency network, high ridership corridors, previously studied corridors, and a network balance exercise.

The purpose of the **screening** step was to score each of the 19 corridors based on the following criteria, and use the outcome to narrow down the corridors. Each category is weighted by a specific amount.

- Advance equity and reduce regional racial disparities (30 percent)
 - The percent riders on the existing primary corridor route who are people of color or people experiencing poverty.
- Build on success to grow ridership (30 percent)
 - The sum of average weekly boardings from the corridor's primary route
- Design a network that supports a transit-oriented lifestyle (40 percent)
 - Measure of transit potential based on: population density, employment, density, automobile availability, and intersection density
 - Review of community plans and priorities as expressed in municipalities' 2040 comprehensive plans)
- Ensure the long-term sustainable growth of the bus network (10 percent)
 - The existing frequency of midday service along the corridor.

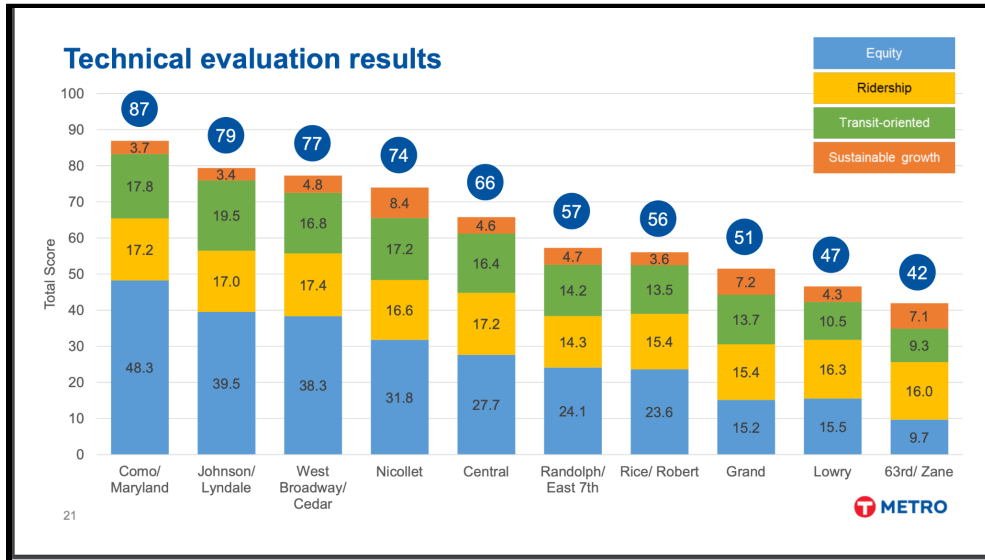
Ten corridors advanced from the screening process into the evaluation step. MetroTransit developed detailed arterial BRT concepts, applied robust **evaluation** criteria (listed below), and sorted the corridors into three tiers (near-term, mid-term, and long-term) based on the evaluation results.

- Advance equity and reduce regional racial disparities (50 percent): population of Black, Indigenous, and People of Color, employment / low-wage jobs, renter population, and low-income population.
- Build on success to grow ridership (20 percent): ridership propensity, percent reduction in end-to-end travel time, trip diversity on corridor, and percent of current ridership served by BRT Stations.
- Design a network that supports a transit-oriented lifestyle (20 percent): current population, future population, current jobs, future jobs, walkability, current transit supportive land use, and future transit supportive land use.
- Ensure the long-term sustainable growth of the network (10 percent): capital cost, operations and maintenance costs, percent of service hours "Paid for" by existing service.

Figure 2 shows how each corridor scored in this evaluation process. The breakdown is clear, concise, and clearly prioritizes some corridors over others.

³ MetroTransit BRT website, <https://www.metrotransit.org/brt> (2021).

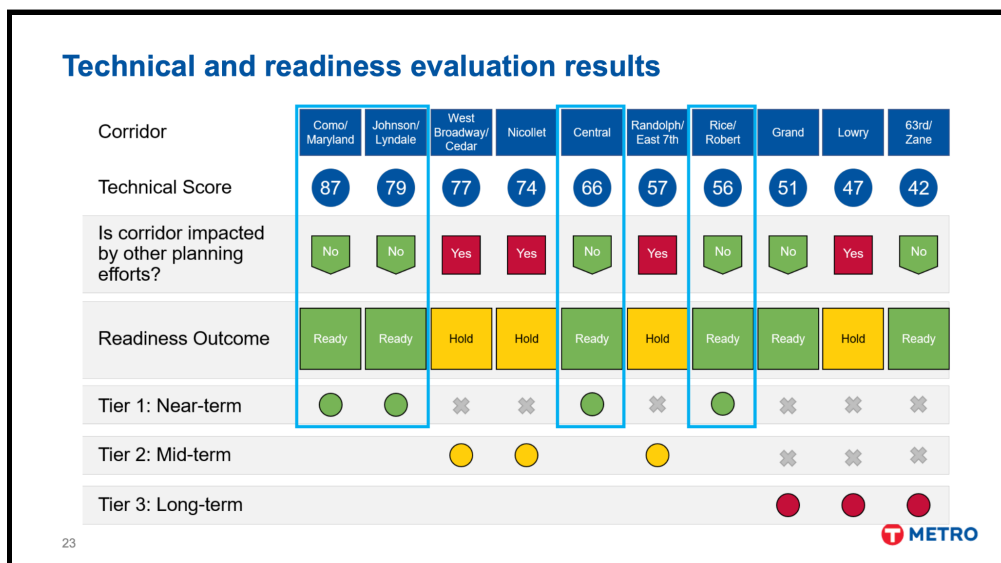
Figure 2: MetroTransit Evaluation Results



Source: MetroTransit Presentation (2021).

Following this series of technical reviews there were a number of questions to be answered which were not necessarily quantifiable, which MetroTransit titled the **Readiness review**. This review helped MetroTransit consider how their work would affect other transit studies, avoid duplicating existing planning efforts, and coordinate route development to take advantage of other ongoing projects. Figure 3 is a visual displaying how the quantitative and qualitative criteria were used to start prioritization.

Figure 3: MetroTransit Technical and Readiness Evaluation



Source: MetroTransit Presentation (2021).

The final stage was to **prioritize** the three lines to pursue near-term. MetroTransit conducted public outreach, collected local government input, and answered the questions below.

- How many people benefit?

- How much additional funding is required?
- Will the line expand the reach of the METRO system?
- Does the line depend on other network changes?

To date, DVRPC's work supporting SEPTA is roughly equivalent to MetroTransit's steps 1 and 2 — identifying and screening candidate Direct Bus corridors. However, the current methodology does not include criteria measuring equity or long-term sustainable growth of the bus network. DVRPC is working on the [Racial Minority Mobility Choices Study](#) in Fiscal Year 2022. In the future, this should help inform how to incorporate equity concerns into the next step of this process. SEPTA's ongoing Bus Revolution project does have equity factors involved, and therefore SEPTA is likely addressing these criteria in that process.

Key Takeaways: To follow the MetroTransit model the next steps would be working on gathering detailed information about each of the proposed corridors to make an informed decision about near term, mid-term, and long-term implementation and what that means to SEPTA and the region. To do so, SEPTA and local stakeholders (such as this project Steering Committee) would need to agree on details about each route, such as the end points, proposed infrastructure, and potential stop locations.

Committee Meeting #3: The primary purpose of this meeting was for Steering Committee members to review the Phase 1 quantitative data sets and anticipate the qualitative criteria we may need to answer in future Direct Bus development efforts. The Steering Committee was divided into three groups, and each group evaluated existing stops along a candidate corridor and discussed the following questions:

- What are the current physical, geometric, cartway, infrastructure conditions?
- What makes this location appropriate for a Direct Bus stop or not?
- What changes need to be made to make it a more fit location for a Direct Bus stop?
- Consider outreach; who needs to coordinate?
- Consider physical infrastructure such as a shelter, pedestrian connections, and appropriate land use.

The following were the takeaways from each group:

- Group 1 discussed service along West Chester Pike, a suburban corridor that SEPTA currently provides local service to between 69th Street in Upper Darby to West Chester University in West Chester. The group thought that if the intention of Direct Bus is to provide a new and different service than what exists, then perhaps stops that already have frequent local service should be skipped, such as those in Upper Darby. The new service could target a long-distance commuter.
- Group 2 discussed the existing bus stops at the Plymouth Meeting Mall, and, more generally, end-of-line stops on private property. While they are ideal locations because they are both shopping and employment centers, the companies that own these malls are often hesitant to work with on transit projects.

- Group 3 discussed the DeKalb Pike (US 202) corridor, the significance of choosing stop placement and location, as well as how construction projects could affect the implementation timing of Direct Bus along a corridor.
 - To determine the stop placement and location the following questions were considered.
 - Should bus stops be located at major commercial locations or destinations and employment centers (i.e., a mall versus a hospital) or in between?
 - What type of rider are we trying to target and serve?
 - In answering these questions the group discussed local municipal, county business partnerships and sponsorships for bus stop amenities, maintenance, and placing the stops and service according to the type of rider determined.
 - A Steering Committee member mentioned there will be a major widening project along the corridor that will span five years and possibly more. Therefore, expanding Direct Bus service to this corridor prior to or during construction may take away from the success of implementation. Further, local and regional partners could take advantage of the construction by requesting, prioritizing, and advocating for bus and public transit infrastructure.

Key Takeaways: During the third meeting Steering Committee members focused on the type of active participation that will be required from counties, municipalities, transit agencies, and other stakeholders to answer questions and make local decisions together during Direct Bus implementation, such as infrastructure and operations questions about stops and route variation.

Conclusion

The Direct Bus Steering Committee's meetings had two major outcomes: fostering collaboration across county and municipal governments, and identifying the key characteristics of Direct Bus service at a regional level. As SEPTA continues its Bus Revolution project the committee's work will be helpful in determining how Direct Bus service will fit into the comprehensive redesign of SEPTA's bus network. This unique group of members is an important perspective for SEPTA's bus operations and should participate in Bus Revolution as a subcommittee given the interest and extensive knowledge about urban and suburban corridors.

Through discussion and review of peer practice, the committee refined the key roles and responsibilities of stakeholders in planning for this type of service. A key outcome from the group's meetings was a mutual understanding and agreement about the flexibility of the Direct Bus brand and how it may be implemented differently in different contexts, counties, and locations. The value of these meetings clarified the roles of corridor stakeholders in planning and implementing a Direct Bus along a corridor as well as the purpose and target rider to be served by future Direct Bus routes. The group identified the following characteristics of corridors that may warrant Direct Bus service. These are essential to implement Direct Bus, and should be considered along with (in addition to) the operations and infrastructure elements discussed in the Phase 1 [Direct Bus Feasibility Study](#).

1. **Dense commercial and residential.** These corridors are highlighted in the quantitative process. This would be ideal for locations that have significant high ridership along the corridor serving major employment, shopping, institutional, and residential centers.
2. **Long-haul trips and commuter service** where there are two **major destinations** on either end of the corridor, with few stops in between. Local service would still need to be serving this corridor. This may be ideal along a corridor such as West Chester Pike, where there are two major centers (69th Street Transportation Center and West Chester University) on either end with significant local service serving the corridor.
3. **Stakeholder and policy support.** The corridor should have representatives who are driven to see public transit improvements and implementation. For example, the area would have zoning and comprehensive plans that support public transit as well as support from the local government and general public. Due to SEPTA's constrained budget and the competition for federal funds for transit investments local stakeholders could prioritize Direct Bus by de-prioritizing other major capital infrastructure project requests to SEPTA. This is an option if Direct Bus is indeed a priority over other improvements.

Next Steps

With these conclusions in mind, the next steps for Direct Bus implementation are listed below. We expect this conversation will continue throughout SEPTA's Bus Revolution project.

1. SEPTA staff to share the Phase 1 Direct Bus Feasibility Report to the Bus Revolution consulting team for inclusion in their analysis.
2. SEPTA staff to share the Phase 2 Memo Summary to the Bus Revolution consulting team for inclusion in their analysis.
3. SEPTA will form a group of relevant and interested Phase 2 Steering Committee members to meet quarterly to provide input for Bus Revolution.
4. Relevant and interested Phase 2 Steering Committee members should provide input to SEPTA into the design and development of a rapid bus network as a part of the [Bus Revolution outreach](#).