Pinellas Suncoast Transit Authority

COMMUNITY BUS PLAN
CHOICES REPORT

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1 Introduction

What is the Community Bus Plan?

The Pinellas Suncoast Transit Authority (PSTA) is the public transit provider for Pinellas County, a growing and dense county of nearly 1 million people over 274 square miles. The county expects to add 93,000 people and 60,000 jobs. ***Advantage Pinellas***, the recently completed long-range transportation plan for the county, recognizes that the growth and development patterns for Pinellas County will change in the coming years.

> ***"Building more roads and wider highways is not in our long-term future. A better fit for our urban character: more walkable places, with housing near jobs, commercial areas, educational opportunities and choices for getting around our county and region. . . . It's imperative that we continue developing a transportation network with efficient transit options to have a fully functioning system, both locally and regionally."***
>
> ***Advantage Pinellas***

Limitations of Space

Public transit is essential to a place the size and density of Pinellas County, because there is simply not enough room for everyone's car on the road, and ever larger highways and parking garages are extremely expensive. Like most dense places, many parts of Pinellas County present features that make transit essential, and require that it be highly efficient.

- **Severe road space limitations:** Across much of the core of Pinellas County, especially in the downtowns of St. Petersburg and Clearwater, and in beach communities, the road-width is fixed and will never be wider. Efforts at widening roads in built-up areas are extremely costly, frequently destructive, and counterproductive.
- **Parking limitations:** Places to store private cars and hired cars when they are not in use are costly, compared to the other ways land can be used in a city.
- **Intensification of land use:** With growing demands for housing and commercial space, demand for land and space to build is going up across many areas of Pinellas. The pressure to use space efficiently will go up.

Figure 1 shows that buses and bikes use exponentially less space than cars. Even autonomous cars will not change this basic geometric challenge, as they take up almost the same amount of space as today's cars. Even carrying three to four persons per car, they cannot be anywhere near as space efficient as buses or bicycles.

The only alternative to congestion is for a larger share of people to rely on transit and other alternative modes that carry many people in less space. This requires more useful transit services that efficiently respond to the changing needs of the many communities in Pinellas County.

Rail transit can do some of this, but is costly and can take a long time to build. Rethinking or investing in the PSTA bus network is a solution that can be implemented quickly and can be relevant all over the county.

In addition to the use of space, of course, transit serves an essential function in providing transport to people who cannot drive, for a wide range of reasons. Those reasons can include income, disability, and age, among other things. A good transit system includes all of these people.

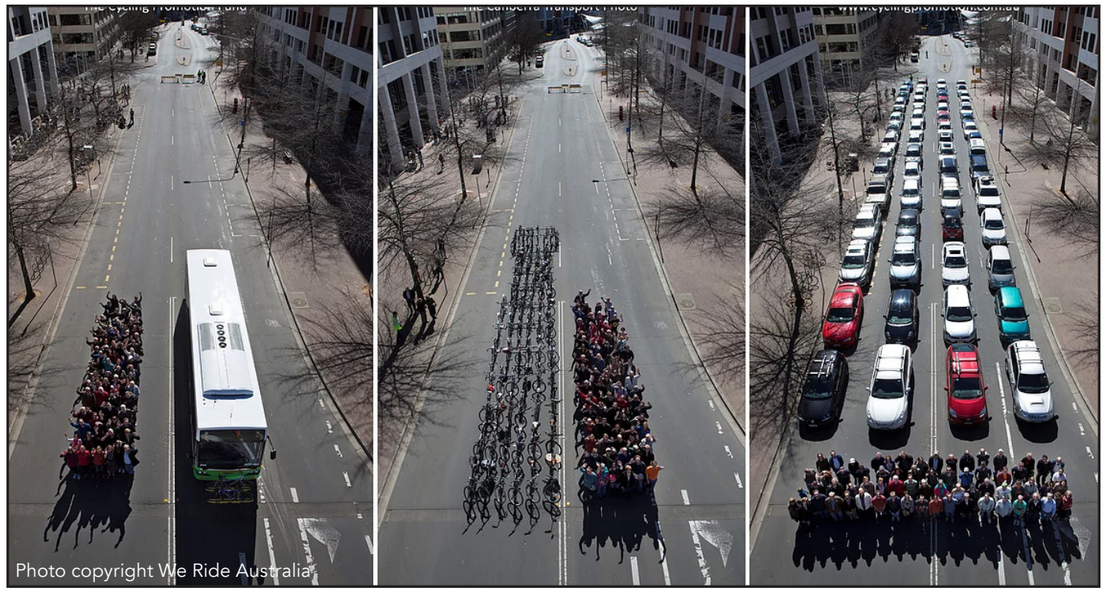
A *Community* Bus Plan

The **PSTA Community Bus Plan** is a review of the purpose and performance of PSTA's bus network to plan for improvements to the network over the next 10 years. This is a collaborative planning effort among PSTA, its municipal partners, Forward Pinellas, transit stakeholders and members of the community to decide the goals and purposes of PSTA's investment in public transit. This will inform future decisions about where bus routes go, at what times they run, and how frequently. Input from riders and the public will be critical to making some major choices along the way.

The Community Bus Plan will include:

- Consultation of residents, workers, transit riders and advocates about how PSTA should make choices and prioritize service.
- Planning for potential future growth of the PSTA transit network.
- Guidance for municipal and other partners about how development, street management and growth can be shaped so that transit is less costly to operate and more successful.

Figure 1: The road space required to move the same number of people using public transit, bicycles, and cars.



What is a transit system?

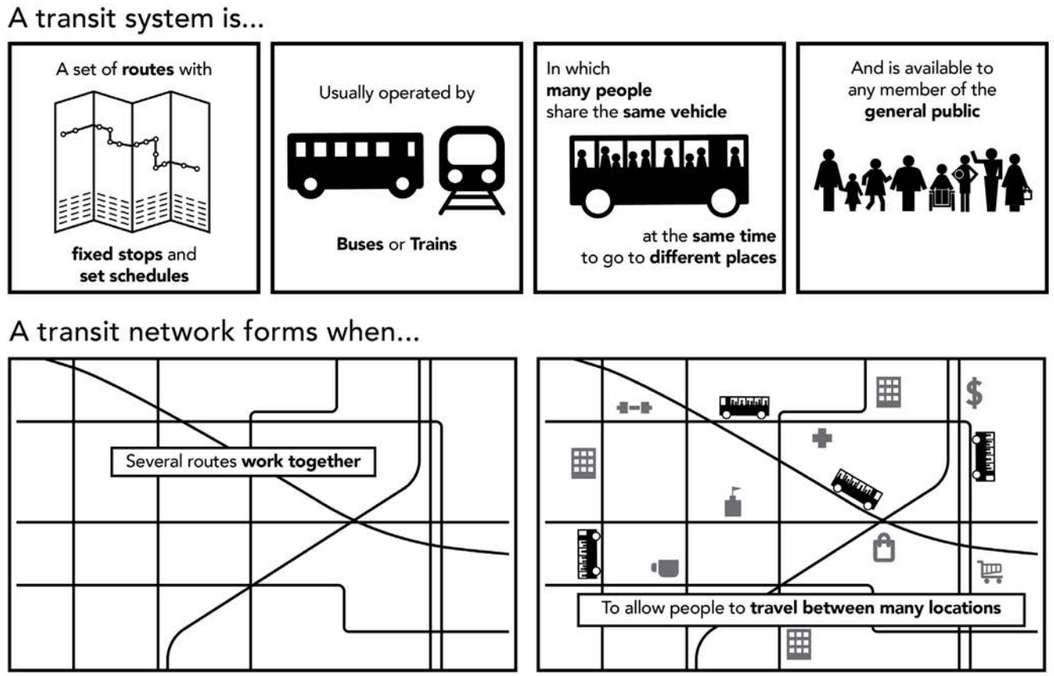
No single transit line or project can, by itself, transform a city. Transit in cities is often referred to as a "system" because it is a combination of many parts, working together.

The graphic at right describes what makes a transit system. In Pinellas County, the system is made of:

- Local buses, including Trolley routes like the Central Avenue Trolley or Suncoast Beach Trolley.
- Rapid buses, generally called "BRT" for Bus Rapid Transit, with one local example called the SunRunner.
- Express buses, that have limited stops and operate over long distances, like Routes 100X and 300X to Tampa.
- Connecting on-demand services like the East Lake Shuttle and Direct Connect services (not shown in the diagram).

In Pinellas County there are many heavily-used transit lines, and there are many lightly-used lines. At present, there are a number of challenges that can limit the usefulness of the system, such as long wait times when transferring, and other reasons explained in this report.

Figure 2: A transit network forms when several routes work together.



Why Focus on the Bus Network?

This planning effort is heavily focused on network design. Transit network design addresses where routes are operated, how frequently they run, during what hours and days, and – crucially – how they connect with one another.

Every successful transit system includes a substantial layer of bus service within its network. Bus service is less expensive to operate, faster to deploy, and easier to expand than other capital-intensive transit technologies like trains, trolleys or even BRT. Bus networks are the major part of transit systems in even the biggest American cities like Chicago, San Francisco or New York. Many, and in some cases most, of the transit trips within those cities are made by bus, not rail.

Successful capital-intensive transit lines like BRT, light rail or commuter rail almost always follow on the heels of successful bus lines. Bus service allows a city to grow around transit, shaping development, the economy and people's habits.

Big buses are much more space efficient than small-vehicle services like dial-a-ride or pooled Uber and Lyft rides. In suburban areas, getting two or three people to share a vehicle for their trips can be an improvement over having them drive alone. And PSTA supports these trips with its Direct Connect program. But in busy, dense places like St. Petersburg, Clearwater, and other parts of Pinellas, fleets of small shared vehicles just can't rival the space and cost efficiency of big transit vehicles.

Network design is not the only important aspect of transit planning. Other factors affect the usefulness and success of a transit system, such as reliability, safety, vehicle quality, transit fares, car parking prices, and many other factors that are within and beyond the control of PSTA.

The Community Bus Plan and the public conversations that are part of it will intentionally be focused on network design:

- ***where and when bus service runs,***
- ***how it connects to form a network, and***
- ***how the success of that network should be measured.***

Transit's Many Goals

Transit can serve many different goals. It is not possible to excel towards all these goals at the same time. In addition, reasonable people will disagree about which of these goals is most important.

Understanding which goals matter most in Pinellas County is a key step in updating the PSTA network and in thinking about any potential expansions. Some possible goals for transit include:

Economic: Transit can give businesses access to more workers, workers access to more jobs, and students access to education.

Environmental: Increased transit use can reduce air pollution and greenhouse gas emissions. Transit can also support more compact development conserving land.

Social: Transit can help meet the needs of people who are in various situations of disadvantage, providing them with access to support services and opportunity.

Health: Transit can support physical activity by walking and biking. It can also improve health by bringing health care, services and food within reach for disadvantaged people.

Personal Liberty: By providing people the ability to reach more places than they otherwise would, a transit system can be a tool for personal liberty, empowering people to make choices and fulfill their individual goals.

Congestion: Transit can allow for economic growth beyond what congestion would limit. High ridership can reduce some of the impacts of cars, such as noise and air pollution.

Some of these goals are served by high transit ridership. The environmental benefits of transit only arise from many people riding the bus rather than driving. The same is true of some economic and health outcomes. We call such goals **"ridership goals"** because they are achieved through high ridership.

Other goals are served by the mere presence of transit. A bus route through a neighborhood provides residents insurance against isolation, even if few people ride it. A route may fulfill political or social obligations, by getting service close to every taxpayer or into every city. We call these types of goals **"coverage goals"** because they are achieved by covering geographic areas with service, regardless of use.

Ridership Is Not the Only Goal

If PSTA wanted to maximize transit ridership, it would focus its network around the busiest places where the greatest numbers of people live and work. If PSTA did this, it would be acting more like a business: delivering the best service in places with the most potential customers.

Businesses are under no obligation to spread their services around widely. In fact, they tend to avoid spending a lot of money to reach only a few customers. McDonald's is not obliged to provide a restaurant within 1/2 mile of everyone in Pinellas. If it were, then the company would have to add many additional locations. Some locations would serve just a handful of homes, and most would operate at a loss because there are so few customers nearby.

People understand that less-inhabited areas will naturally have fewer McDonald's restaurants than more-inhabited areas. We don't describe this as McDonald's being unfair to places where few people live; they are just acting like a private business. McDonald's has no obligation to cover all areas with its restaurants.

Transit agencies are not private businesses. Most transit agencies decide that they do have some obligation to cover places with fewer people in them even when this would not be a "good business decision."

The officials who ultimately make public transit decisions hear their constituents say things like "We pay taxes too" and "If you cut this bus line, I will be stranded" and they decide that coverage, even in low-ridership places, is an important transit outcome. This is why transit agencies rarely act like private businesses.

Transit agencies are often accused of failing to maximize ridership, as if that were their only goal. In fact, most agencies are intentionally operating some coverage services that are not expected to generate high ridership.

Figure 3: Do buses need to be full for transit to be "successful"? That depends on transit's purpose in the community.

Conflicting Goals

All transit agencies must balance the competing goals of high ridership and extensive coverage. Within a limited budget, if an agency wants to do more of one, it must do less of the other.

Here is an illustration of how ridership and coverage goals conflict with one another due to geometry and geography. In the fictional town on the right, the little dots indicate dwellings, commercial buildings and other land uses. The lines indicate roads. Most of the activity in the neighborhood is concentrated around two roads, as in many towns.

A transit agency pursuing only a **high-ridership goal** would focus service on the streets where there are large numbers of people, where walking to transit stops is easy, and where the straight routes feel direct and fast to customers. Because service is concentrated onto fewer routes frequency is high and a bus is always coming through the neighborhood soon. This results in a network like the one at bottom-left.

If the transit agency were pursuing only a **high-coverage goal**, on the other hand, it would spread out services so that every street had a bus route, as in the network at bottom-right. As a result, all routes would be infrequent, requiring long waits, even in the busiest places.

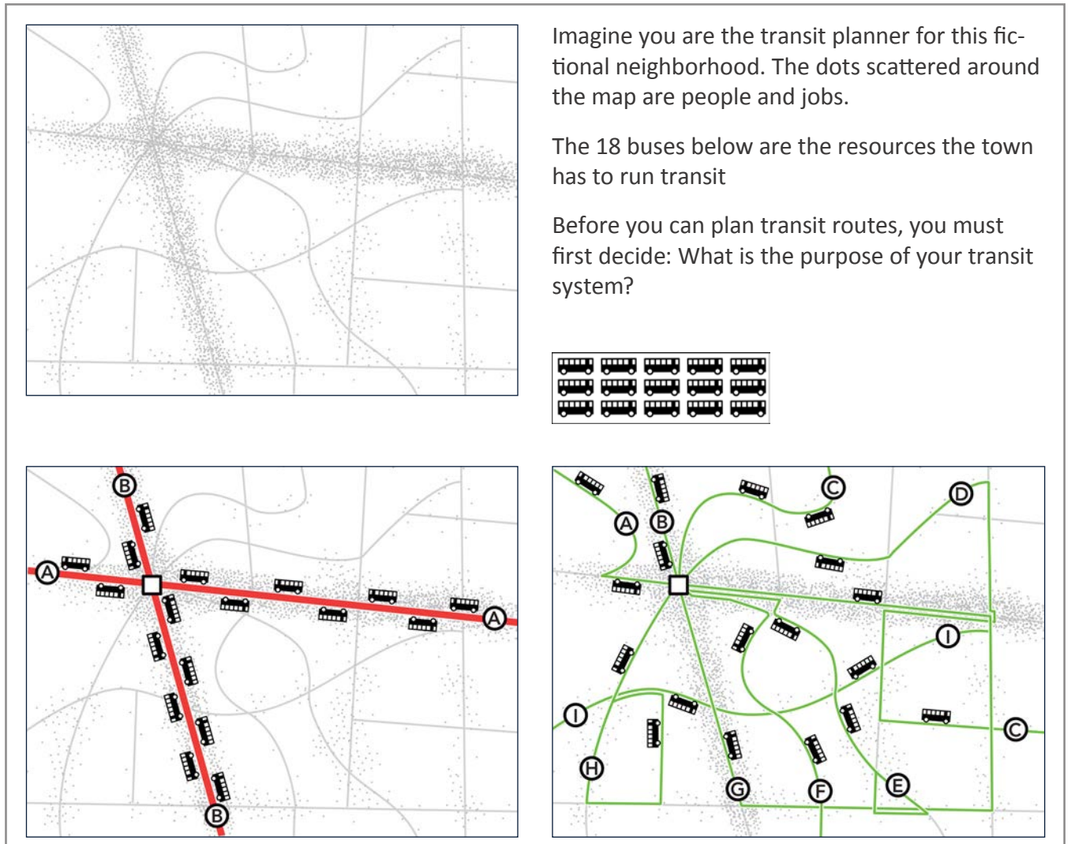
On a fixed budget, designing transit for both ridership and coverage is a zero-sum game. Each bus that the transit agency runs down a main road, to provide more frequent and competitive service in that market, is not running on the neighborhood streets, providing coverage. While an agency can pursue ridership and provide coverage within the same budget, it cannot do both with the same dollar. The more it does of one, the less it does of the other.

These illustrations also show a relationship between coverage and complexity. In this imaginary neighborhood, any person could keep the very simple "high frequency" network in their head, since it consists of just two routes running in straight lines. They would not even need to consult a schedule to catch a bus. The coverage network would be harder to memorize, requiring people to consult a map (to understand the routing) and a schedule (to catch these infrequent services).

These two scenarios require the same number of buses and cost the same amount to operate, but deliver very different outcomes.

A particularly clear way for transit agencies to set a policy balancing ridership and coverage is to decide what percentage of their service budget should be spent in pursuit of each. The "right" balance of ridership and coverage goals is different in every community.

The choice between pursuing ridership and coverage is not binary. It's a sliding scale. Every transit agency spends some portion of its budget on both types of goals.



Imagine you are the transit planner for this fictional neighborhood. The dots scattered around the map are people and jobs.

The 18 buses below are the resources the town has to run transit

Before you can plan transit routes, you must first decide: What is the purpose of your transit system?

All 18 buses are focused on the busiest streets. Waits for service are short but walks to service are longer for people in less populated areas. Frequency and ridership are high but some places have no service.

The 18 buses are spread around so that there is a route on every street. Everyone lives near a stop but every route is infrequent, so waits for service are long. Only a few people can bear to wait so long, so ridership is low.

Figure 4: Ridership and coverage goals, while both laudable, are in direct conflict within a fixed budget.

What causes high ridership?

Transit success in Pinellas County is enormously affected by development, land use and street design—which are not planned or decided by PSTA. Five key factors are shown at right.

- **Density.** Where there are many residents, jobs and activities in an area, there are many places people might want to go.
- **Walkability.** An area is reachable by transit only if most people can safely and comfortably walk to or from the nearest stop.
- **Linearity.** Direct paths between many destinations are faster and cheaper to operate, relative to the number of places served. Linear routes are easier to understand and more appealing to most potential riders.
- **Proximity.** The longer the distance between two places that PSTA wants to serve, the more expensive it is to connect them. Areas with continuous development are more cost-effective to serve than areas where there are large, undeveloped gaps.
- **Mix of Uses.** When there is a mix of land-uses along a direct path, transit can provide access to a broad range of destinations. On mixed-use corridors people ride in both directions at many times of the day.

The way the county is planned and developed has a big effect on:

- The cost to get service close to people.
- The affordability of frequent, all-day and all-week service.
- The number of people who can walk to transit.
- How useful the transit network is for many people's trips.

PSTA can make changes to the bus network, and those changes could show reasonably good results. But much more change will be possible with the collaboration of agencies who control development, land use and streets.

These geometric facts pose a difficult trade-off. A transit system focused on cost-effectively providing the most useful service tends to serve its region unevenly, concentrating service in well-connected areas where demand is high.

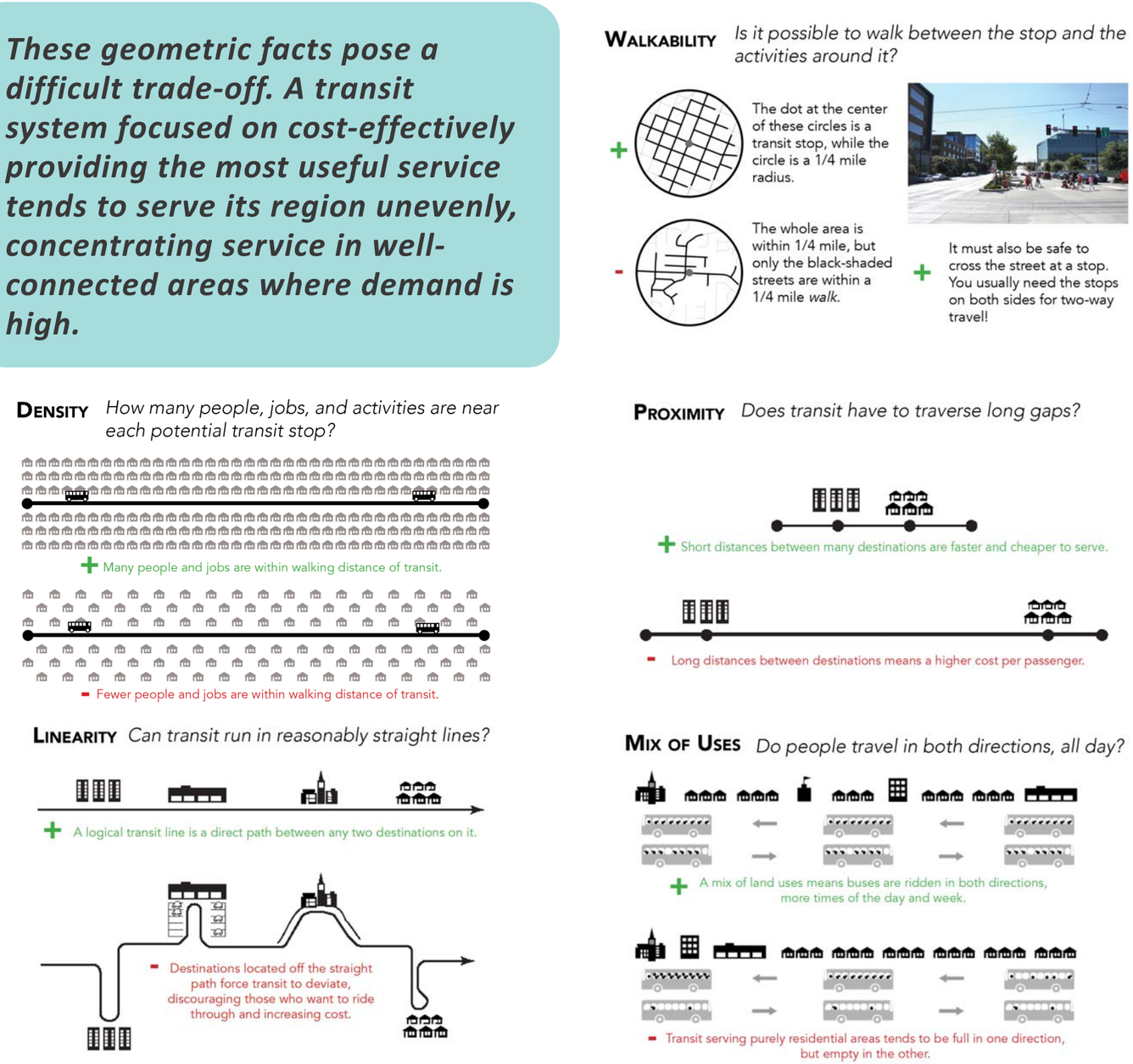


Figure 5: Community Geometry - Five Geographic Indicators of High Ridership Potential

What are the recent trends for PSTA?

From 2001 to 2015, PSTA bus ridership increased from about 9.4 million riders per year to 14.5 million. Over the next four years ridership declined to a low of 11.5 million before increasing in 2019 to 13.2 million. In 2020 and 2021, ridership declined significantly, in large part due to the economic and social challenges around Covid-19. Figure 6 shows the trend in ridership from 2001-2021. In this context, ridership is defined as the total number of times someone boards a transit vehicle, also known as "boardings", in each year.

A key driver of ridership is total service. A service hour is one bus operating for one hour. More service means more transit is available for people to ride. Figure 7 shows this measure for PSTA. After rising from 2001 to 2008, service declined in 2009 and then remained mostly flat at an average of 625,000 annual service hours through 2017. For the next two years, service hours increased, peaking in 2019 at about 704,000 service hours. In 2020, Covid-19 forced a reduction in service, but service hours rebounded to about 676,000 in 2021.

Because so much of transit's operating cost relates to labor, and humans are generally compensated based on their time, the bulk of transit operating cost arises from hours of service—rather than distance or the size of vehicles.

Thus "service hours" describes the sheer quantity of transit service provided, without consideration for how much it costs the agency to deliver each hour of service. The service hours required to operate any given route will increase if the length, frequency, or span (days and hours of service) increases.

Declining ridership is always a concern for a transit agency, but ridership declines are not always attributable to things that a transit agency controls. Multiple research papers show that the changes in the cost of car ownership can have a significant effect on ridership. In the second half of 2014, gas prices in the US fell about 50%, remaining relatively low ever since (Figure 8). A Mineta Transportation Institute paper found that gas prices were the most powerful external variable affecting ridership.[1] The decline in gas prices likely explains the fall in ridership for PSTA starting in 2015. It often takes time for travel behavior to change, so even though gas prices fell suddenly, they likely explain some of the drop in later years.

The impact of ride-hailing (Uber, Lyft, etc.) is hotly debated, but it has probably contributed to a loss of riders. A University of California-Davis study indicates that 21% of adults in major cities use ride-hailing. This study also indicates that when people start using ride-hailing their use of transit declines by 6%.[2]

1 Alam, B, Nixon, H, Zhang, Q. "Investigating the Determining Factors for Transit Travel Demand by Bus Mode in US Metropolitan Statistical Areas," Mineta Transportation Institute. May 2015.

2 Clewlow, R, Mishra, G. "Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States," Institute of Transportation Studies, University of California, Davis. October 2017.

In addition to these fully external factors, many aspects of PSTA's customer experience are governed by decisions made at other levels of government, notably by cities, the County and FDOT. Speed, reliability, walkability, and density are the foremost issues in this category.

So while there are some things PSTA can do to improve its offering and its attractiveness, it would be wrong to conclude that PSTA is fully or mostly responsible for the recent ridership decline. Powerful external forces constantly move transit ridership up and down, and will continue to do so regardless of what service changes are made.

Figure 6: Ridership (annual boardings) on PSTA from 2001 to 2021.

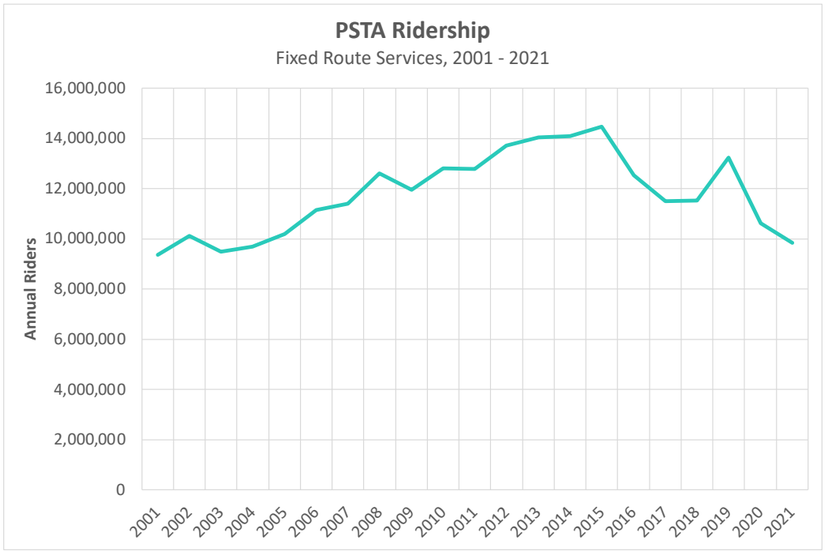


Figure 7: Annual Service Hours on PSTA 2001 to 2021.

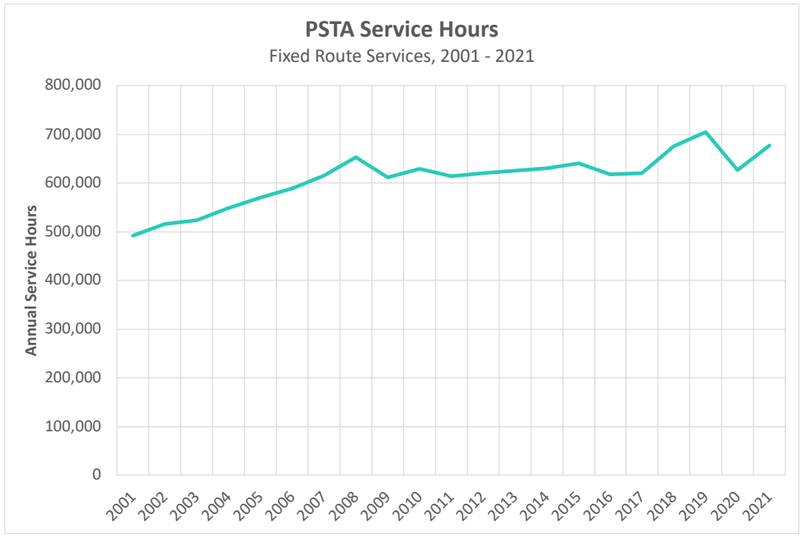
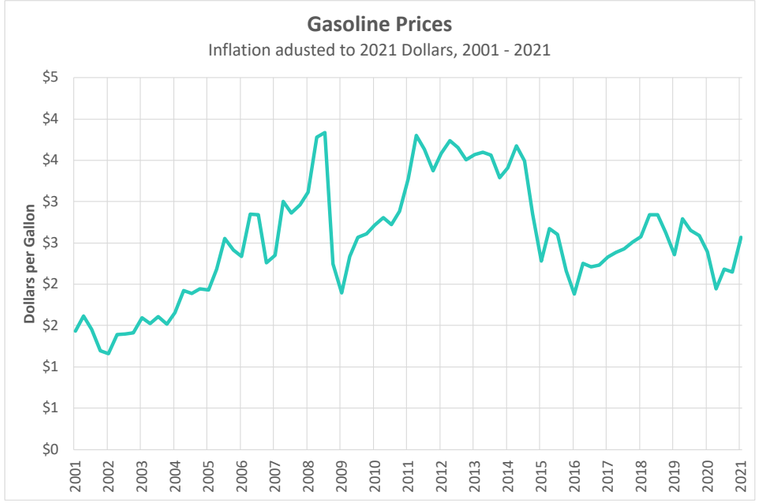


Figure 8: Average Cost of Gasoline (in 2021 Dollars), 2001 to 2021.



Investment Compared to Peers

Every transit agency is unique in terms of service area, political context, and funding mechanism. The outcomes of these factors can be compared among places by looking at how much service a transit agency invests in relative to the population of its service area.

The charts in Figure 9 and Figure 10 compare service statistics for PSTA to seven peer cities. These include similar mid-sized transit agencies in Florida (Tampa, Jacksonville, Orlando), as well as other culturally and geographically different cities which are nonetheless economically similar (mid-sized regions with sprawling growth patterns): Austin, TX; San Antonio, TX; Tucson, AZ; and Albany, NY.

Note that the newest data available is from 2021 (shown on these charts). Due to the COVID-19 pandemic, many agencies were still providing a lower level of service than what they usually provide. As a result, the numbers on these charts might be different today, but the trends should be similar and can give us insight into how PSTA compares to peers.

Service investment is the number of service hours provided per person, or in effect the service quantity per person. You can't ride a bus that's not there, and this measure provides context for the amount of service available for use, relative to the population size. As shown in Figure 9, PSTA has a relatively low level of service investment compared to most peers. While much higher than Hillsborough County and Jacksonville, PSTA is slightly lower than Orlando and substantially lower than Austin, San Antonio, and Albany.

The chart at the bottom shows ridership relative to population for PSTA and its peers. Generally, places that invest more in transit service relative to their population see a higher level of ridership relative to their population, in a "you get what you pay for" relationship. Transit is more relevant as a travel option for more people if a community invests more in transit. PSTA has a higher relevance (boardings per capita) than other peers in Florida, but lower compared to the other four peers.

If PSTA could invest in more service, there would still be questions about how and where to invest in new or improved services. Even with an expanded budget, PSTA probably cannot meet the needs and demands of all stakeholders in the county.

For example, if PSTA increased the frequency of service and made it available for longer hours in the densest, most proximate parts of the county, making it useful for a large numbers of people, that would likely lead to a significant increase in ridership per capita.

Alternatively, PSTA could invest more resources in running more routes that cover a much larger area of the county than today, at frequencies and spans similar to today's. While this wouldn't lead to a large increase in ridership, it would expand transit as an option for many people, even if it isn't an attractive option.

The questions of how to balance frequency with coverage, and how much service to pay for, both relate to people's feelings that the transit network is valuable and relevant to their lives. If people do not understand what goals the PSTA transit network is trying to achieve, then there will be some natural reluctance to increase investment in the transit system.

Figure 9: Investment (Service Hours per Capita) for PSTA and seven peers.

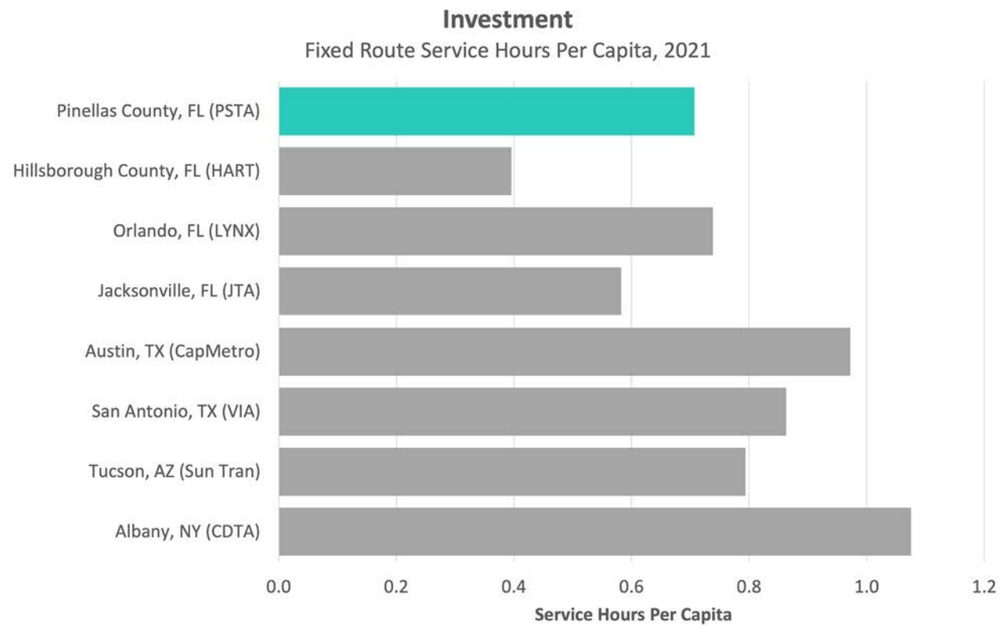
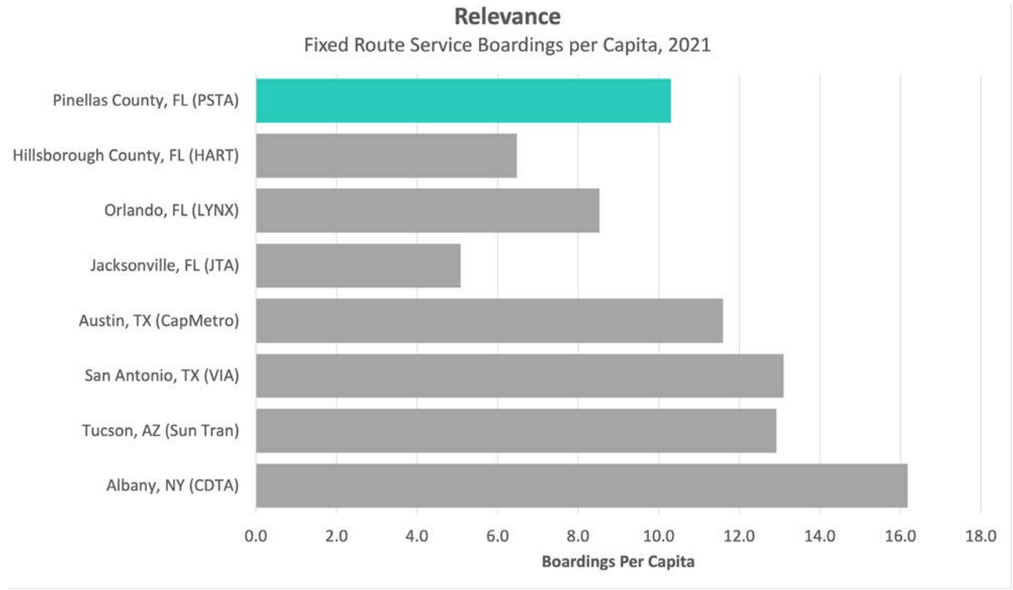


Figure 10: Relevance (Boardings per Capita) for PSTA and seven peers.



Productivity and Cost Compared to Peers

Some communities adopt goals like “increasing transit usage” or “reducing car emissions”. These are goals which depend on making transit useful to lots of people such that they can “maximize ridership”. Implicit in this statement, however, is a constraint: there is a limit to how much funding is available to increase ridership. A transit agency cannot spend infinite amounts of money pursuing each additional rider in pursuit of “maximum” ridership.

The more specific way to state this goal, then, is to “maximize ridership within a fixed budget.” Even if the budget grows, it is and will always be limited. People who value the environmental, business, or development benefits of transit will talk about ridership as the key to meeting their goals. Since the transit agency is operating under a fixed budget, the measure they should be tracking is not sheer ridership but **ridership relative to cost**. They would not be satisfied simply by an increase in the ridership in Figure 6 on page 9 until they knew what it cost the transit agency to achieve that increase.

Service Hours

The cost of a transit route (and a whole system) relates primarily to the time spent by operators running the route, since most of the cost of transit is in the wages paid to everyone running the system day-to-day.

In the transit business, the measurement of time spent operating service is called “service hours” or sometimes “revenue hours”. One bus operating on a route, picking up and dropping off passengers has spent one “service hour”. Service hours are a direct measure of the quantity of service.

The service hours provided on any particular route, and to any particular stop, will depend on a few factors:

- The length of the route,
- The operating speed of the route (since a slower operating speed means that covering the same distance takes more time),
- The frequency of service along the route or to the stop (since higher frequency is supplied by more buses and operators out driving the route), and
- The span of service along the route each day and each week.

Ridership relative to cost is called productivity. In this report, productivity is measured as boardings per service hour:

$$\textit{Productivity} \quad \frac{\textit{Ridership}}{\textit{Cost}} = \frac{\textit{Boardings}}{\textit{Service Hours}}$$

PSTA’s productivity is higher than Orlando, Jacksonville, and Austin, but lower than its other four peers. Hillsborough County has much higher productivity than PSTA.

This suggests that the system is around the middle, compared to peers, at getting riders relative to the service provided. Local factors like land use may be affecting this result, or it could be a result of decisions to pursue more coverage service in Pinellas County compared to peers. **IF** ridership were primary goal for PSTA, we would want to increase productivity.

The actual dollar cost of providing service depends on the total amount of service, and the costs for each hour of service. PSTA’s costs per hour of service provided are at the low end of the range compared to its peers at about $103 per service hour. Hillsborough and Jacksonville have higher costs per hour compared to PSTA. This suggests that PSTA is doing well in managing its costs and using its resources efficiently.

Figure 11: Productivity (Boardings per Service Hour) for PSTA and seven peers.

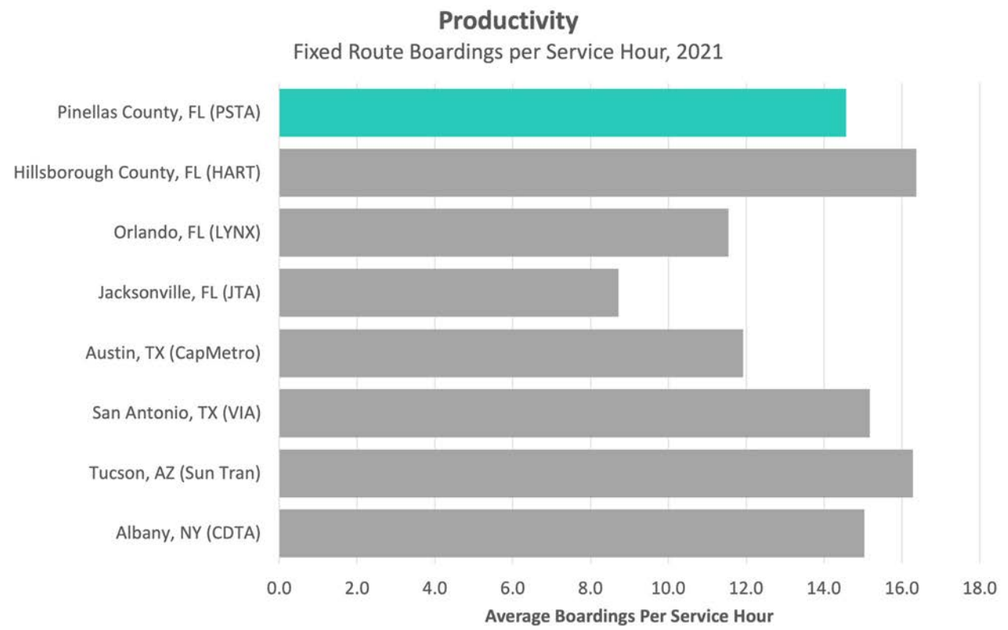
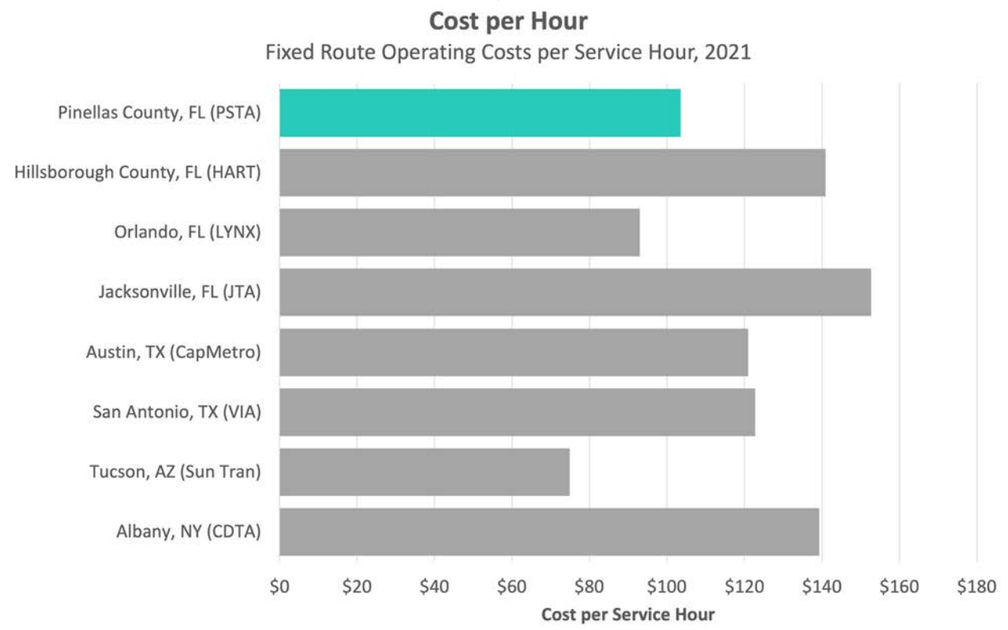


Figure 12: Cost per Service Hour for PSTA and seven peers.



What else is in this report?

Geometry of Transit

In Chapter 2, we summarize the basic principles of transit geometry, how they affect the access and opportunities that transit can provide to residents, workers, and visitors, and how the underlying geometry forces every community to grapple with some key value trade-offs in the design of its transit system.

Markets and Needs

In Chapter 3, we assess the markets for transit in Pinellas County, the potential for high ridership, and the areas where the need for transit is high but the density of demand is not.

By "market" we are referring specifically to the demands for transit that result in high ridership relative to cost. This way of thinking about a transit market is similar to the way a private business thinks about its market for sales – how many potential customers there are, how useful they will find the product, and how well the product competes for their business.

High transit ridership satisfies a number of commonly-held values, like:

- If a community wants its transit system to compete successfully with cars to achieve environmental benefits—such as cleaner air and reduced carbon emissions—a Ridership goal is the path to that achievement.
- For transit to act as an economic stimulus, by providing job access to large numbers of workers, it must attract ridership. These interests are therefore also served by a Ridership goal.
- If leaders are concerned about government efficiency, they may want to maximize fare revenue relative to costs and reduce subsidy per rider. They would likely be drawn to a Ridership goal.

Existing Transit Network

In Chapter 4, we analyze the fixed route transit network performance including the frequency of service, productivity of service and how the network performs on measures like access to jobs. We also assess some key challenges and opportunities for improving transit service in Pinellas County.

Key Questions

In Chapter 5, we summarize key value choices that only the Pinellas County community and its leaders can make about how transit should serve the County. These value choices cannot be answered by technical experts because they are questions about what goals and values the community prioritizes. There is not a technically correct answer to these value questions.

Key value questions raised in this Choices Report include

- ***Does the community want people to have a short walk to transit but a long wait or a longer walk for a shorter wait?***
- ***How should the community prioritize between the conflicting goals of ridership and coverage?***
- ***What is the level of investment the community wants for transit?***

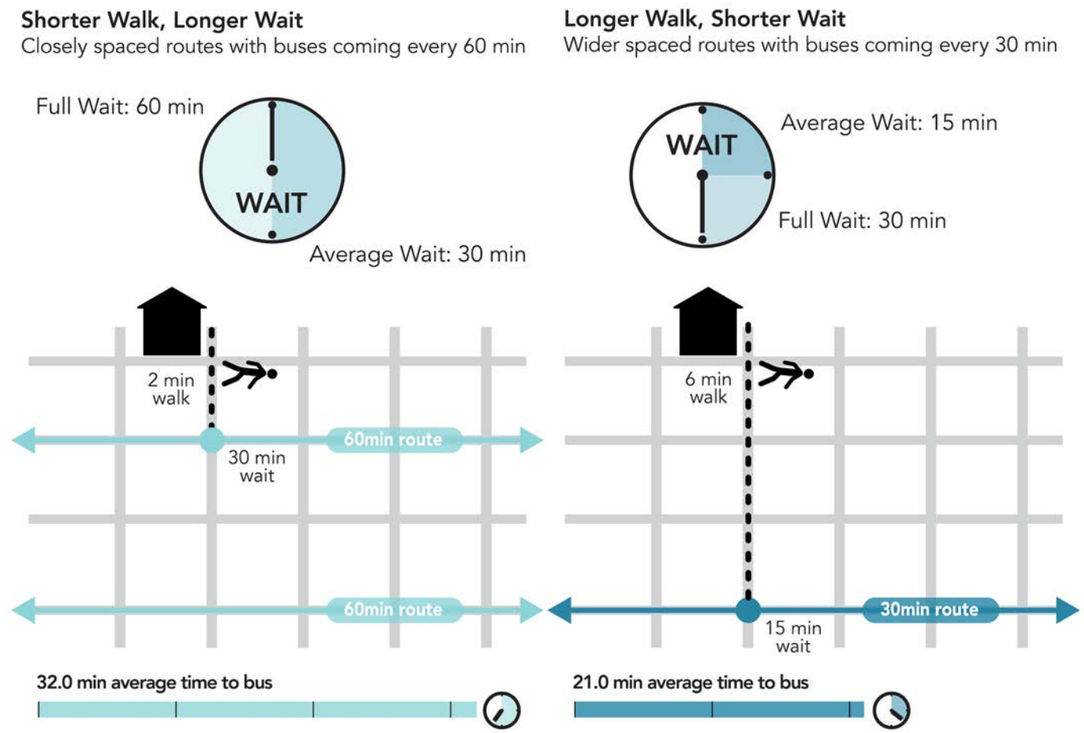


Figure 13: Key questions include the walking-waiting trade-off.

2 Geometry of Transit

What is the product of transit?

Public transit can achieve many goals, but a commonly held goal for transit is **to help people access opportunities: work, shopping, medical needs, education, and all the economic, social, cultural, and natural riches that a community has.** Everyone has a limited amount of time in their day and, therefore, can only spend so much time traveling to meet their needs. Maximizing the people and places that people can reach in a limited amount of time is something we can calculate in assessing how well transit is meeting this goal. The figure on the right shows how we calculate this.

What Access Achieves

When we expand access for as many people as possible, we achieve many important things:

- We **make service more useful** for the trips people are already making and for many other trips that people might want to make by transit. When transit is more useful, more people use it.
- We **increase ridership potential**, as a result of service being more useful.
- We increase transit's potential to help with **pollution and congestion**. Ridership is the key to how transit achieves these things, and improving access is the path to ridership.
- We **expand access to opportunity** (jobs, education, shopping, services) for people who need transit for that purpose.
- We **increase the economic attractiveness** of the urban area. Connecting people with opportunities is the whole point of cities, so improving those connections makes any community more effective.

Access (or Freedom)

Wherever you are, there is a limited number of places you could reach in a given amount of time. These places can be viewed on a map as a blob around your location.

Think of this blob as "the wall around your life." Beyond these walls are jobs you cannot hold, places you cannot shop, and a whole range of things you cannot do because it simply takes too long to get there.

The technical term for this is accessibility, but it's also fair to call it freedom, in the physical sense of that word. The extent of this blob determines what your options are in life: for employment, school, shopping, or whatever places you want to reach.

If you have a bigger accessibility blob, you have more choices, so in an important sense, you are more free.

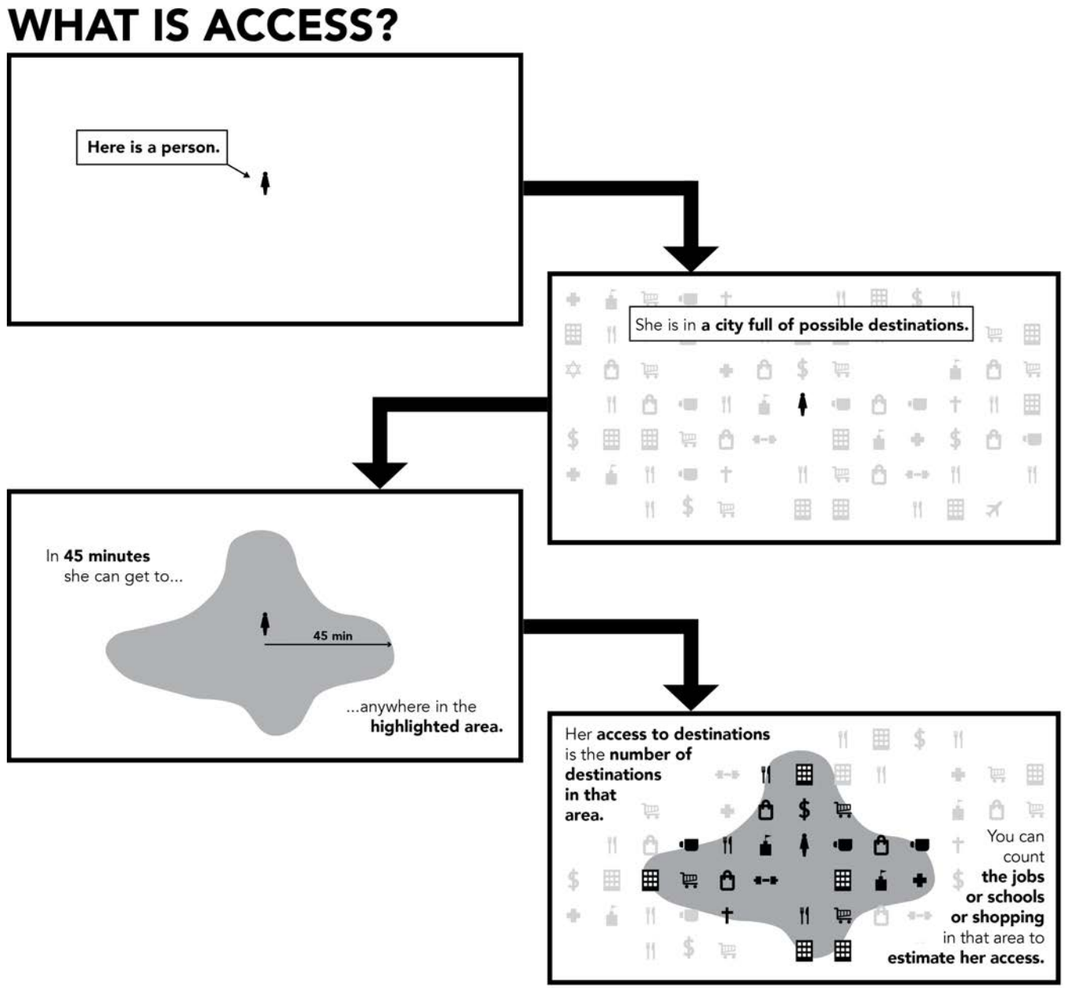


Figure 14: How transit service creates access to opportunity.

Access & Freedom

Access and Freedom

Wherever you are, there is a limited number of places you could reach in a given amount of time. These places can be viewed on a map as a blob around your location. The figure to the right shows an example of this type of visualization of transit access.

Think of this blob as "the wall around your life." Beyond these walls are jobs you cannot hold, places you cannot shop, and a whole range of things you cannot do because it simply takes too long to get there.

The technical term for this is accessibility, but it's also fair to call it freedom, in the physical sense of that word. The extent of this blob determines what your options are in life: for employment, school, shopping, or whatever places you want to reach.

If you have a bigger accessibility blob, you have more choices, so in an important sense, you are more free.

That increase in freedom is also closely related to transit ridership. Public transit ridership arises from the combination of three things:

- **Access (or freedom).** Where can you get to on public transit in a reasonable amount of time, compared to your alternatives?
- **Pricing.** What does transit cost compared with its alternatives?
- **Preferences.** These include everything else, all the subjective factors that govern decisions about how to travel, as well as reactions to other aspects of the transit experience.

Network design and planning mostly determine access, so let's look at that concept in more detail.

How Transit Expands Access

When using transit, the extent of access is determined by:

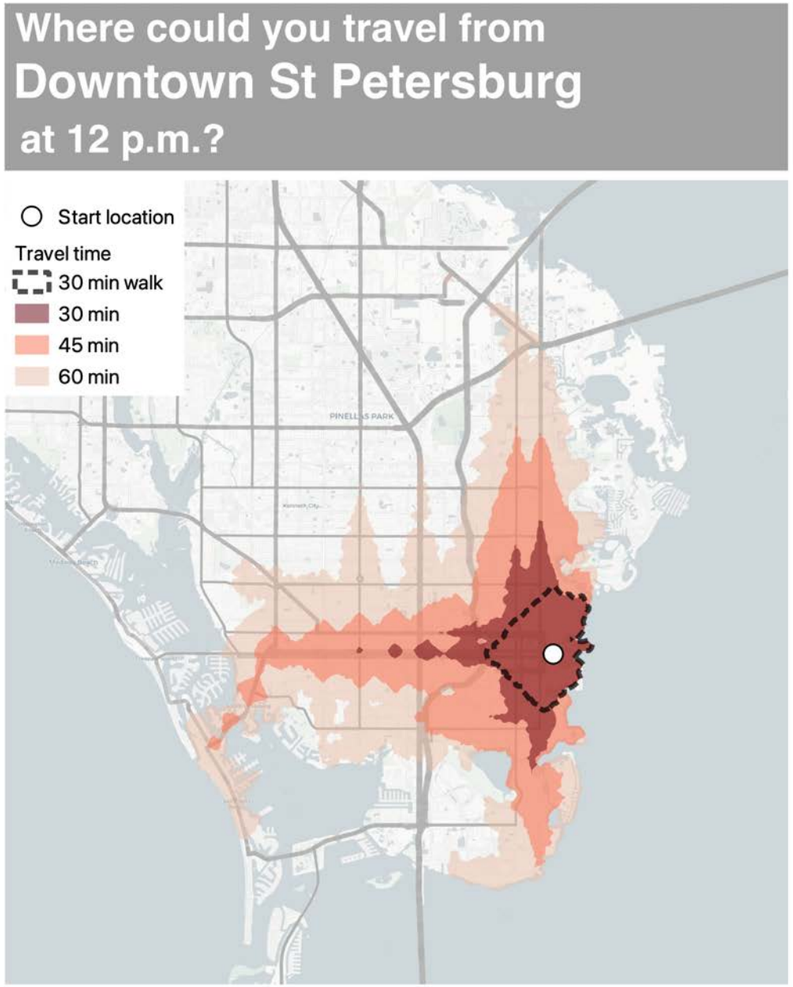
- **The transit network.** This includes the frequency, speed, and duration of the transit lines. These features determine how long it takes to get from any point on the network to any other point.
- **The layout of the community.** This determines how many useful destinations are near the stop or within easy walking distance. For example, higher density around a given stop means more access, both because there are more useful destinations around the stop, and also because good access from that point is of more value to more people.

Access Is a Matter of Geometry

The way these factors combine and determine access is a matter of geometry. That's because freedom (and access) is about what you *could* do, not predictions of what you *will* do. Access is a basic driver of ridership, but it can also be considered a worthy goal in itself by many people. For example:

- Access to jobs helps keep people employed.
- Access from a particular location is something that gives that a location value. Real estate firms routinely study where you can get to by car from a particular development parcel, and we can do a similar analysis using transit.

If you are deciding where to live based on whether you can get to your job, school, or relatives, you are asking about access.



Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	17,635	32,930	104,130	207,865
Jobs	28,695	36,315	54,815	85,330

Figure 15: Where you can get to in 30, 45, and 60 minutes via transit and walking from Downtown St. Petersburg.

Frequency is Freedom

Frequent service provides several related benefits for customers. These include:

- **Short Waits.** The average wait time for a 15-minute service is just 7.5 minutes.
- **Fast Connections.** Transferring between routes lets a rider reach a multitude of places that may not be all along one route. Connections are the glue that combine a pile of routes into a useful network, and frequency makes connections easy, because the next bus is always coming soon.
- **Easier Recovery from Disruption.** Frequent service is more reliable because if a bus breaks down, the next bus is always coming soon.
- **Spontaneity.** Rather than building their life around a bus schedule, customers can show up at the stop and go.

The payoffs of frequency are non-linear, with the highest ridership benefit usually being found in 5 to 15-minute frequencies. The figure on the right plots the frequency and productivity of routes operated by 45 transit agencies across North America.

The horizontal axis shows frequency (better, more useful frequency means a lower wait time, so more frequent service is to the left). The vertical axis shows productivity—how much ridership occurs compared to the quantity of service. A dark hexagon means that lots of transit routes share a particular combination of frequency and productivity, while a light hexagon means less route examples share a particular frequency and productivity combination.

Following the pattern of hexagons, particularly the darker ones, across the plot, we can see that ridership relative to cost rises with frequency even though better frequency costs more and pulls the productivity down.

How much frequency is enough? Two points should be noted:

- For most urban purposes, **a frequency of 15 minutes or better has the best chance of being useful,** and it's at these better frequencies that the non-linear payoff begins to appear.
- Adequate frequency depends on average trip length, because **it doesn't make sense to wait a long time to travel a short distance.** Very short downtown circulators, for example, don't usually make sense unless they can be run at frequencies well under 10 minutes. If the bus isn't coming very soon, it's probably quicker to walk the whole way.

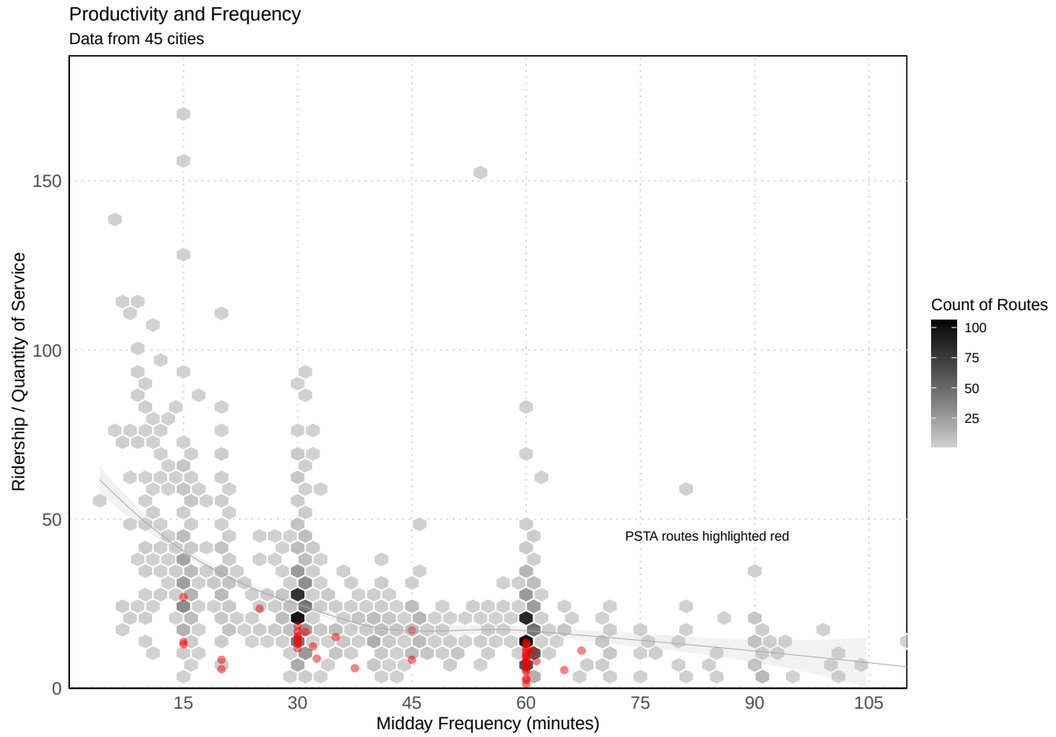


Figure 16: Transit frequency and productivity for routes from 45 North American cities.

Development Patterns Affect Ridership

Since frequency is expensive, it can't be offered everywhere. The greatest access arises from focusing frequency in the places where it can benefit the most people.

- **How many residents or useful destinations can be easily reached from each transit stop?** This question looks for density and walkability. High density means more people will find a stop useful, and high walkability means that people over a larger area will find the stop easy to walk to.
- **Are stops with high demand concentrated along a logical line?** This question looks for linearity (can the line be straight?) and proximity (does the line have to cross empty gaps with no demand?).

These geometric facts result in a difficult political challenge around transit. A transit system designed to maximize ridership serves its community unevenly, concentrating service where demand is high, yet even in areas where demand is low, some people value transit and will ask for service to their area. This leads to complaints about equity no matter what network design is proposed. People who live in places that are dense, walkable, linear, and proximate are cheaper to serve, on a per-rider basis, than those who live in places with lower density, walkability, and linearity.

Imagine that Ms. Smith lives in an apartment in a town center (dense, walkable, linear, proximate) while Ms. Jones lives in a large house in a cul-de-sac on a peninsula in a suburban area (not dense, not walkable, not linear, not proximate).

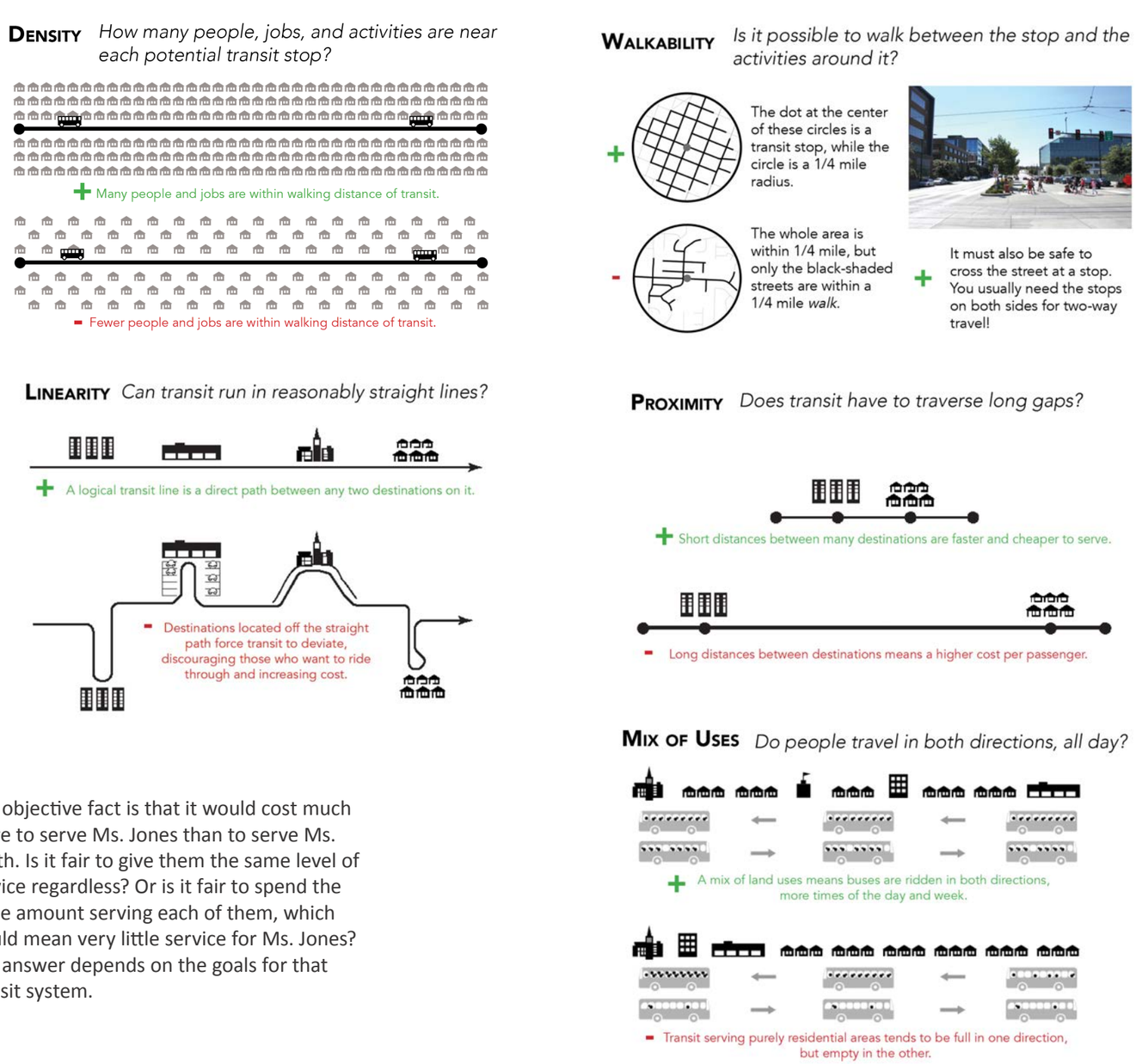


Figure 17: Five Geographic Indicators of High Ridership Potential

The objective fact is that it would cost much more to serve Ms. Jones than to serve Ms. Smith. Is it fair to give them the same level of service regardless? Or is it fair to spend the same amount serving each of them, which would mean very little service for Ms. Jones? The answer depends on the goals for that transit system.

Goals of Transit

Transit can serve many different goals. But different people and communities value these goals differently. It is not usually possible to serve all of them well all the time.

Possible goals for transit include:

- **Economic:** transit can give businesses access to more workers, and workers access to more jobs. Transit can also help attract certain industries, new residents, tourists, or other economic contributors.
- **Environmental:** increased transit use can reduce air pollution and greenhouse gas emissions. Transit can also support more compact development and help conserve land.
- **Social:** transit can help meet the needs of people who are in various situations of disadvantage, providing lifeline access to services and jobs.
- **Health:** transit can be a tool to support physical activity by walking. This is partly because most riders walk to their bus stop, but also because riders will tend to walk more in between their transit trips.
- **Personal Liberty:** by providing people the ability to reach more places than they otherwise would, a transit system can be a tool for personal liberty, empowering people to make choices and fulfill their individual goals.

Some of these goals are served by high transit ridership. For example, the environmental benefits of transit only arise from many people riding the bus rather than driving. The subsidy per rider is lower when ridership is maximized. We call such goals **Ridership goals** because they are achieved in part through high ridership.

Other goals are served by the mere presence of transit. A bus route through a neighborhood provides residents insurance against isolation, even if the route is infrequent, not very useful, and few people ride it. A route may fulfill political or social obligations, for example by getting service close to every taxpayer or into every political district. We call these types of goals **Coverage goals** because they are achieved in part by covering geographic areas with service, regardless of ridership.

PSTA receives many different comments requesting changes to the service in order to pursue these goals, but it has a limited budget, so doing more of one thing can mean doing less of another. That's why we need hear what your priorities are.

Transit's Ridership and Coverage Goals Are in Conflict

Ridership and coverage goals conflict. Within a fixed budget, if a transit agency wants to do more of one, it must do less of the other.

Consider the fictional town on this page. The little dots indicate dwellings, commercial buildings and other land uses. The lines indicate roads. As in many towns, most activity is concentrated around a few roads.

A transit agency pursuing only ridership would run all its service on the main streets because many people are nearby and buses can run direct routes. A high ridership network allocates frequent service to areas with favorable urban development patterns, forming a connected network. This would result in a network like the one on the left.

If the transit agency were pursuing only coverage, it would spread out so that every street had some service, as in the network on the right. All routes would then be infrequent, even on the main roads.

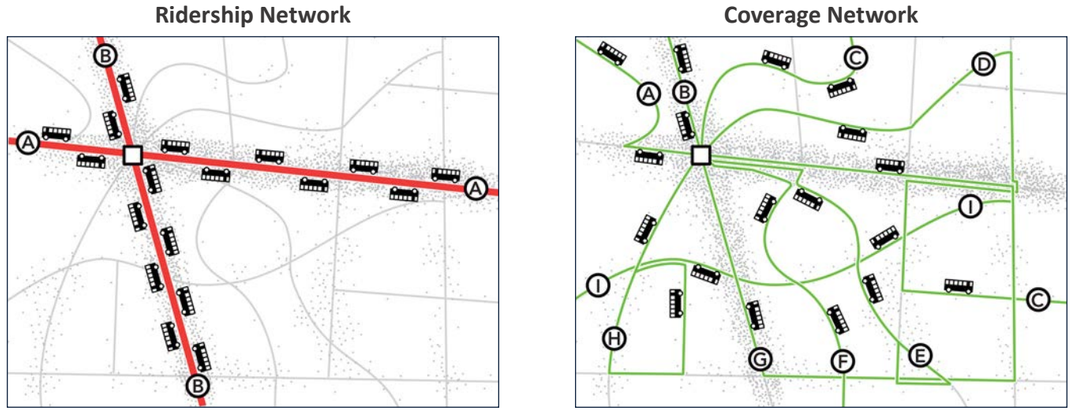


Figure 18: The network on the left is prioritizing ridership goals , while the network on the right is prioritizing coverage goals.

These two scenarios require the same number of buses and cost the same amount to operate, but deliver very different outcomes. To run buses at higher frequency on the main roads, neighborhood streets will receive less coverage, and vice versa.

An agency can pursue ridership and provide coverage within the same budget, but not with the same dollar. The more it does of one, the less it does of the other.

These illustrations also show a relationship between coverage and complexity. Networks offering high levels of coverage—a bus running down every street—are naturally more complex.

The choice between maximizing ridership and maximizing coverage is not binary. All transit agencies spend some portion of their budget pursuing each type of goal. A particularly clear way for cities and transit agencies to set a policy balancing ridership and coverage goals is to decide what percentage of their service budget should be spent in pursuit of each.

The "right" balance of ridership and coverage goals is different in every community. It can also change over time as the values and ambitions of a community change.

What about on-demand transit?

You may have heard about new service concepts consisting of small vehicles that pick you up when and where you request them, rather than running fixed routes. You may hear these called “microtransit” or “TNC partnerships,” where “TNC” (Transportation Network Company) refers to companies like Uber and Lyft.

The basic idea isn’t new. Taxis have always responded to customer requests, and shared-ride demand-response services, often called Dial-a-Ride, have been used for decades by US transit agencies. Special services for people with disabilities, called paratransit, also work this way.

The Trouble With Fixed Route Transit

There are obvious inconveniences in relying on fixed transit routes:

- **Long Walks.** Depending on where you are located, it may not be easy to get to the nearest transit stop. It might be far away, or require you to walk down streets where you don’t feel as safe as you’d like.
- **Long Waits.** Even on frequent routes, you may have to wait 10 to 15 minutes to get a bus. On some routes, you could wait an hour or longer. And you’ll wait twice if your trip requires a transfer.
- **Travelling out of direction.** Using fixed routes means staying on the bus’ path, even when it’s not taking the fastest way to your destination.

The Trouble With On-Demand Transit

It may seem obvious that transit would be more convenient if it were provided on-demand, precisely when and where each person wanted to travel. It would then be more like a taxi or traditional “dial-a-ride” transit. Smartphones have raised the possibility that more transit could be this responsive, with great real-time information. Apps have made these services more responsive, so that they can be called on shorter notice.

There is an argument that transit is better when it is provided on-demand because it removes the problem of walking and traveling out of direction. It’s more convenient, some might say. But that makes sense only if we don’t account for the cost. The main source of operating cost for transportation (fixed route, on-demand or even local freight delivery) is the time the driver and vehicle spend on the road. Neither apps nor sophisticated dispatching software change that cost.

The costs of a fixed route are fixed, so more useful services are cheaper (per rider) to operate. PSTA knows how much a bus route costs to operate, because the schedule tells us how many vehicles are needed, how many miles will be driven, and for how many hours. **So the more people ride, the less expensive it becomes to provide each ride.**

In contrast, the costs of on-demand service tend to rise as more people find it useful. There is a low ceiling on how many rides per hour an on-demand vehicle can serve, even with the best possible dispatching. Imagine driving your car (or a bus) around Pinellas County, picking people up and dropping them off in different places. How many times could you do this before an hour passed?

On-demand services run by public agencies generally report averages of no more than 5 boardings per vehicle per hour. Some private operators have reported as high as 9 boardings per hour in mid-sized North American cities. Moving fewer riders per hour means a service is more expensive per passenger.

For these reasons, demand-responsive services are never high-ridership services, when accounting for the full costs and the lack of scalability. These service may be relevant in low-demand areas, or at low demand times, like late at night, but as coverage services, where maximum ridership is not the goal. Use of these kinds of services will be explored in this Community Bus Plan, but the basic geometric challenge of their use and role should be clear from the beginning of the process.

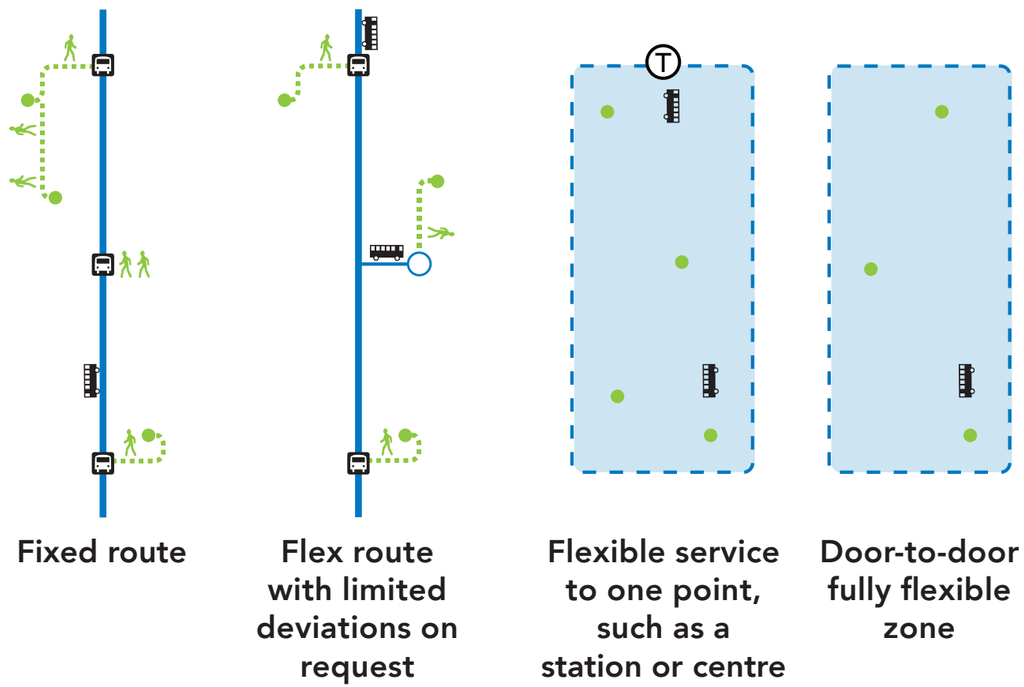


Figure 19: The spectrum of service, from a traditional fixed route to a fully on-demand service.

3 Market and Needs

Market & Needs Assessment

In this chapter, we present and discuss data that inform two different types of considerations in transit planning:

- Where are the strongest markets for transit, where ridership is likely to be high relative to cost?
- Where are there moderate or severe needs for transit, regardless of potential ridership and cost?

These two types of considerations help us design transit networks that pick a balance between the competing goals of high ridership and wide coverage.

Market Assessment

The transit market is mostly defined by **WHERE** people are, and **HOW MANY** of them are there, rather than by **WHO** they are.

On the following pages, these maps help us visualize the transit market:

- Residential density
- Job density
- Activity density (the sum of residents and jobs)
- Density of low-income residents

None of these data alone tell us that a place has high ridership potential and is therefore a strong transit market. Rather, we must consider them in combination.

If you asked a transit planner to draw you a very high-ridership bus route, that planner would look mostly at densities of all residents and jobs; at the walkability of streets and neighborhoods; and at the cost of running a bus route long enough to reach them. Only secondarily would that planner look into the income or age of those residents or workers.

However, the "who" attribute that has the strongest influence on transit ridership potential is income. This is especially true in suburban areas where driving and parking cars is so easy. Low income people are, as individuals, more likely to choose transit. That said, the density of all people—including low-income people—around a transit stop will still be the overriding factor in predicting whether that stop gets high ridership.

All else being equal, density matters more than income and age if you are trying to predict where transit will get high ridership.

This is not to say that who people are is not important. It is extremely important, especially when designing transit services to achieve a coverage goal.

Need Assessment

We learn about transit needs by examining **WHO** people are and what life situation they are in.

If you asked a transit planner to draw you a route that met as many needs as possible, that planner would look at where low income people, seniors, youth, and people with disabilities live and where they need to go.

While the densities at which these people live would matter because at higher densities a single bus stop can be useful to more people in need, the planner would still try to get the route close to even small numbers of people. In fact, the more distant and scattered people are, the more isolated they can be and the more they might need access to transit.

On the following pages, these maps help us visualize where transit needs are in Pinellas County:

- Density of low-income residents
- Density of zero-vehicle households
- Density of seniors
- Density of youths

These measures cannot by themselves tell us that a person has a severe need for transit. For example, some people in a zero-vehicle household can afford to hire drivers, or rarely drive but are comfortably retired. We must consider these measures in combination to understand where in Pinellas County people's needs for transit are likely to be severe.

Civil Rights

Another important set of maps in this chapter is not strictly related to need but rather to civil rights. These maps show **where people of color live**.

Unequal treatment on the basis of race, ethnicity, or national origin is prohibited by the Civil Rights Act of 1964. Regulations by the Federal Transit Administration require that PSTA considers the benefits and burdens that people of color and people in poverty experience from transit service and in the process of planning for transit and transportation projects.

While a person's race or ethnicity does not tell us directly if they need transit, or if they have a propensity to use transit, we know that there is a correlation between race and ethnicity and income and wealth. If you are a person of color in the United States you are more likely to be low-income and less likely to own a car.

In addition, the historic impacts of segregation and discrimination have had long lasting effects on the patterns of housing, development, and investment across the region. Therefore, knowing where people of color live helps us see where there are intersections between patterns of historic segregation and concentrations of people in poverty today. Providing affordable transportation options for low-income communities and communities of color is an important strategy in addressing economic insecurity, and may be an important goal, more broadly, for addressing racial and social equity goals that the community may have.

Seeing where people of color live helps to see how much of the population lives in places that are dense, linear, and proximate, and would therefore be well served by a high ridership network design. It also helps us see neighborhoods that are predominately people of color that are not dense, linear, or proximate and would therefore be relatively expensive to serve, but might be important to serve to achieve a coverage goal.

It is also important to understand where large numbers of people of color, people in poverty, and other historically-marginalized populations live. This information provides insights to the study team so that public outreach can maximize opportunities for participation for those historically vulnerable communities that have not traditionally participated in the transportation planning process.

Market: Residential Density

While not all trips start or end at home, nearly everybody makes at least one trip starting or ending at home on most days. Further, places with many households are also destinations for other people, whether for visiting, worship, caring for family or home-based work.

The map on the right shows the population density of Pinellas County, reflected as residents per square mile. Residential density in Pinellas County is concentrated in a few core areas, namely the area around downtown St Petersburg, Clearwater, and several additional pockets throughout the County. Residential density tends to decrease the further you are from a core of each municipality. However, there are some notably dense corridors, such as north of St Petersburg along 4th St N and south of Clearwater along US 19 Alt.

Some areas in Pinellas County, namely East Lake, the area around the airport and the area centered around Route 19 and Ulmerton Road, have relatively low residential density. In the case of the area around the airport and the area around Route 19 and Ulmerton Road, much of the land use is focused on businesses and light to medium industrial activity. In East Lake, much of the land use is split between single-family homes and the Brooker Creek Preserve.

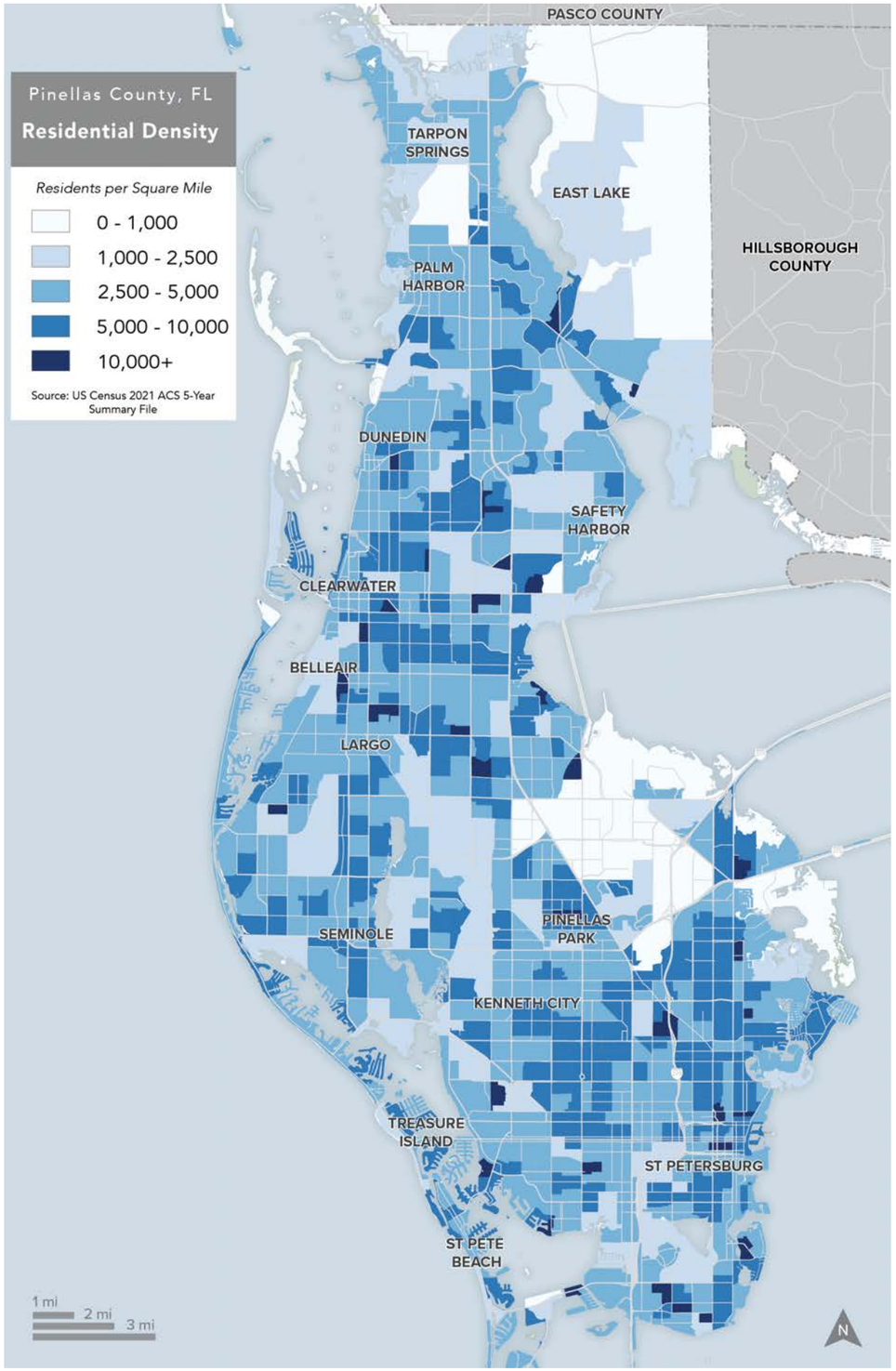


Figure 20: Residential density in Pinellas County.

Areas with high residential density include:

North of St Petersburg along 4th Street North

Some areas in South St Petersburg

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

Some areas in Largo along Bay Boulevard

Market: Job Density

A map of job density shows us not only the places people travel for work, but also places people go for services, shopping, community, health care, and more.

A person's workplace may be, throughout the day, a destination for dozens or even hundreds of people. For this reason, job density is typically an even better predictor of transit ridership than residential density.

The map to the right reflects job density as jobs per square mile. Most job activity in Pinellas County is concentrated in the population centers of St Petersburg and Clearwater, with job density generally decreasing the further away you get from a city center.

Some areas outside the core show significant amounts of job density. These areas are usually shopping malls or shopping centers, which often serve as significant amounts of jobs, namely service-oriented jobs. These areas include:

- The area around Ulmerton Road and Seminole Boulevard (Largo Mall)
- The area round Gulf to Bay Boulevard and US-19 (Clearwater Mall)

Other areas outside the core municipalities like the area around Carillion Park and the area west of the Bayside Bridge also show significant amounts of job activity. Carillion Park is home to the Raymond James headquarters – a significant employer for Pinellas County.

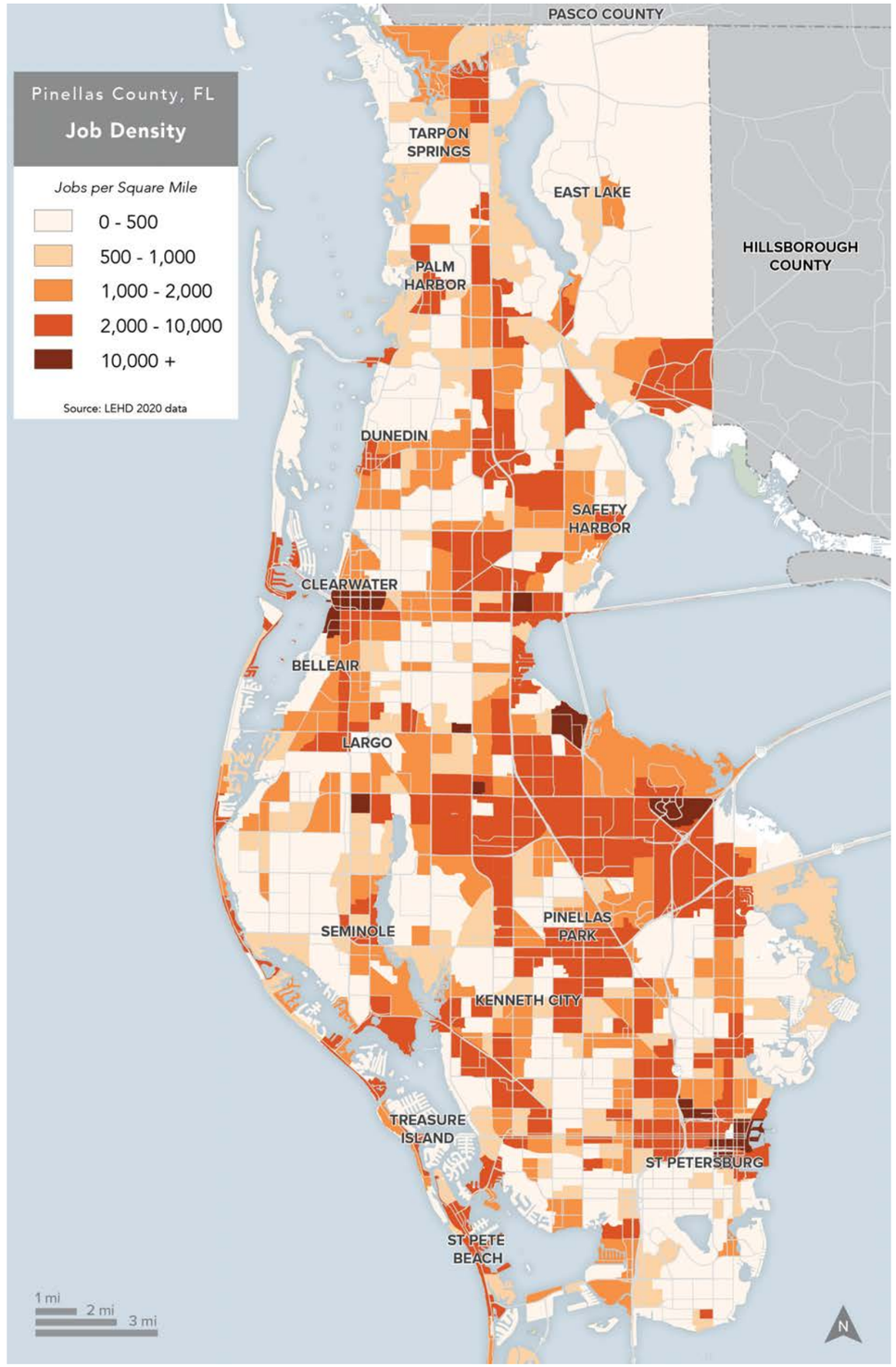


Figure 21: Job density in Pinellas County.

Areas with high job density include:

Downtown St Petersburg

North of St Petersburg along 4th Street North

West of St Petersburg along Central Avenue

Some areas in South St Petersburg

Downtown Clearwater

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

Gateway

Ulmerton Road

Market: Activity Density

Resident and jobs density are both critical measures of a place's potential transit market relative to other parts of the service area. Those two measures can be combined in a single map that shows the activity density - the density of both jobs and residents. Activity density helps visualize the overall potential transit market of an area. The map on the right shows activity density in Pinellas County.

Places with more residential density are shown in increasingly brighter shades of blue; areas of high employment density, in brighter shades of yellow. The areas shown with increasing shades of red are places where there are high densities of both jobs and residents, and where there is likely to be a strong market for travel for most or all of the day.

The mix of uses along a corridor affects how much ridership transit can achieve, relative to cost. This is because an area with a mix of housing, retail, services and jobs tends to generate more even demand for transit in both directions, throughout the day. Transit serving purely residential neighborhoods tends to be used in mostly one direction and mostly during rush hours—as residents leave in the morning, and return in the evening.

In Pinellas County, there are some strong corridors with mixed uses including north of St Petersburg along 4th St N and south of Clearwater along US 19 Alt.

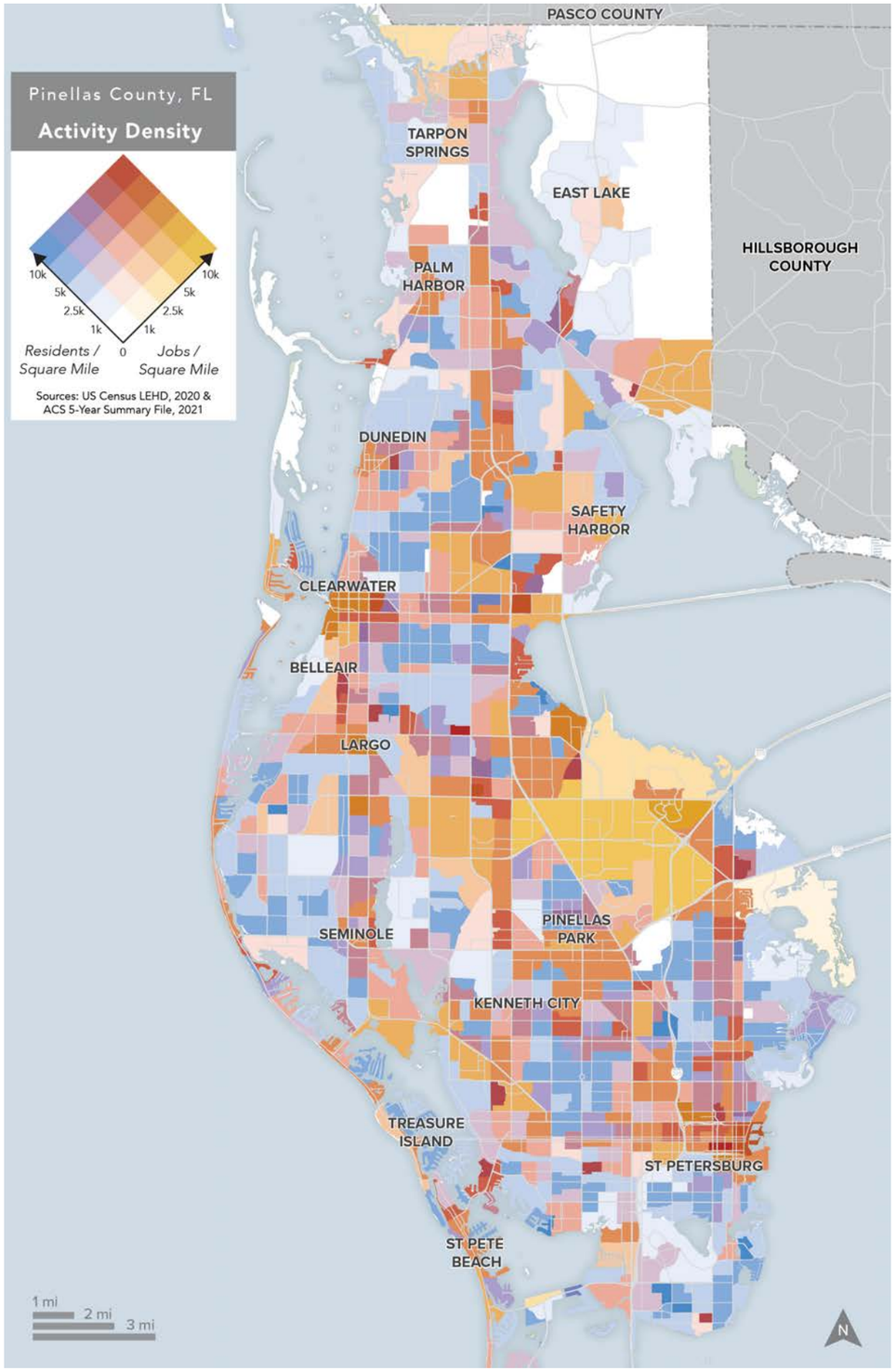


Figure 22: Activity density in Pinellas County.

Areas with high mix of residents and jobs include:

Downtown St Petersburg

North of St Petersburg along 4th Street North

West of St Petersburg along Central Avenue

Some areas in South St Petersburg

Downtown Clearwater

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

Some areas in Largo along Bay Boulevard

Market: Walkability

In almost all cases, transit trips begin and end by walking. Therefore, the ability to walk to transit is very important. The street pattern determines how much of the area around a stop is truly within a short walking distance.

Areas with highly-connected street patterns provide short and direct paths between any two locations. Areas with poorly-connected street patterns, often in “walled garden” developments, forces long and circuitous paths between locations and discourages walking. Low street connectivity tends to be accompanied by wide, fast arterial streets, because the few through-streets that exist have to handle all of the area’s car traffic. A lack of sidewalks and safe crossings of major streets can also mean that fewer people and jobs are within a short walk of transit because people may have to walk further and less directly to cross the street to reach a bus stop.

For these reasons, walking distances to and from bus stops can far exceed “flying” distances. The map on the right shows the proportion of area within a half-mile radius of locations that is accessible through the street grid in that location.

Darker areas correspond to contiguous grid-like layouts, while lighter areas represent barriers to walkability, including restrictive street patterns. In some cases the lack of street connectivity and limited walkability is a combination of both development patterns and natural topography that limits the ability to create more connected street networks.

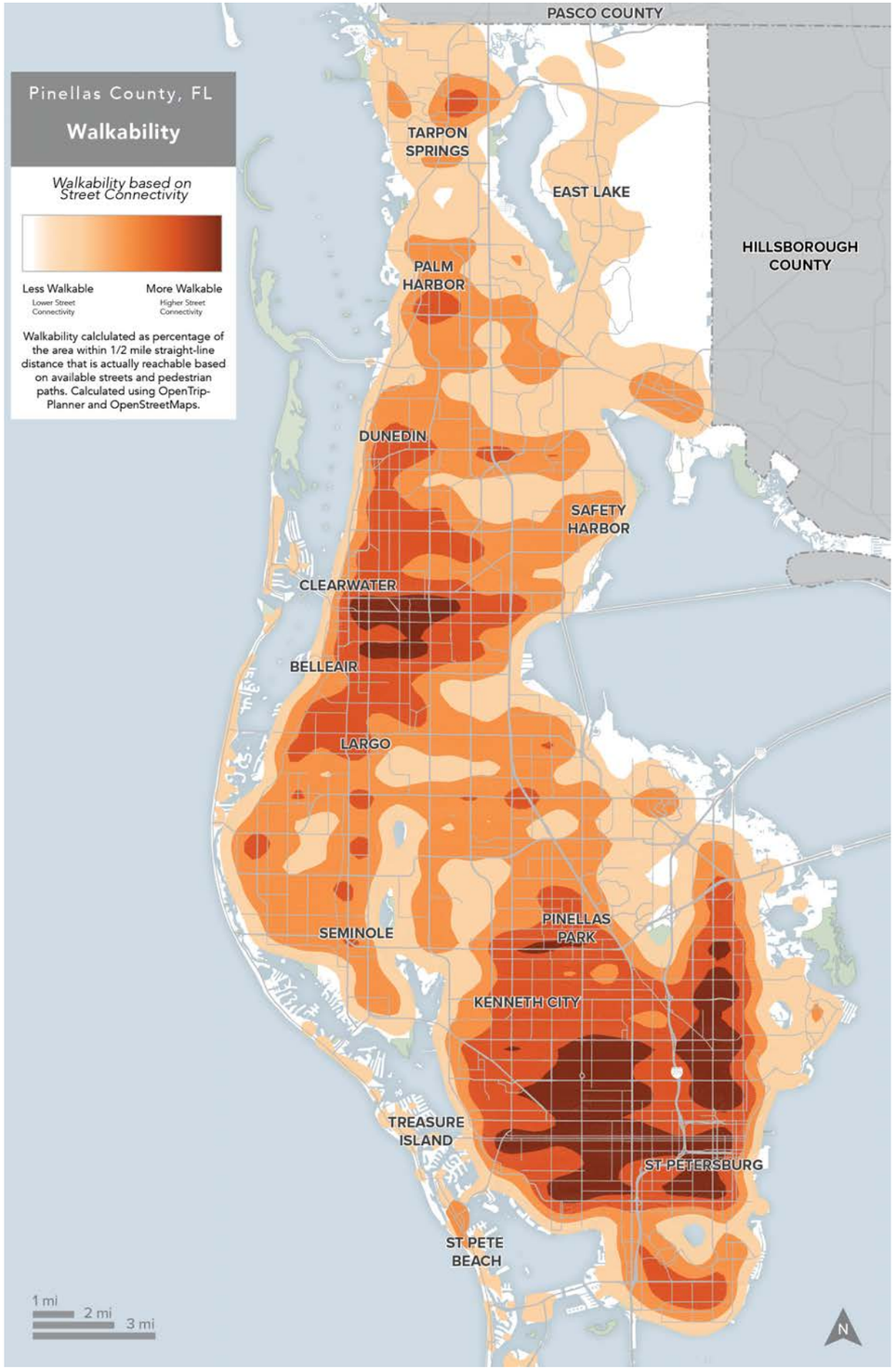


Figure 23: Walk connectivity in Pinellas County.

The most walkable areas in the County are in St Petersburg and Clearwater. The two cities are generally more walkable in the core. They become less walkable the farther you get from the core as the street network stops being a connected grid and is interrupted by highways and bigger blocks with less intersections.

Examples of Density and Walkability

High Density & High Walkability

St Petersburg is among the densest parts in the County. This area is dense with residents, retailers and restaurants, offices and many other destinations. Thus it features both many jobs and many residents. It features a traditional street grid, many street crossings, and sidewalks on most streets, making it one of the most walkable areas of the county.

High Density & Low Walkability

Five Towns has some big apartment buildings and significant retail making it one of the denser parts of the County. But its layout is not walkable. It has few streets that get you to the main arterials providing low street connectivity. Some of the buildings on the north end of this image can only take one street to get to a main arterial. Compare this to the street network in St Petersburg in the first image at the same scale.

Low Density & High Walkability

St Petersburg continues to have high street connectivity and a walkable environment to the west along Central Avenue, but its density drops off gradually. The area west of 60th St N, mostly has single-family houses in larger lots—this means fewer people per square mile. The commercial activity is also lower along the portion of Central Avenue with fewer destinations and fewer jobs.

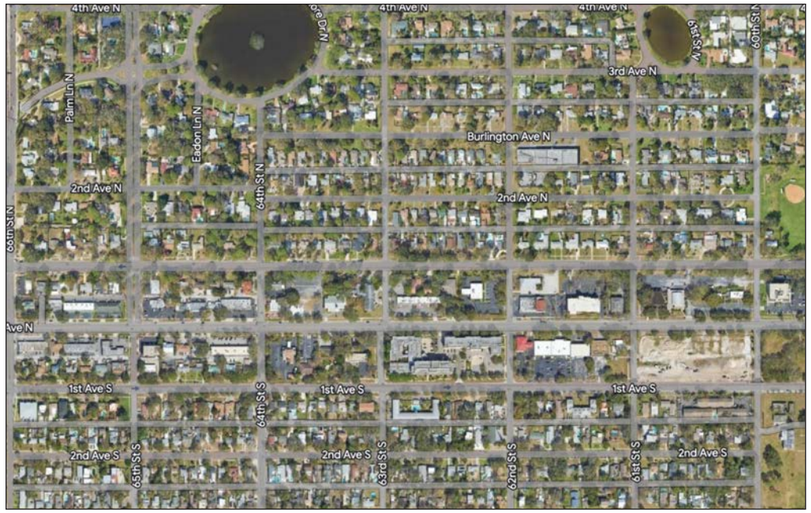
Low Density & Low Walkability

Many areas in Pinellas County have a disconnected street network and lower density. East Lake along E Lake Road is an example of typical auto-oriented, predominantly single-family residential areas with completely separated commercial areas and low street connectivity. These kinds of areas have low transit ridership potential.

Downtown St Petersburg
High Density & High Walkability

Five Towns
High Density & Low Walkability

Western St Petersburg
Low Density & High Walkability



East Lake
Low Density & Low Walkability

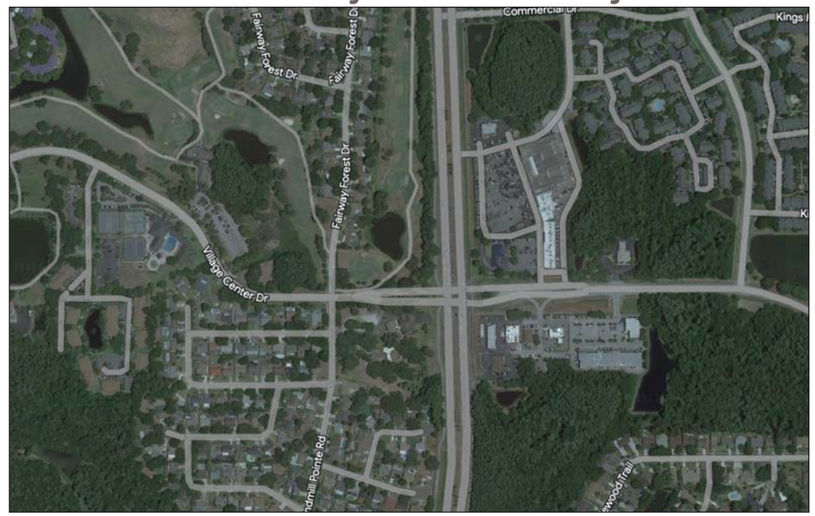


Figure 24: Examples of Density and Walkability in Pinellas County.

Market: Commute Patterns

Looking at how people are travelling today can tell us a lot about demand. The map on the right shows the number of people commuting between any two cities in Pinellas County. Commute trips are only about 30% of all daily trips, so they cannot tell us about all the travel demand in Pinellas County. We have much more information about commute trips, because the Census Bureau surveys on an annual basis to understand these trip patterns in more detail than other kinds of trips.

On this map, a line is thicker when there are more trips between the two points, and the color differentiates the direction; every pair of cities includes one blue line and one red line.

The circles show the number of trips starting and ending in that city. Like with lines between two points, circles with thicker lines indicate that there are more trips that took place within that city.

Looking at this map, it is clear that St Petersburg is the largest destination or origin place for commuters with more than 42,000 daily trips happening within the city. The following largest number of trips are to and from Clearwater, Pinellas Park, and Largo. Origin-Destination pairs that don't show arrows had less than 1,000 daily trips.

This map also includes commute trips to Hillsborough County in pink. The biggest flows are commuting out from Largo. In green, we show trips from Hillsborough County, and the biggest flows are commuters headed to Oldsmar.

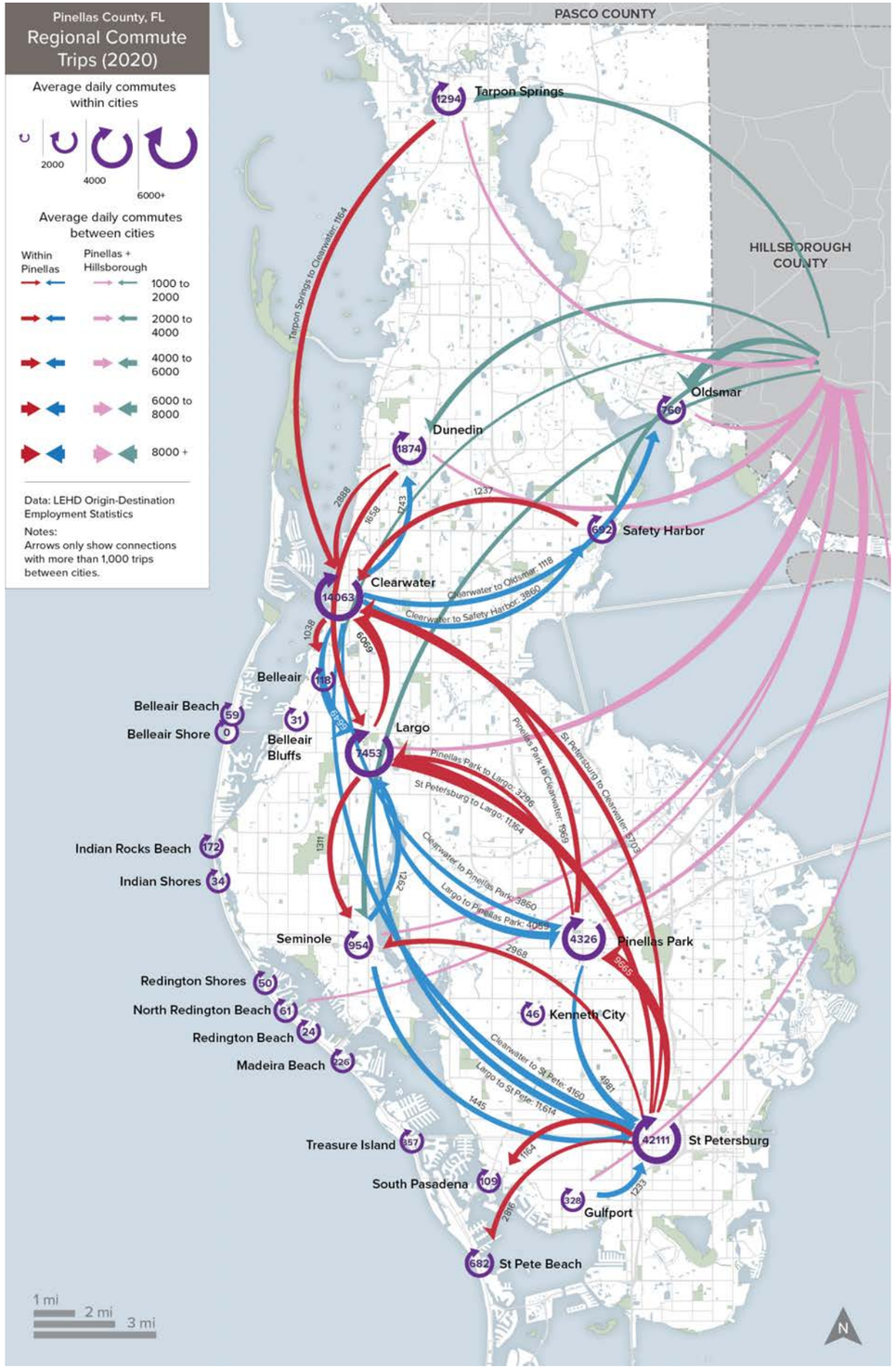


Figure 25: Commute Patterns in Pinellas County.

While there were about 187,000 commute trips between Pinellas County and Hillsborough County, there were 196,000 commute trips just within Pinellas County.

Market & Need: Low-Income Residents

A frequently-cited goal for transit service is to provide affordable transportation for lower-income people, who are less likely to own cars. Understanding where low-income populations are located is also a key civil rights requirement.

Transit can be an attractive option for low-income people due to its low price. In medium to high density areas with walkable street networks, this can produce high ridership.

However, if transit doesn't actually allow people to make the trips they need in a reasonable amount of time, even lower-income people will not use it. They will seek other options, such as buying a used car or getting a ride from a friend, even if it causes financial or social stress.

The map on the right shows the density of residents with family incomes 200% or below the federal poverty level in Pinellas County.

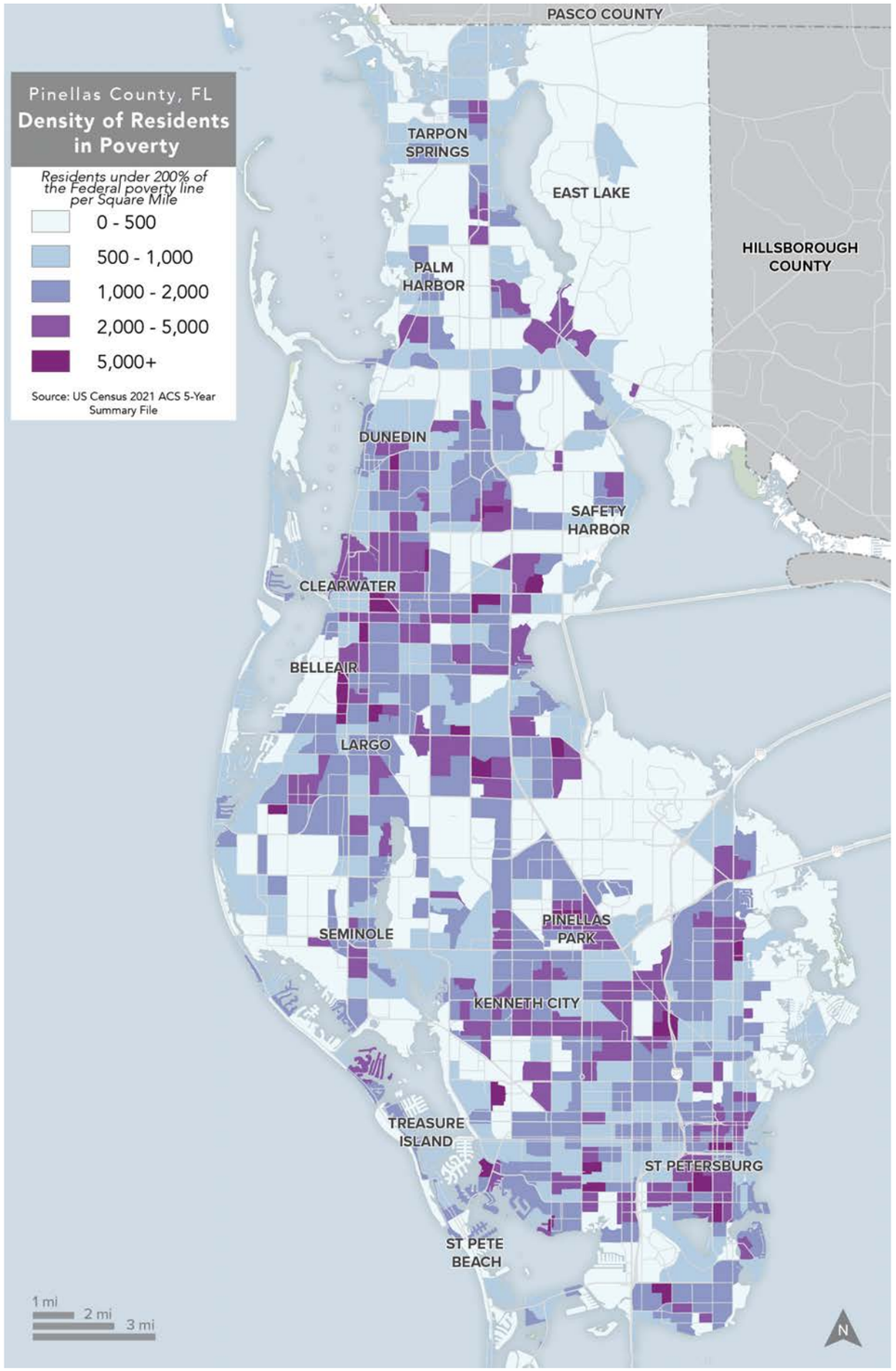


Figure 26: Density of residents 200% below the federal poverty level in Pinellas County.

Areas with a high density of low-income residents include:

Downtown St Petersburg

North of St Petersburg along 4th Street North

Some areas in South St Petersburg

In and near Kenneth City

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

North of Clearwater towards Dunedin

Areas East of Largo along Bay Boulevard

Market & Need: Households Without Cars

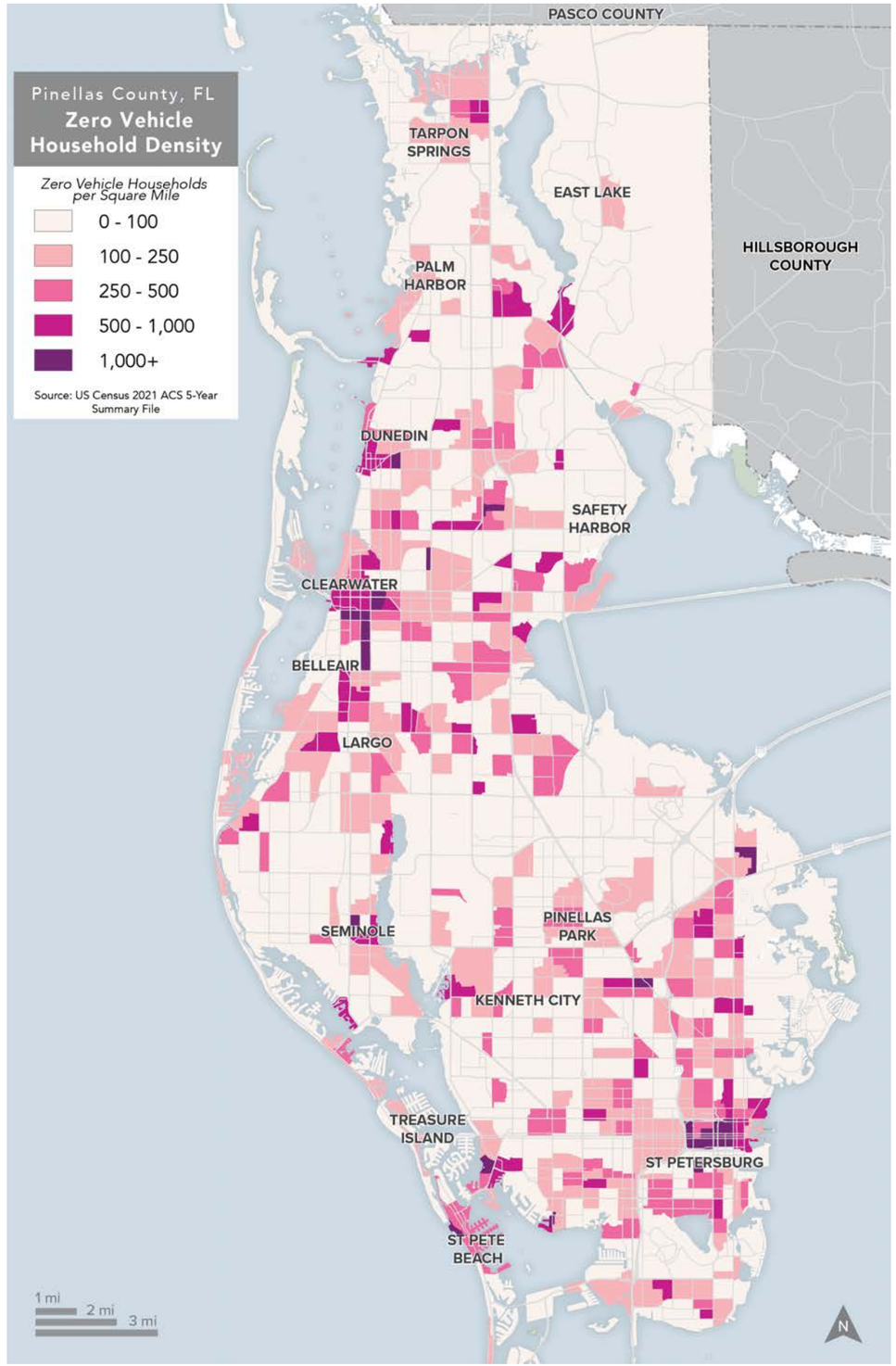
Another factor affecting transit's competitiveness and need in an area is the availability of personal cars. People in households without vehicles are not necessarily "transit-dependent" but do have a greater inclination toward transit use because they don't have a car in their driveway, always ready to go. Generally, people without vehicles have fewer options than those who do have access to personal cars. So if transit is useful—reasonably fast, reliable, available when needed—and people can use it to reach the places they need to go, it can be a compelling option.

If transit does not present a realistic travel option, then people without cars will find other ways to reach the places they need to go, by getting rides from friends or family members, cycling, using electric scooters, walking, or using taxis or TNCs. Alternatively, some people may not travel, thereby limiting their access to the economic, social, and other opportunities in the region.

The map on the right shows the density of households without cars in Pinellas County. Note that this map shows households, not individual residents like the previous demographic maps. Areas that show significant amounts of zero-vehicle households tend to be in and around the core cities of Pinellas County like St Petersburg, Clearwater, and Dunedin. These areas show some correlation with the level of poverty in the area.

St Pete Beach has a high concentration of households without vehicles that does not correlate with high levels of poverty, but instead correlates with a high density of Senior residents.

Figure 27: Density of households without cars in Pinellas County.



Areas with a high density of households without cars include:

Downtown St Petersburg

North of St Petersburg along 4th Street North

Downtown Clearwater

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

Some areas east of Largo along Bay Boulevard

Some areas in Dunedin and Seminole

St Pete Beach

Need: Seniors

Seniors (persons aged 65 and above) are an important constituency for transit because a major value of transit coverage is providing service for people who cannot drive, no matter where they live.

Some seniors cannot drive and may be more likely to use transit. And as a group, senior-headed households are less likely to own cars than the general population.

Seniors tend to have different preferences for transit than younger people. Seniors are more likely to be sensitive to walking distance. On average, seniors also tend to be less sensitive to long waits and slow or indirect routes, because many are retired and have relatively flexible schedules. Most riders who are employed, in school or caring for kids in school will find service with long waits and slow or indirect routes to be intolerable.

Due to these factors, transit service designed primarily to meet the needs of seniors rarely attracts high overall ridership relative to cost. **Thus, the amount of focus that transit agencies place on meeting the needs of seniors should be carefully balanced with the needs and desires of the rest of the community.**

The map on the right shows the density of senior residents in Pinellas County. As with much of Florida, there is a significant amount of senior density throughout Pinellas County, with the density generally following overall residential density. However, some areas, namely those on the barrier islands facing the Gulf of Mexico, have a higher senior density compared to the overall residential density. In many coastal communities, these areas tend to be host to senior-focused residential housing.

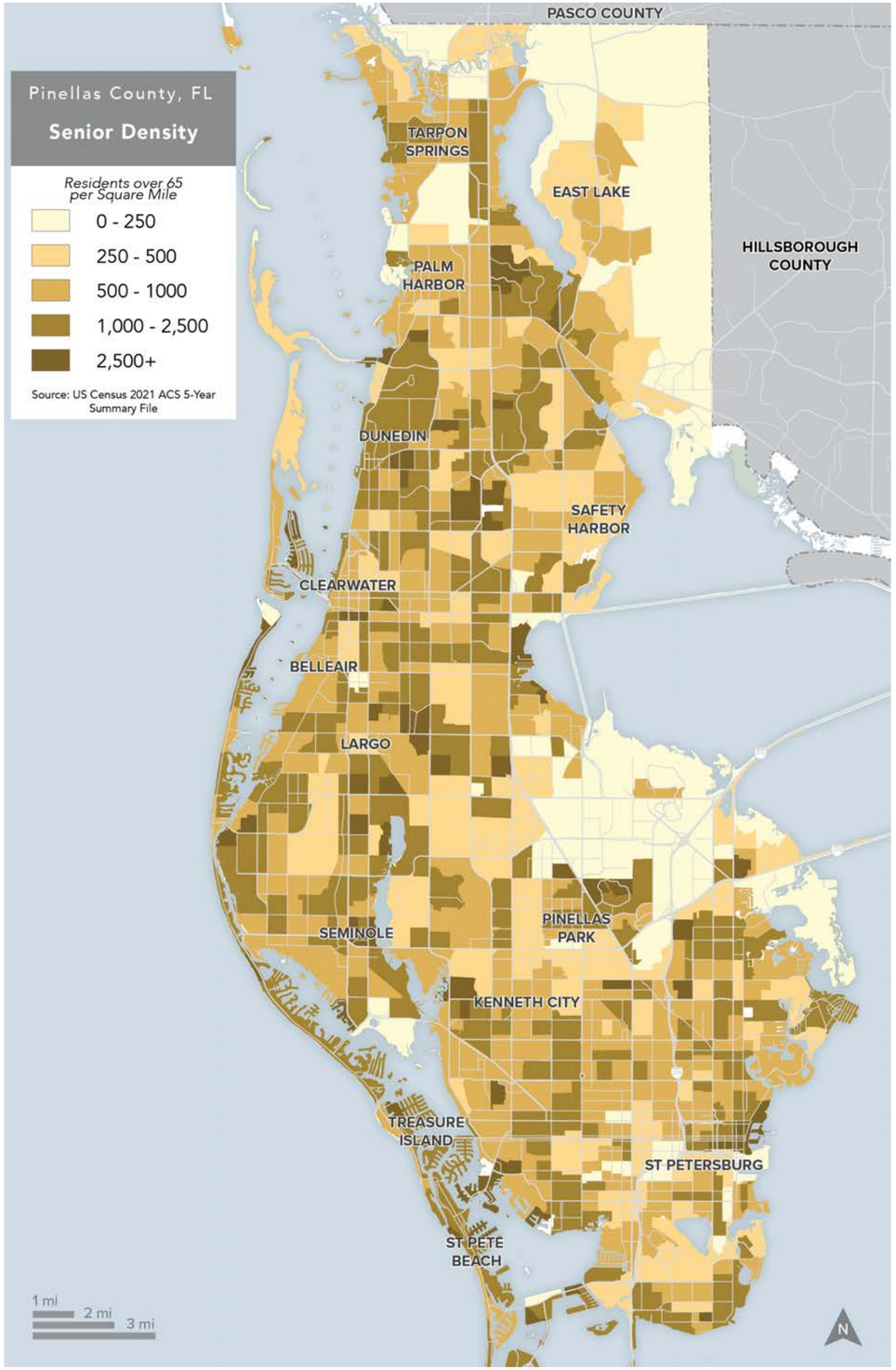


Figure 28: Senior density in Pinellas County.

There is a high density of senior residents in many areas throughout the County. These areas are particularly high:

Downtown St Petersburg

Dunedin

Most areas along the Gulf Coast including St Pete Beach, Treasure Island, and Clearwater Beach

Need: Youth

Just as transit coverage can meet the needs of seniors who cannot or choose not to drive, transit coverage can also meet the needs of children and teenagers who are too young to drive.

The map on the right shows the density of residents under the age of 18 in Pinellas County. Young residents are scattered all over the county, and their distribution tends to follow in areas that have a higher overall residential density.

Young people are like seniors in that they often live on a tighter budget than people of working age. For this reason, both are very sensitive to transit fares, and parents are sensitive to paying a fare for each child.

However, young people and seniors are very different in their ability and willingness to walk to transit service. Most young people can and will walk farther to reach service than seniors. Whatever effect an increase in price has on ridership among working age people, it will have an even stronger effect on ridership among young and old people. Like other transit agencies and many private businesses, PSTA offers a reduced fare for youth under the age of 18 and offers free service for children under 8.

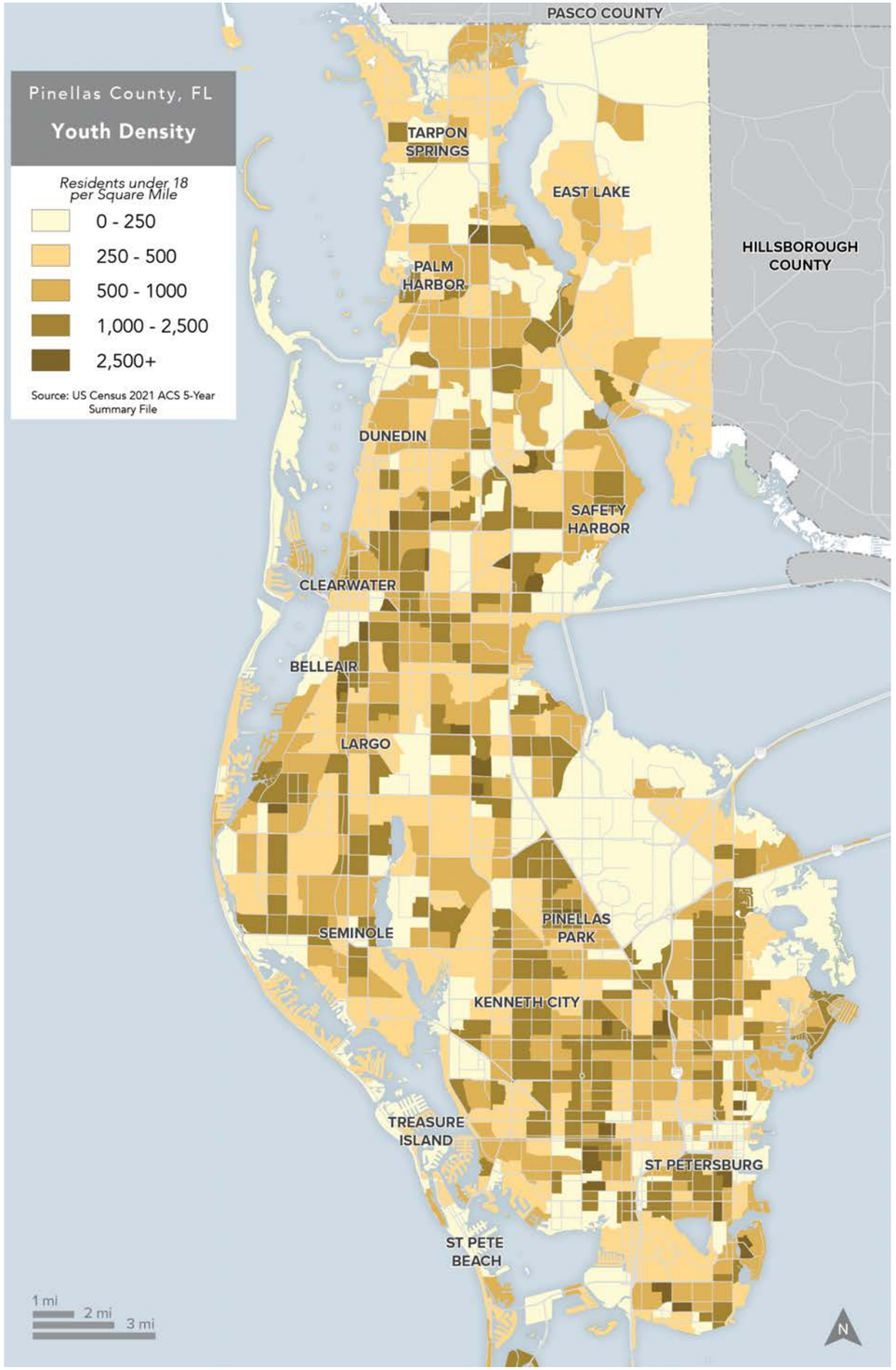


Figure 29: Density of residents under 18 in Pinellas County.

Areas with high youth density mostly follow areas with high residential density overall. Some areas include:

Some areas in South St Petersburg

In and near Kenneth City

Along 4th Street North

South of Clearwater along Alt US-19

East of Clearwater between Drew Street and Gulf to Bay Boulevard

Some areas in Largo along Bay Boulevard

Civil Rights: People of Color

While information about people's income tells us something about their potential interest in or need for transit, information about ethnicity or race do not alone tell us how likely someone is to use transit.

However, avoiding placing disproportionate burdens on people of color, through transportation decisions, is essential to the transit planning process. Transit agencies are also required by Title VI of the Civil Rights Act of 1964 to ensure that services they provide do not discriminate on the basis of race, color or national origin.

Equity-based transit goals are often articulated in terms of improving mobility or transit access for people of color, particularly in places where the existing development patterns and transportation network contribute to disparities in access to jobs and other opportunities.

The map on the right shows the distribution of people by race and ethnicity in Pinellas County. Each dot represents 50 residents. Where many dots are very close together, the overall density of residents is higher. Where dots of a single color predominate, people of a particular race or ethnicity make up most of that area's residents.

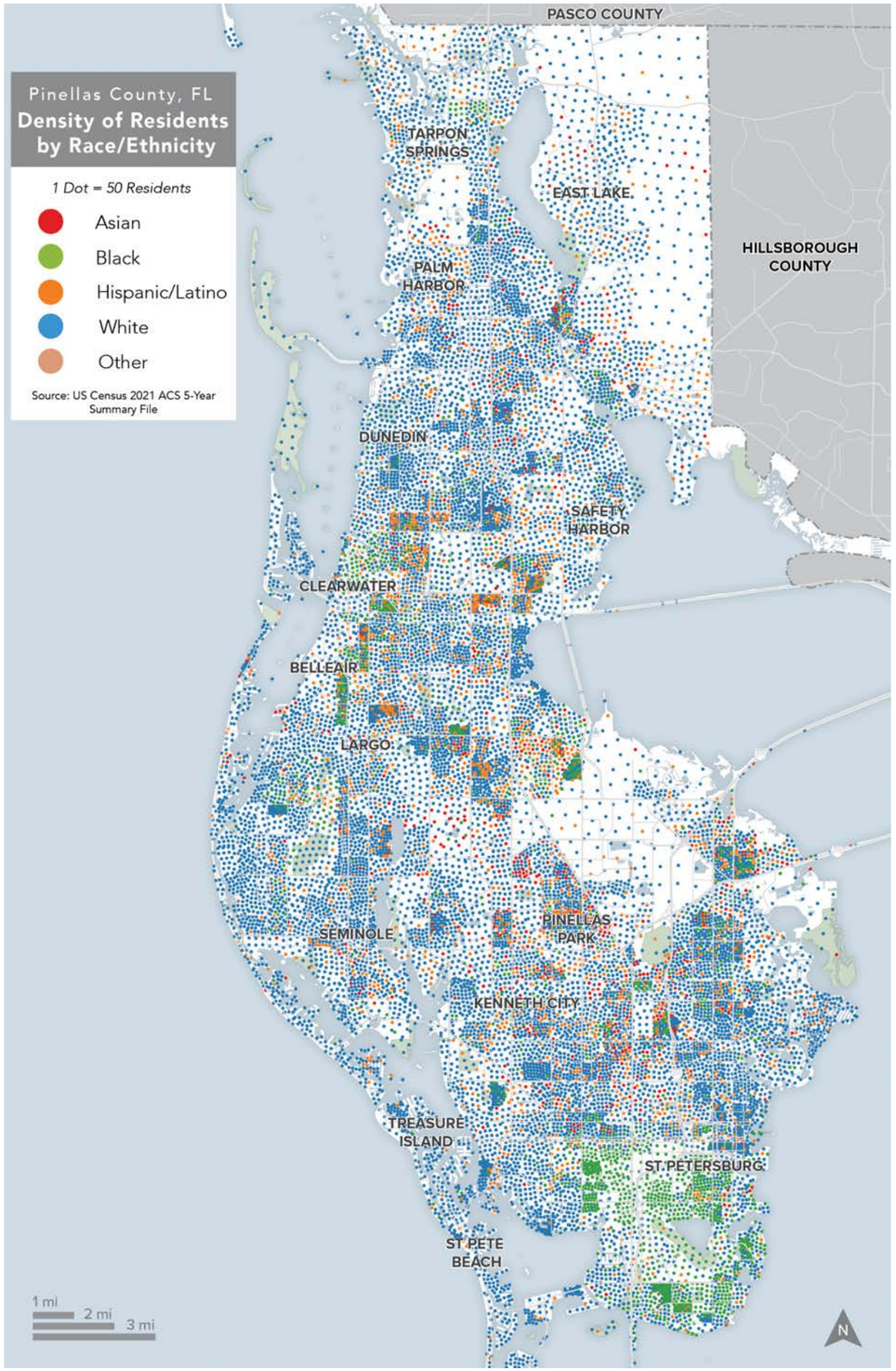


Figure 30: Racial and ethnic distribution in Pinellas County.

Key points about the racial and ethnic distribution include:

Concentration of Black residents in South St Petersburg and north of Clearwater

Concentrations of Latino residents northeast of Clearwater and along Gulf to Bay Boulevard (near Clearwater Mall)

Primarily White residents along the Gulf Coast including St Pete Beach, Treasure Island, and Clearwater Beach

Mix of racial/ethnic groups in these areas:

- *north of St Petersburg along 4th Street North*
- *in Kenneth City and Pinellas Park*
- *in Largo along Bay Blvd*

4 Existing Transit Network

Where is useful service available?

In transit conversations there is always a great focus on **WHERE** transit is provided. Sometimes not enough attention is paid to when it is provided. The **WHEN** of transit service is:

- **Frequency** or **headway:** How many minutes are there between each bus? How long of a wait is required?
- **Span** or **duration:** How many hours of the day is service running? Does it run on weekends?

Low frequencies and short spans are one of the main reasons that transit fails to be useful because it means service is simply not there when the customer needs to travel.

Frequent service:

- reduces waiting time (and thus overall travel time),
- improves reliability for the customer because if something happens to your bus another one is always coming soon,
- makes transit service more legible by reducing the need to consult a schedule, and
- makes transferring (between two frequent services) fast and reliable.

The routes in these maps are color coded by their frequency during midday on a regular weekday.

Darker colors represent routes which run more frequently. **Red** represents routes that run every 15 minutes or better, **Purple** represents routes that run every 20 minutes, **Dark Blue** every 30 minutes, and the **Light Green** represents headways of 60 minutes. Peak-only or limited services are shown in **Tan**.

PSTA has three frequent routes that come every 15 minutes or better: the SunRunner, Route 4, and Route 59. Routes 60 and 74 come every 20 minutes. These five routes are PSTA's most useful routes for people in a hurry. Since these routes come frequently, people don't have to wait a long time to travel along them.

Most of the network has routes that come every 30 or 60 minutes. People that want to travel along these routes might have to wait a long time. Even with apps that provide real-time information, people still have to wait somewhere. A person that clocks in at 9am might need to take an hourly route that will get them to work at 8:20am or 9:20am. If they want to be on time, they will have to wait 40 minutes at work before their shift starts.

PSTA also provides some service that only operates a few times throughout the day. This includes intercounty routes like Routes 100 and 300 and some peak-only services like Route 66 and 90.

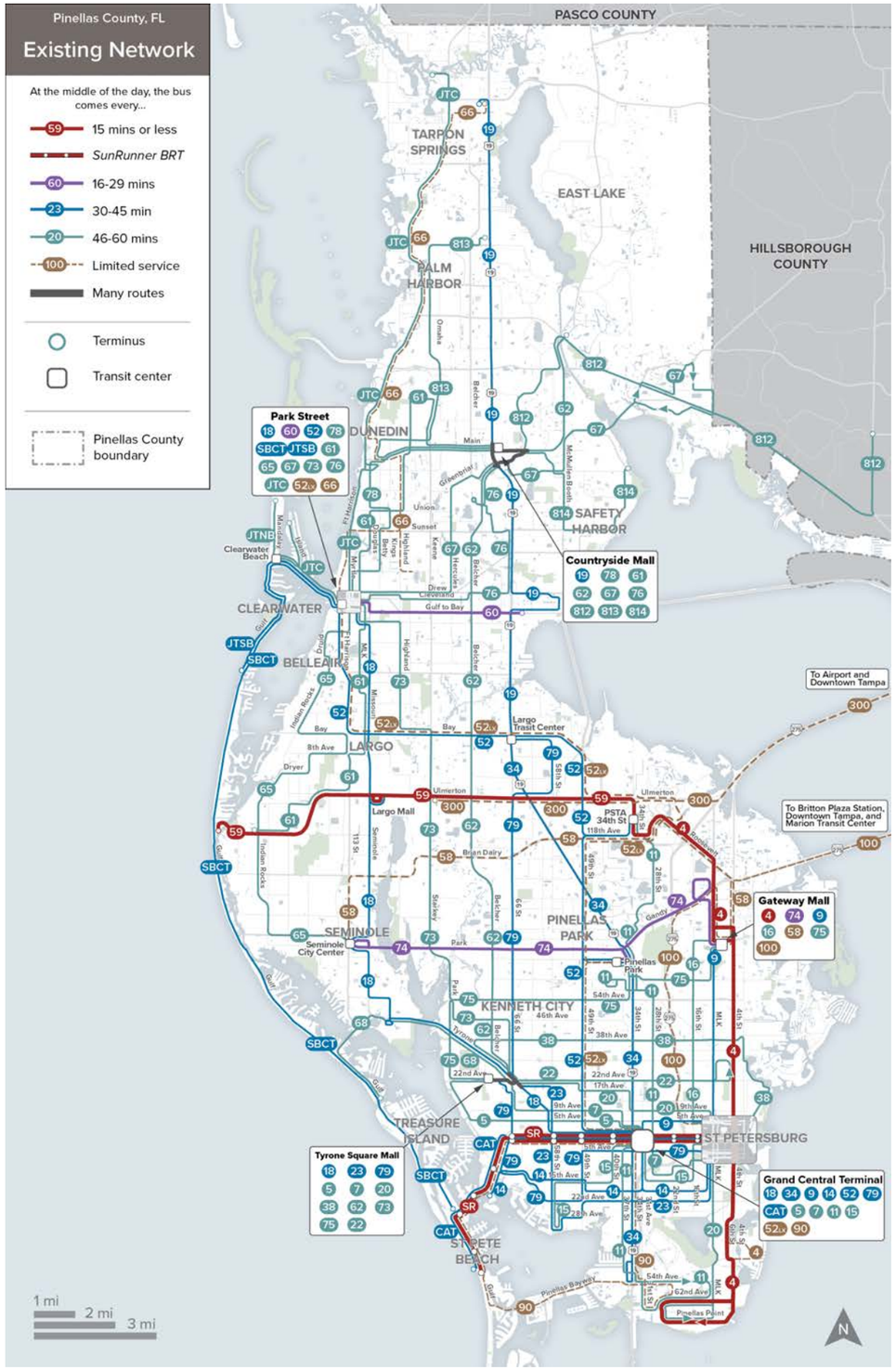


Figure 31: PSTA Transit service in Summer 2023.

When is service available?

The chart on the right summarizes each route's **frequency** (how often a bus on the route comes) and **span** of service (what days and what durations the route operates). Each hour a route operates is shown by a single block, colored roughly according to the frequency offered in that period. From left to right, the columns of blocks show service for each route during weekdays, Saturdays, and Sundays, respectively.

Less Service on Weekends, Especially Sundays

Similar to the network maps earlier, the span-frequency chart to the right shows how PSTA service consists of five routes that come every 20 minutes or better and most other routes operate every 30-60 minutes. The Downtown Looper (not visible on the previous map) comes every 20 minutes.

For most routes, the frequency is consistent throughout the day. Routes 18 and 34 provide higher frequency during peak times, from every 30 minutes to every 20 minutes.

Throughout the weekend, the SunRunner and the Looper continue with the same frequency. However, on Saturdays, the other four more frequent routes drop to 30 minutes or worse. Other routes, such as Routes 9 and 79, drop from 30 minutes to 60 minutes. On Sundays, most routes run every 60 minutes and some routes turn off completely.

Most routes start around 6am in the morning, but in the evening, spans are inconsistent. This adds some complexity that might discourage some riders.

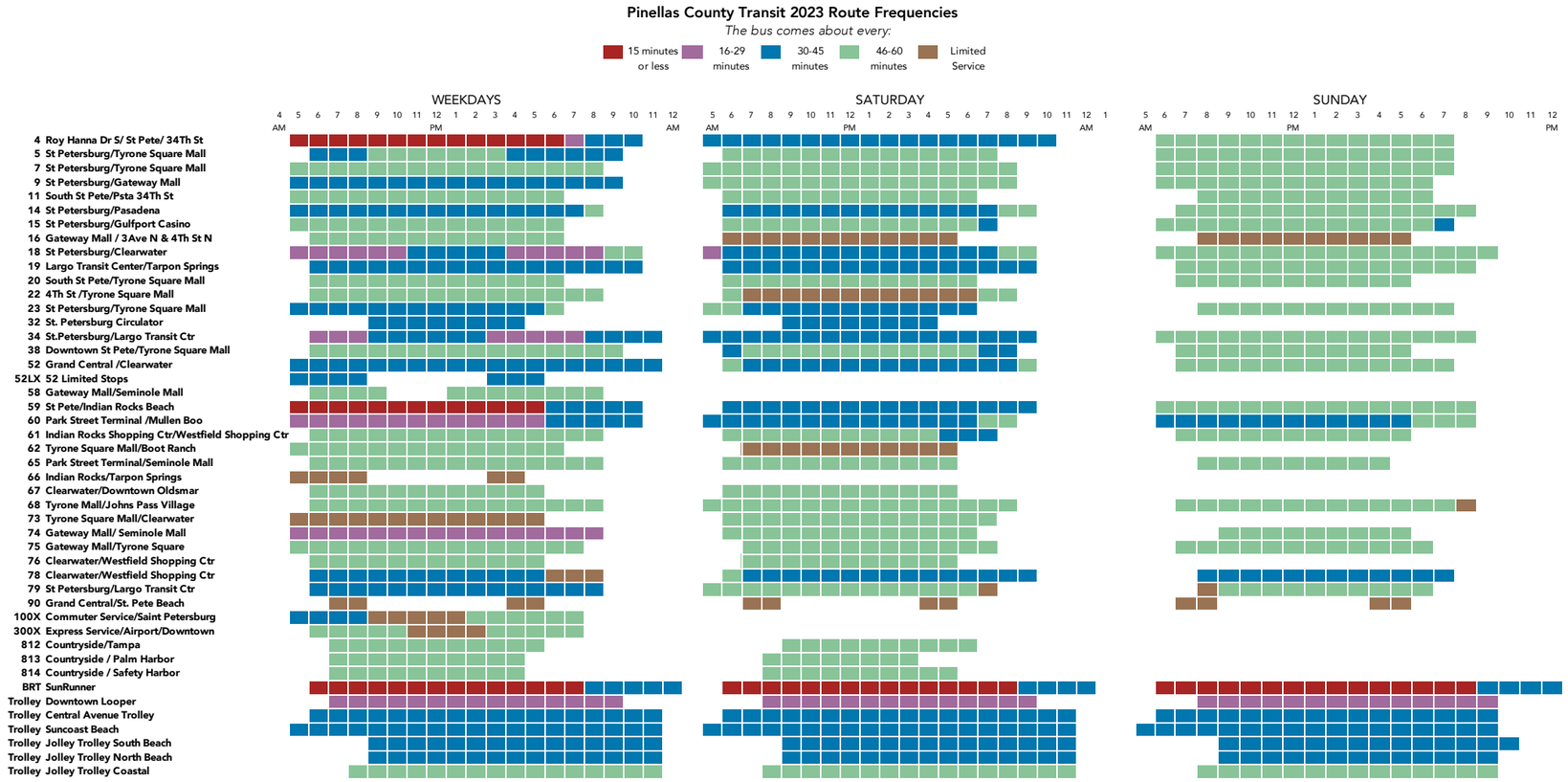


Figure 32: Spans and frequencies for all PSTA routes in Summer 2023.

The limited service on evenings and Sundays makes it less likely for transit to be useful for many retail and service sector workers.

Evening & Weekend Service

The maps to the right show the service provided during weekday evenings, Saturdays, and Sundays using the same color scheme as before.

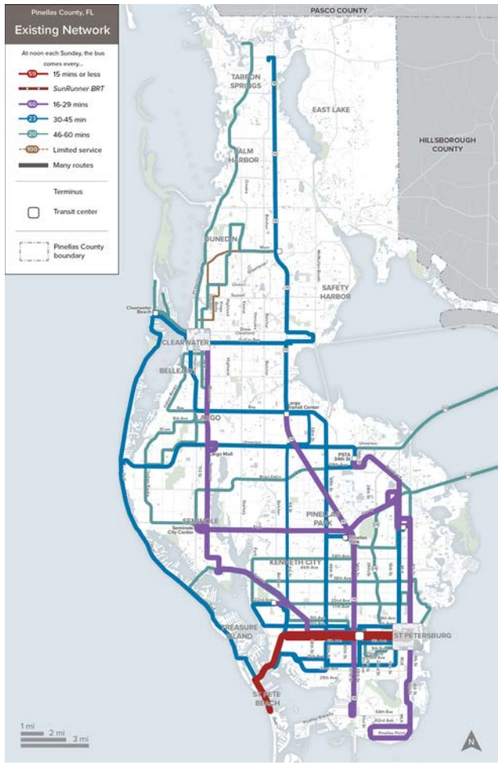
The only consistent frequent route throughout these periods is the SunRunner. Compared to the midday, at 7pm some routes are not running but the ones that are running usually keep their frequency the same. Routes 34 and 18 run higher frequencies, every 20 minutes, at 7pm because they increase their service during the peak until 8pm and 9pm, respectively. Route 4 reduces service from every 15 minutes to every 30 minutes and Route 59 goes down to 30 minutes. By 8pm many of these frequencies drop, and by 9pm many routes do not run at all.

On Saturdays, most routes are operating except for the routes with limited service, such as Routes 100 and 300. Frequency of service is lower on many routes, such as 18 and 74.

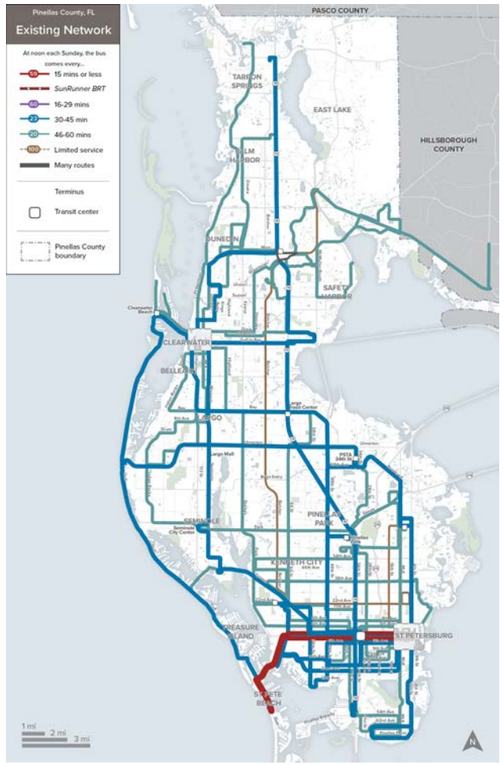
On Sundays, the map looks emptier and lighter—many routes are not running and the ones that are operating are far less frequent.

These reductions in frequencies can be problematic to service workers that do not follow typical 9am to 5pm shifts. A retail employee that lives near Ulmerton road and works at Largo Mall might not have an issue getting to work on weekdays. But when their shift ends in the evening, Route 59 is running less frequently. And if they have to work on a Sunday, it could be difficult for them to rely on transit since the frequency goes down to 60 minutes.

Weekday Evenings
7:00pm



Saturdays
12:00pm



Sundays
12:00pm

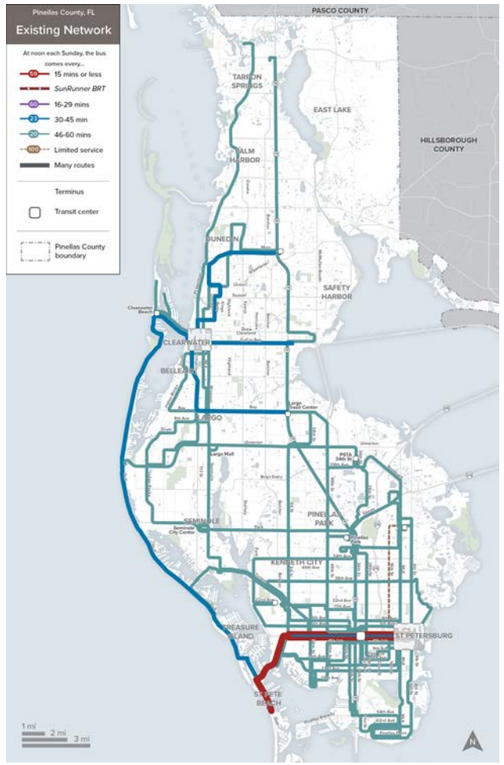


Figure 33: PSTA Transit service during Weekday evenings, Saturdays, and Sundays.

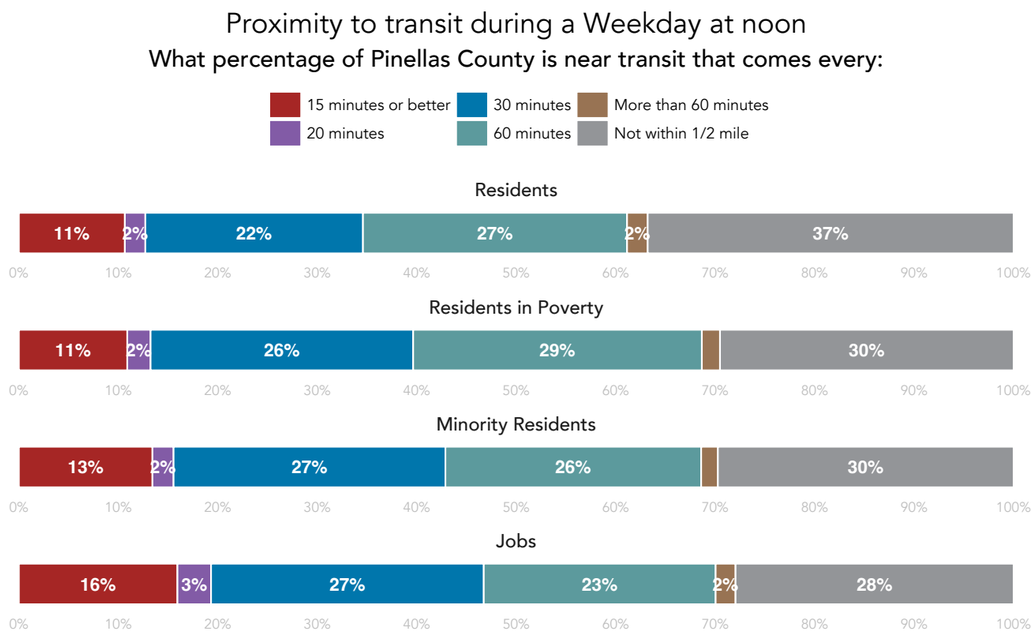
How many people are near transit?

Coverage goals for transit are served when transit is available to people, whether or not they ride it in large numbers. A key measure of the coverage of transit is the proximity of people and jobs to service. The charts on the right show the proximity of residents and jobs to the existing PSTA network at midday on a weekday. The overall coverage is divided into coverage by transit of particular frequencies at midday following the same color scheme as the previous maps.

63% of Pinellas County residents are within a half a mile of some level of transit service. Of these, 35% are within the ½ mile of 30-minute or better service.

Among people of color, 42% are near 30-minute services or better, while 70% are near some transit service. This proportion is higher because there are some areas served by transit that have high concentrations of residents of color (e.g. South St Petersburg). Also, 70% of residents in poverty are near some service and 39% are near 30-minute service or better.

A large proportion of jobs are located in Downtown St Petersburg, Downtown Clearwater, and other higher density nodes throughout the County. This pattern of job concentrations is common in many communities and it means that jobs, on average, are more likely to be near transit service. 46% of jobs in Pinellas County are near 30-minute transit service or better—compared to 35% of the population.



Note: Proximity is measured as being located within 1/2 mile of a bus stop.

Figure 34: Proximity of residents, jobs, and communities of concern to transit.

Where are people riding transit?

One measure of transit performance is the sheer amount of ridership it attracts. This can be made visible with a map of boardings at each transit stop, as shown on the right.

High ridership routes and areas can appear in two ways on this map: either as larger, darker dots or as multiple medium-sized dots that are very closely spaced. Looking for those patterns we can observe that the highest boardings occur:

- At hub stops where several routes converge or terminate and people can transfer between routes (e.g. Gateway Mall)
- At intersections where routes cross (e.g. Bay Drive and Missouri Ave/Seminole Boulevard)
- Along higher-frequency routes like the SunRunner and Route 4
- Along dense, linear corridors like Routes 34 on 34th Street and Route 52 on 49th Street.

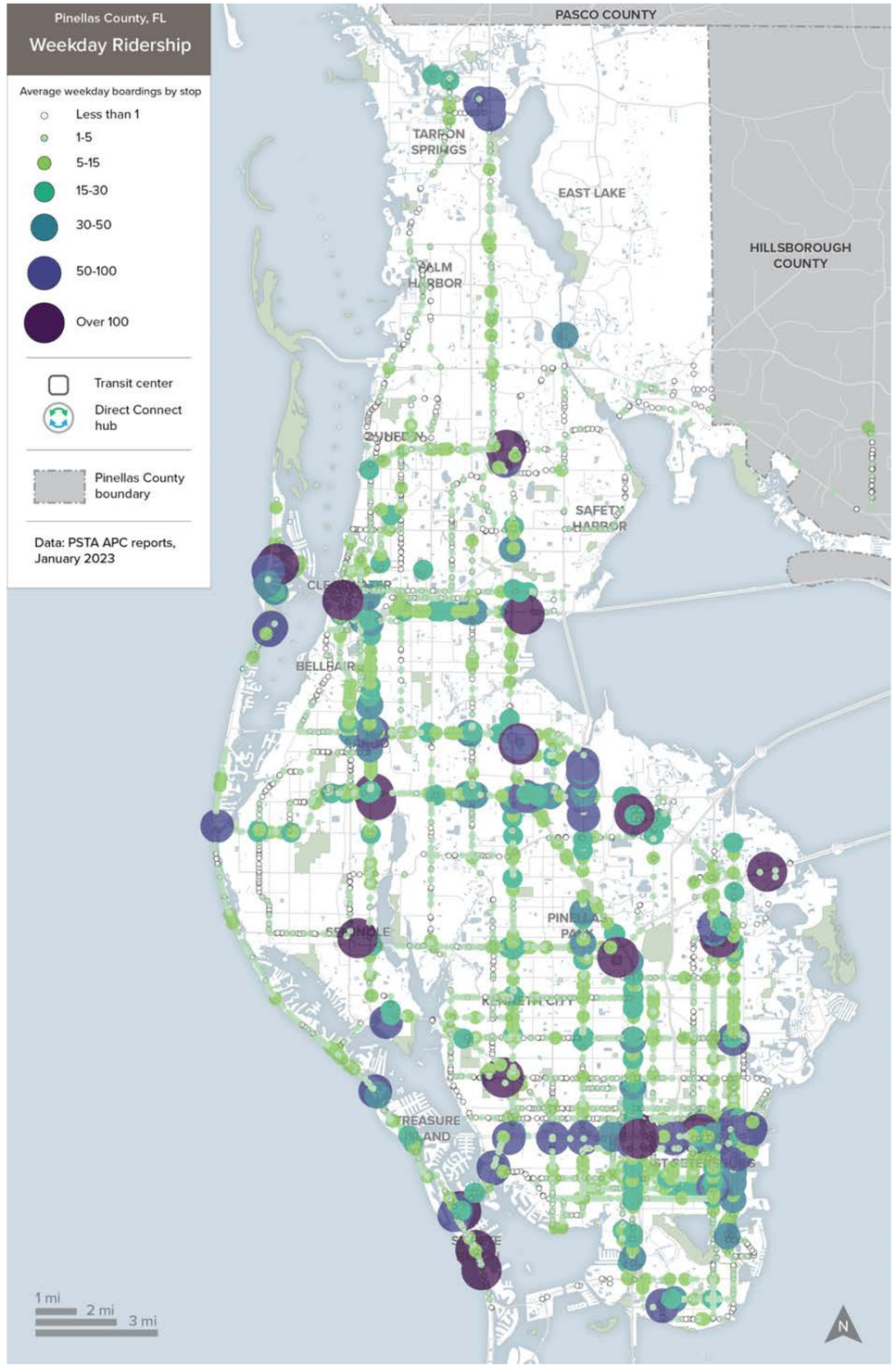


Figure 35: Average weekday boarding by stop.

Productivity & Frequency

People who value the environmental, business, or development benefits of transit will talk about ridership as the key to meeting their goals. If that were the primary measure of transit's success, then our attention would be focused on the highest ridership routes.

However, because any transit agency is operating under a fixed budget, the measure they should be tracking is not sheer ridership but **ridership relative to cost.** They would not be satisfied simply by a large dot on the boardings map on the previous page until they knew what it cost the transit agency to achieve that large dot.

The cost of providing a service is in proportion to the quantity of service provided, and the primary measure of the quantity of transit available for customers to use is service hours. A service hour (also called revenue hour) is one bus operating for one hour.

The service hours on any particular route will depend on a few factors:

- The **length** of the route (a route covering more distance or running on more circuitous paths will require more vehicles to run).
- The **speed** of the bus (a slower speed means that covering the same distance takes more time).
- The **frequency** of service along the route (higher frequency is delivered by increasing the number of buses being driven on the route at once).
- The daily and weekly **span** of service for a route (how many hours it is available).

Ridership relative to cost is called "productivity." In this report, productivity is measured as boardings per service hour:

$$Productivity = \frac{Ridership}{Cost} = \frac{Boardings}{Service\ Hours}$$

The chart to the right shows the productivity (vertical axis) of individual PSTA routes plotted against their "baseline" weekday midday frequency (horizontal axis).

Routes that come every 30 minutes or better are more productive than most 60-minute routes. This is a common trend across agencies: higher frequency services often tend to have not just higher overall ridership, but also, higher overall productivity.

Productivity is strictly a measure of achievement towards a ridership goal. Services that are designed for coverage goals will likely have low productivity. This does not mean that these services are failing or that the transit agency should cut them. It just means that their funding is not being spent with the purpose of attracting high ridership.

Where Is Productive Service Today?

High ridership arises from the alignment of useful service and supportive land use. All except two routes get less than 20 boardings per service hour on weekdays. Some relatively higher-productivity routes include:

- The SunRunner is the most frequent and the most productive route in the network. Route 60 is a higher-frequency route that operates on a dense corridor.
- Routes 34 and 52 provide less frequent service but are in a high-density corridors. Routes with lower service level serving a large transit market are good candidates for service improvements in the future.
- The Trolleys operate on dense corridors and are fairly productive.

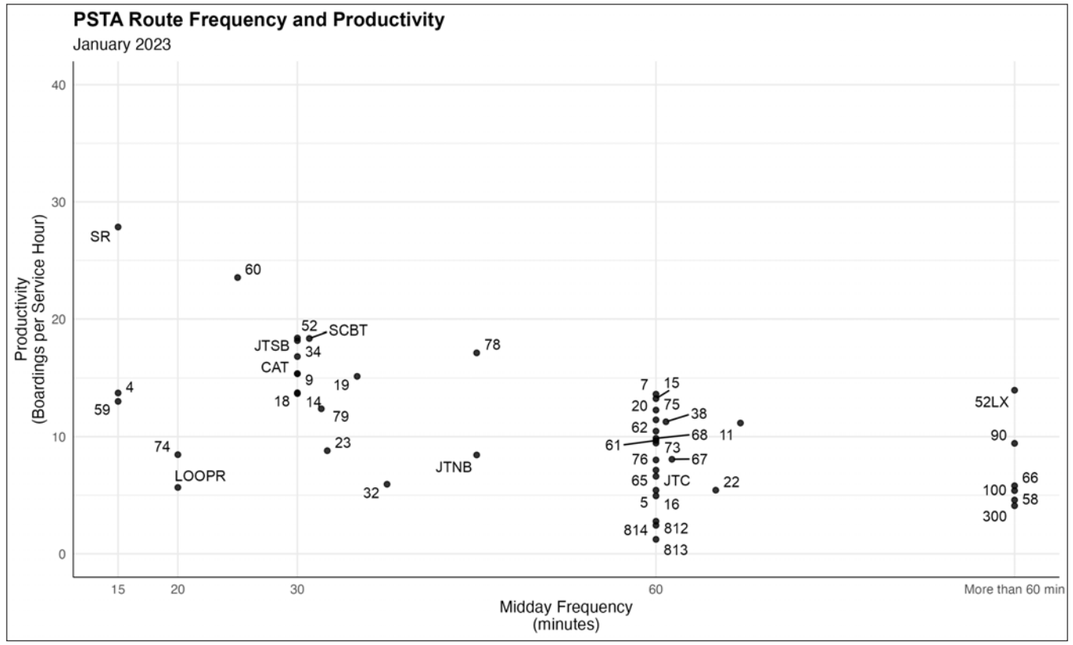


Figure 36: Productivity and midday frequency for all PSTA routes.

Route 74 and the Looper have relatively low productivity given their high frequency. Route 74 runs every 20 minutes and has a productivity of less than 9 boardings per hour. While Route 74 connects some key destinations such as Gateway Mall, Pinellas Park, and Seminole, there are some areas along the route that are not very dense. Gandy Boulevard and Park Boulevard east of Seminole are not very dense. The bus doesn't even stop for a large portion of Gandy Boulevard because it doesn't make sense to stop.

The Looper is frequent but it is so short, that it is not useful for many trips. The Looper is examined in more detail on page 48.

Freedom & Access

Elements of the service like frequency and span tell us a great deal about how useful transit is, but they do not tell us everything about how service interacts with where jobs, people, and destinations are in Pinellas County. A different way of assessing transit is to ask: "How useful is transit for getting you to a lot of places quickly?"

A helpful way to illustrate the usefulness of a network is to visualize where a person could go using public transit and walking, from a certain location, in a certain amount of time. The map in Figure 37 shows someone's access to and from Downtown St Petersburg, at noon on a weekday. Areas they can reach in less than 60, 45, or 30 minutes are shown in light, medium and dark maroon, respectively. The technical term for this kind of illustration of an "access blob" is **isochrone.**

A more useful transit network is one in which these access bubbles are larger, so that each person is likely to find the network useful for more trips.

In these analyses, travel time estimates include:

- The walking time from the origin point to a nearby stop.
- Initial waiting time equal to ½ of each route's scheduled frequency.
- In-vehicle travel time based on an average speed of transit.
- Waiting time equal to ½ of a route's headway for any transfer to another route.
- Walking time equal to the remainder of the travel time budget after arriving at a stop. Note that for this analysis, the total walking time is limited to 30 minutes.

We always account for time spent waiting, because even if you time your departure just right and don't wait at the bus stop, a lower-frequency route often makes you wait at your destination because it can force you to arrive very early (rather than be slightly late). Very few people have the liberty of arriving when they please for all their trips, so for most people, riding transit means waiting somewhere. The more frequent the transit, the shorter the wait.

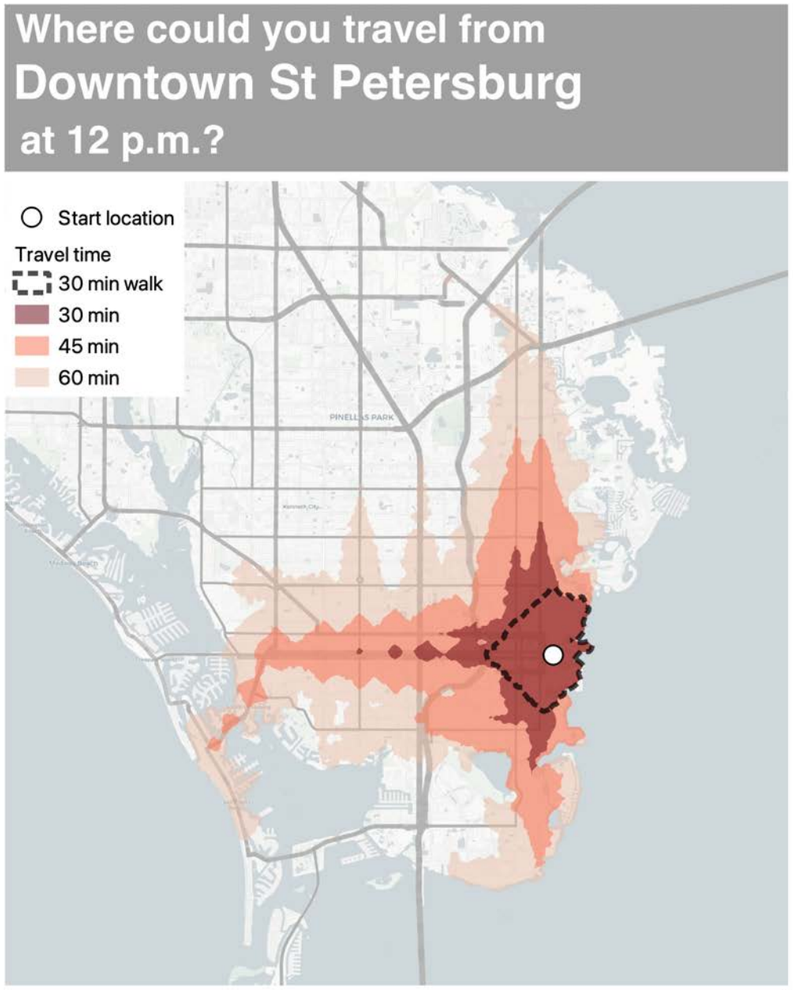
How Many Places Can You Reach Relatively Quickly?

An isochrone map, like the one in Figure 37 may tell you where transit can take you within a reasonable amount of time, but what really matters is how many destinations you can reach in that time. For that, we measure job access—the number of jobs within the 30- 45- and 60-minute isochrone areas.

We measure access to jobs because we have good data on job locations, but also because better access to jobs means more than potential places of employment. It also tends to mean more shopping, social, and educational opportunities can be reached, allowing for a richer life for people who choose to rely on transit. We can see that from Downtown St Petersburg, a person is able to reach about 85,330 jobs in an hour.

For a business trying to decide where to locate their storefront or office, they may be interested in comparing access to population, because higher access to population means a larger market of potential employees, and potential customers. From Downtown St Petersburg, a business is able to reach about 207,865 residents within 60 minutes.

The isochrone maps on the next page illustrate access to opportunity from different locations throughout the County.

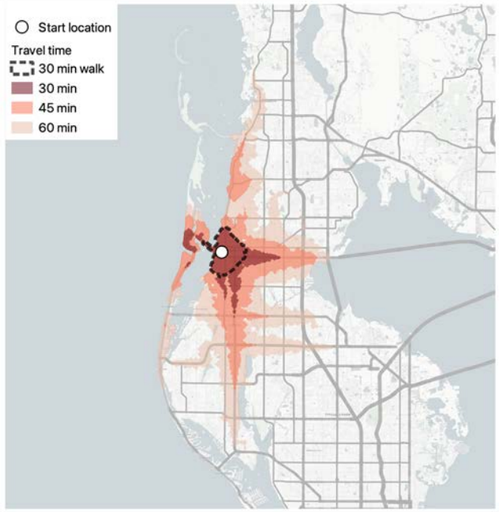


Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	17,635	32,930	104,130	207,865
Jobs	28,695	36,315	54,815	85,330

Figure 37: Where you can get to in 30, 45, and 60 minutes via transit and walking from Downtown St. Petersburg.

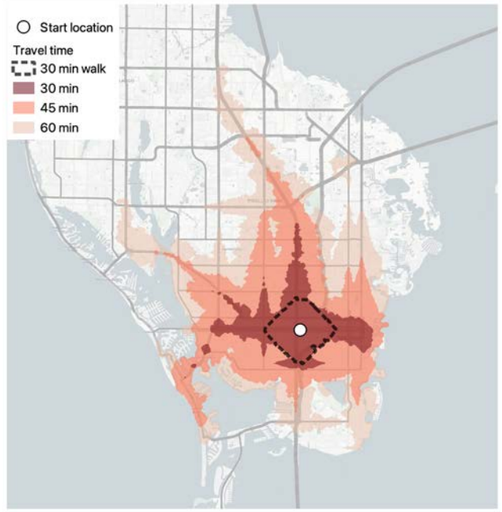
Isochrones

Where could you travel from
Downtown Clearwater
at 12 p.m.?



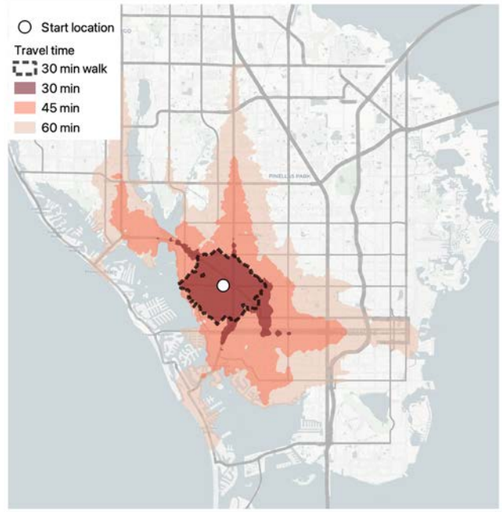
Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	12,590	27,745	93,535	218,230
Jobs	22,315	28,945	70,110	119,735

Where could you travel from
Grand Central Bus Terminal
at 12 p.m.?



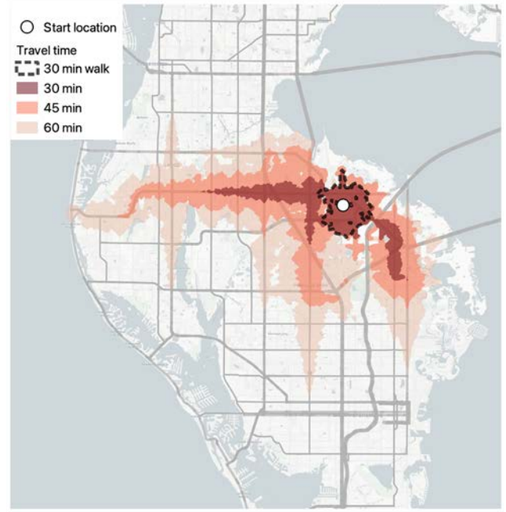
Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	14,125	48,335	164,270	288,175
Jobs	7,485	36,890	81,505	129,910

Where could you travel from
Tyrone Square aMall
at 12 p.m.?



Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	14,060	19,335	89,275	202,935
Jobs	6,820	8,370	33,485	104,195

Where could you travel from
PSTA 34th St Transfer Center
at 12 p.m.?



Residents and Jobs reachable by	Walk	Transit		
	30 min	30 min	45 min	60 min
Residents	2,590	15,745	86,095	210,470
Jobs	15,900	36,575	106,050	189,365

Figure 38: Isochrones showing how far people can go in 30, 45, and 60 minutes from various locations.

Access to Jobs

Isochrones can show us the freedom and access for a given place, but to see the total freedom a network provides across the entire region, we have to run the isochrone measure for nearly every place and display the results by color. The map on the right shows this result.

People who live in the darkest purple areas can reach more than 50,000 jobs in an hour by walking and transit. In the lightest blue areas, residents can reach less than 1,000 jobs.

The number of accessible jobs is related to both the distribution of jobs in and around Pinellas County as well as the usefulness of transit service from a particular location.

Areas close to the 30 minute-frequency routes show up as darker shades of purple as these routes have shorter waits and therefore there is more time to travel and reach more jobs. Services every 20 or 15 minutes are even darker. Areas that only have 60 minute service are the lightest since 30 minutes is spent just waiting for a bus to show up, so there is relatively little time to travel and reach many jobs.

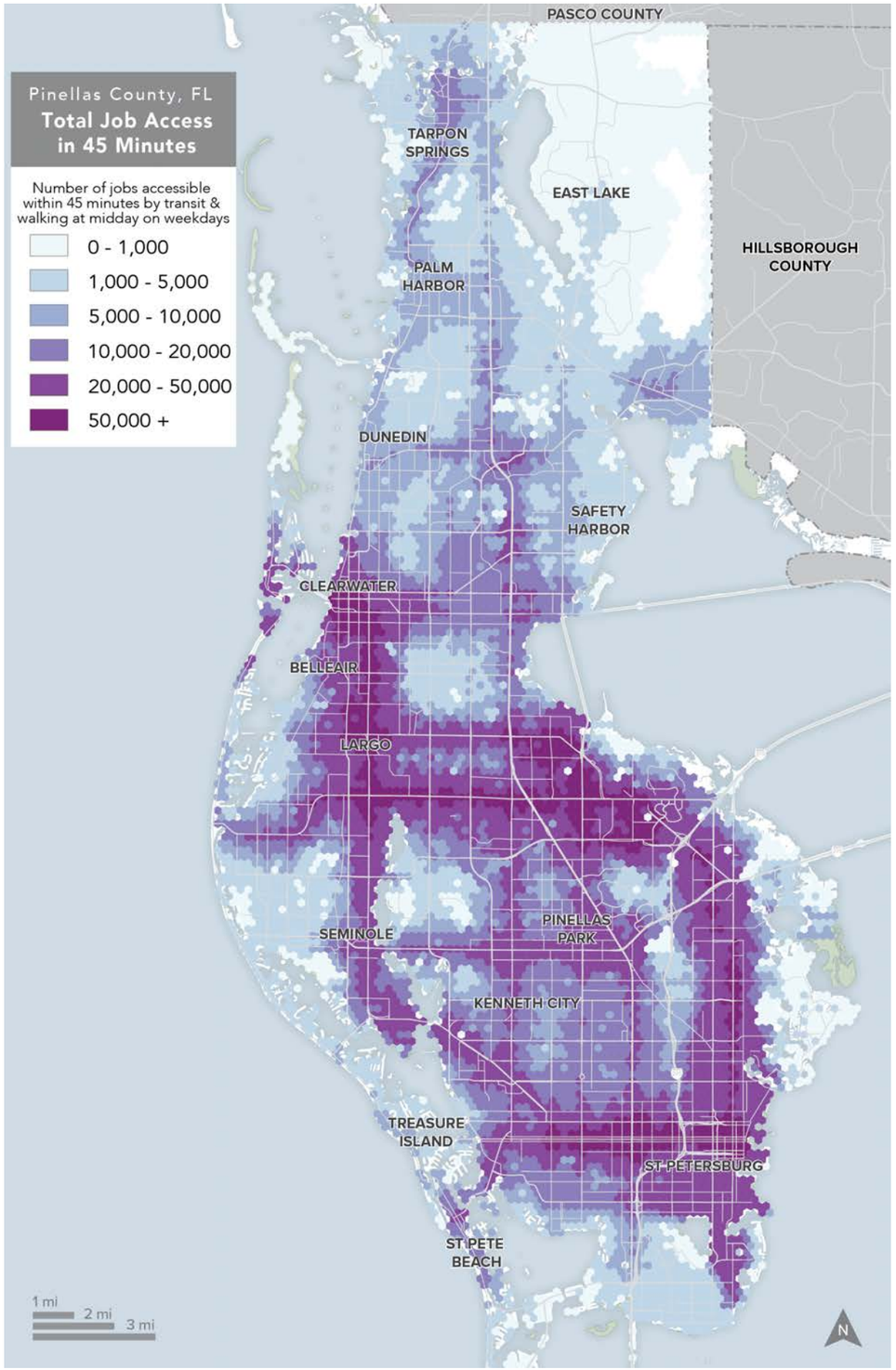


Figure 39: 45-minute job access.

Access to Jobs for Average Residents

By taking the information in the map on the previous page and combining it with the demographic information, we can assess how many jobs each person in Pinellas County can reach. From that we can also assess how many jobs the typical person can reach and the same for various subgroups. By typical resident we are describing the median outcome which means that half of residents have higher access and half of residents have lower access.

The chart to the right shows the median number of jobs accessible to the different subgroups of people in Pinellas County. Residents of color, residents in poverty, and those without cars tend to have a slightly higher access to jobs compared to the number of jobs accessible by all residents. Young residents have a similar level of access to all residents and seniors have less access.

If the community wishes to maximize its transit ridership, then a key goal would be to increase the number of jobs accessible to the median person, and it would do that by increasing the number of jobs accessible to the areas that have the most people in them.

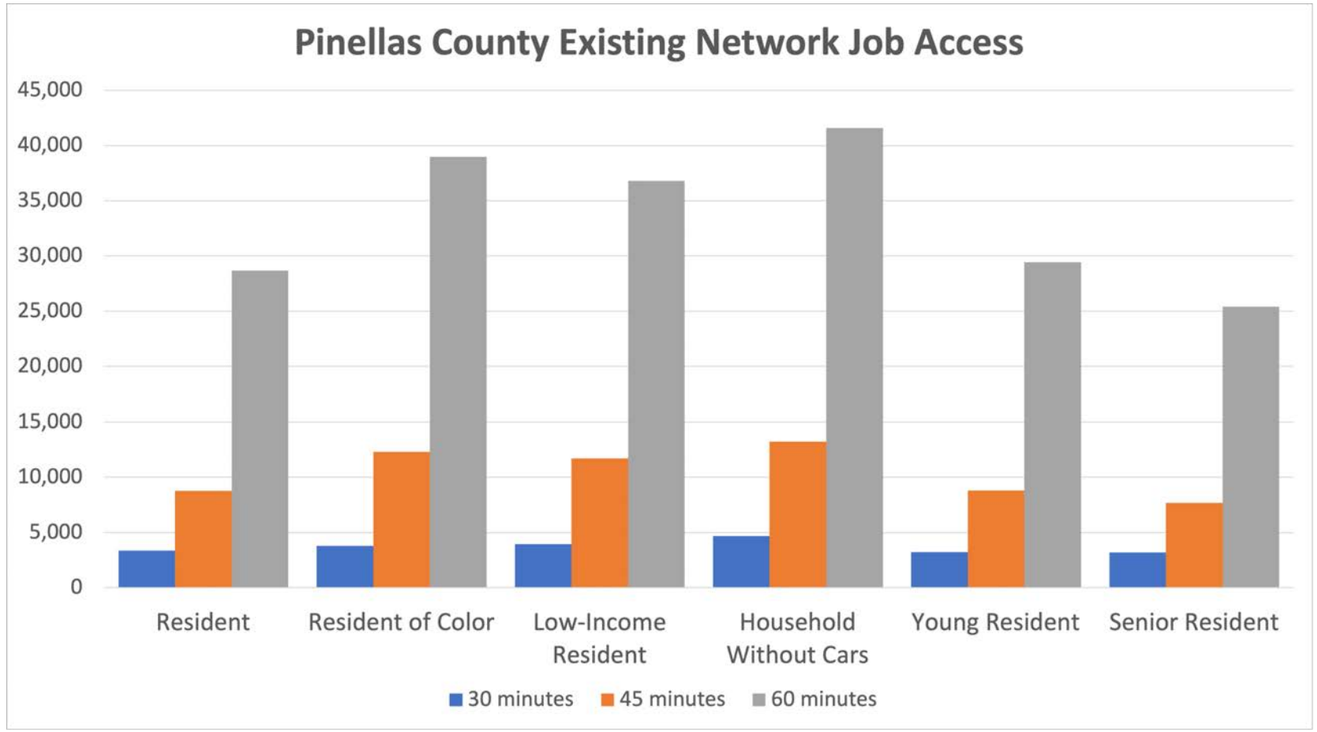


Figure 40: Job access for the median resident of different communities of concern.

Access by Transit Compared to Walking

This map compares job access by transit in 45 minutes to job access by walking 30 minutes. In other words, the dark areas on this map show places where the existence of transit makes it possible to reach many jobs beyond those reachable by walking alone.

In this map, Downtown St Petersburg and Downtown Clearwater are slightly lighter because there are already a lot of jobs within walking distance, so transit doesn't get you to that many more jobs. However, they are still quite dark, which means that transit is playing an important role in providing people with access to jobs and other opportunities.

The frequent corridors are darker, indicating that those are places where transit provides a much greater access to jobs than walking. Particularly, along the SunRunner, and Routes 4, 18, 52, and 59 come up as places where transit provide much more job access than walking alone.

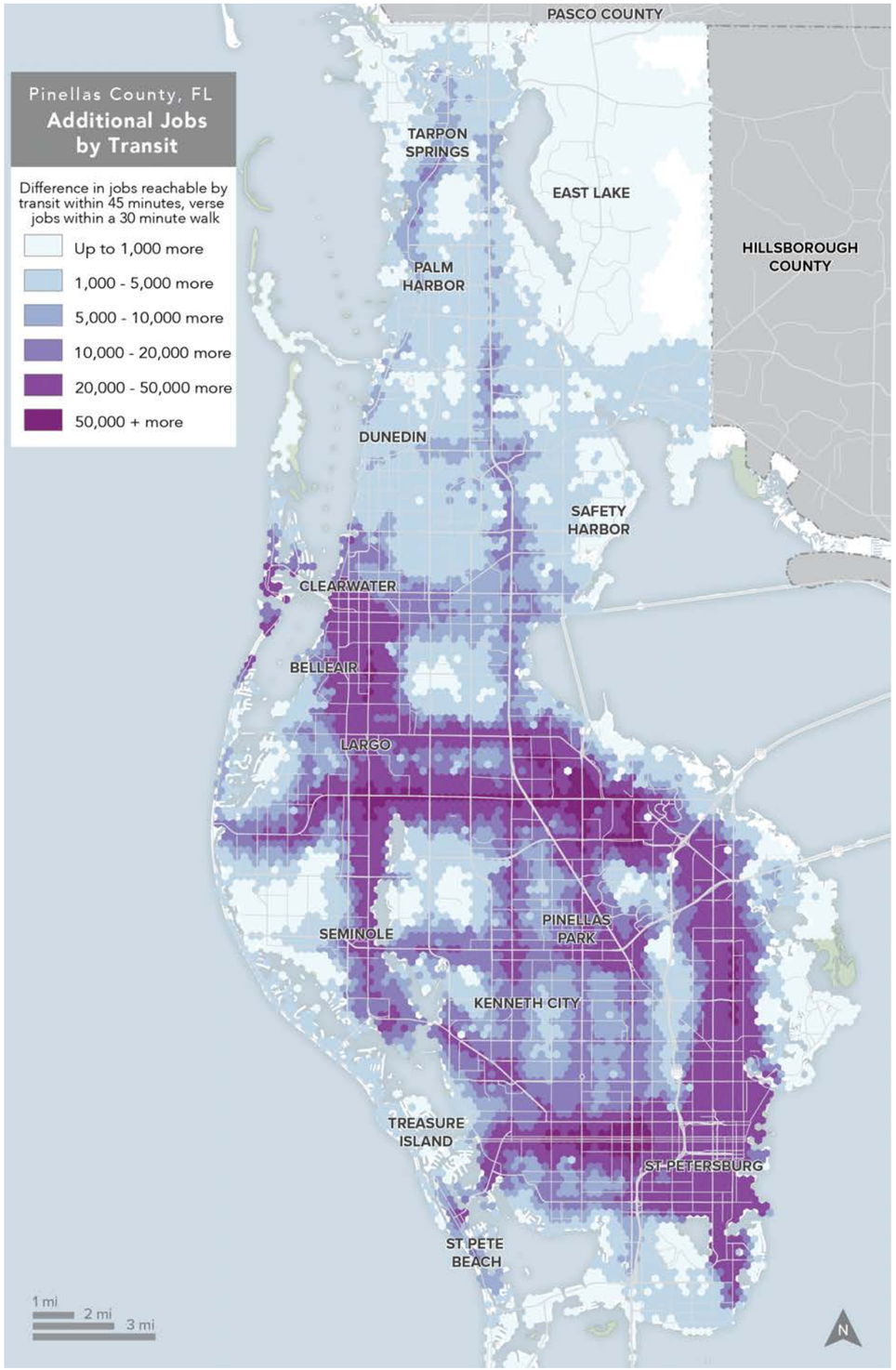


Figure 41: Additional jobs reachable by transit in 45 minutes compared to a 30-minute walk.

On-Time Performance

On-time performance is a measure of how reliably buses depart when customers expect them to depart. Reliability is particularly important when a transit network is built of infrequent routes. If another bus is not coming soon, the timeliness of each bus is extremely important.

On an infrequent route, an early departure can be much worse than a late one. If a route that comes every 60 minutes is 5 minutes late, someone might be 5 minutes late to work, and that is bad. But if it is 5 minutes early, they probably weren't at the bus stop in time to catch it, and they have to catch the next bus—which means they are now 60 minutes late to work.

PSTA considers a bus "on-time" if it arrives at a timepoint at the scheduled time or up to 5 minutes later. The chart to the right shows the percentage of times each route was observed to be on time between October 2022 and February 2023.

- Green is on-time
- Purple is late
- Yellow is up to one minute early
- Blue is more than one minute early

Routes with a relatively high percentage of late arrivals include 18, 38, 52, 58, 62, 65, 68, 73, 300, Jolley Trolley Coastal, and Suncoast Beach Trolley.

Routes with a high percentage of very early arrivals include 9, 19, 812, 813, and the Jolley Trolley North Beach, Coastal, and South Beach routes.

In a region as large as Pinellas County, the ability of transit to run quickly and reliably is most often the result of things outside the transit agency's control. The County, cities, and state governments control multiple policies and enforcement priorities that can dramatically affect the speed and reliability of bus service. Streetscape design, signal timing, safe crossing locations, curb management practices, parking locations, parking enforcement, loading zone locations, and traffic enforcement all have enormous effects on reliable bus service. The County, cities, and the state also manage street priority by allocating lanes among competing uses. Overall, local and state government have as much control, if not more, over the success of transit than transit agencies, particularly in congested places like Downtown St Petersburg or the beach.

On average, buses are:

- ***52% on time***
- ***18% late***
- ***18% slightly early (within one minute)***
- ***12% early (more than one minute)***

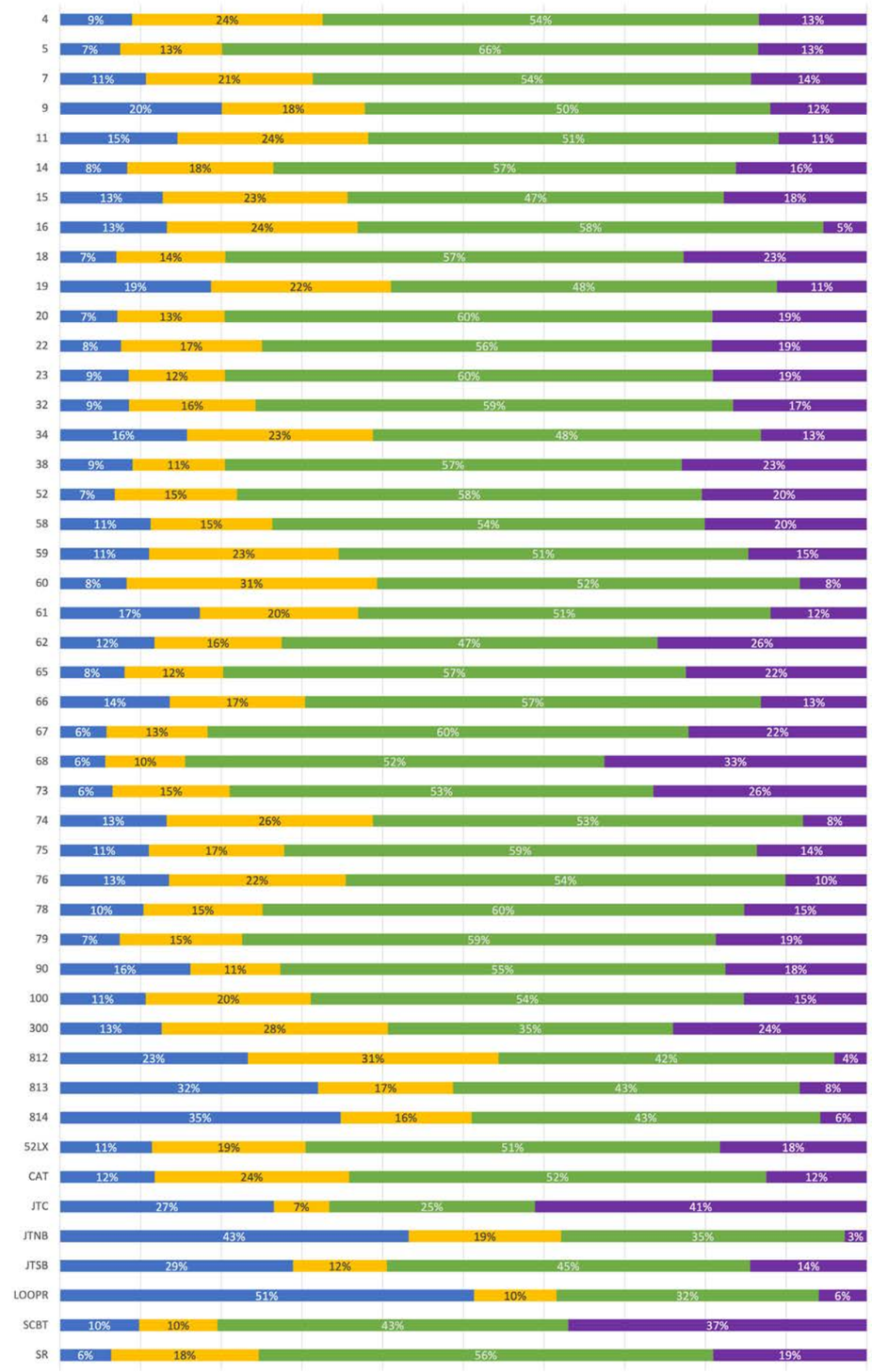


Figure 42: On-Time Performance for PSTA routes.

Downtown St Petersburg

Downtown St Petersburg has the strongest offering of transit service in the County, this is due in part to being the biggest activity node in the County. The service in Downtown St Petersburg includes the frequent SunRunner and Route 4. The Looper and Route 32 are circulator routes that only operate within Downtown St Petersburg. In addition, there are many other routes that run every 30 or 60 minutes.

The map on the right illustrates the complexity of these services. Most routes are doing something different, which provides service on nearly every street, but it also make the network very difficult to remember. Some of this complexity is due to one-way streets in Downtown; however, most routes are using different couplets.

For example, Routes 14, 20, and 23 come into Downtown from the south using Martin Luther King Jr. Street and then use 8th Street. However, after than, each route does something different. Route 14 uses 6th Avenue, Route 20 uses 3rd Avenue, and Route 23 uses 2nd Avenue. This inconsistency makes it difficult for riders to make connections in Downtown St Petersburg.

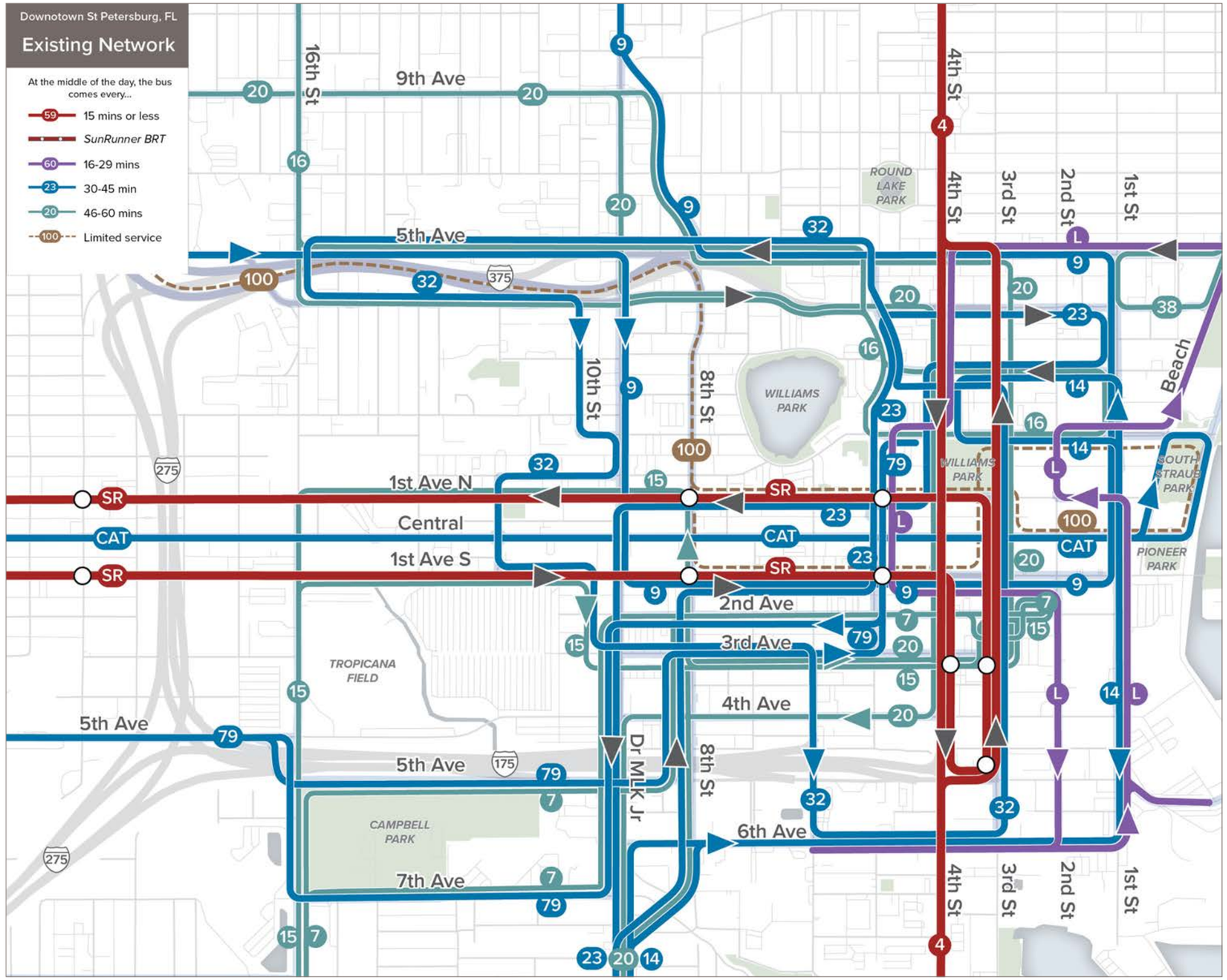


Figure 43: PSTA Transit service in Downtown St Petersburg in Summer 2023.

Missed Connections in Downtown St. Petersburg

Connecting from one route to another is an essential part of any transit network. Unless your origin and destination happen to be on the same route, you will need to connect between routes. Only by transferring will you be able to use the full potential of the transit network, so it is important that transfers are as seamless as possible.

Some routes that come into Downtown St Petersburg don't connect to each other. Routes 7, 16, 38, and the Central Avenue Trolley don't connect anywhere in Downtown, which means that people transferring between these routes will have to walk a few blocks. If someone is transferring from Route 7 to Route 38, they have to walk more than half a mile, about a 12 minute walk.

These difficult connections discourage transfers, and limit where people can go. **If the community wishes to maximize its transit ridership, connections need to be easy.**

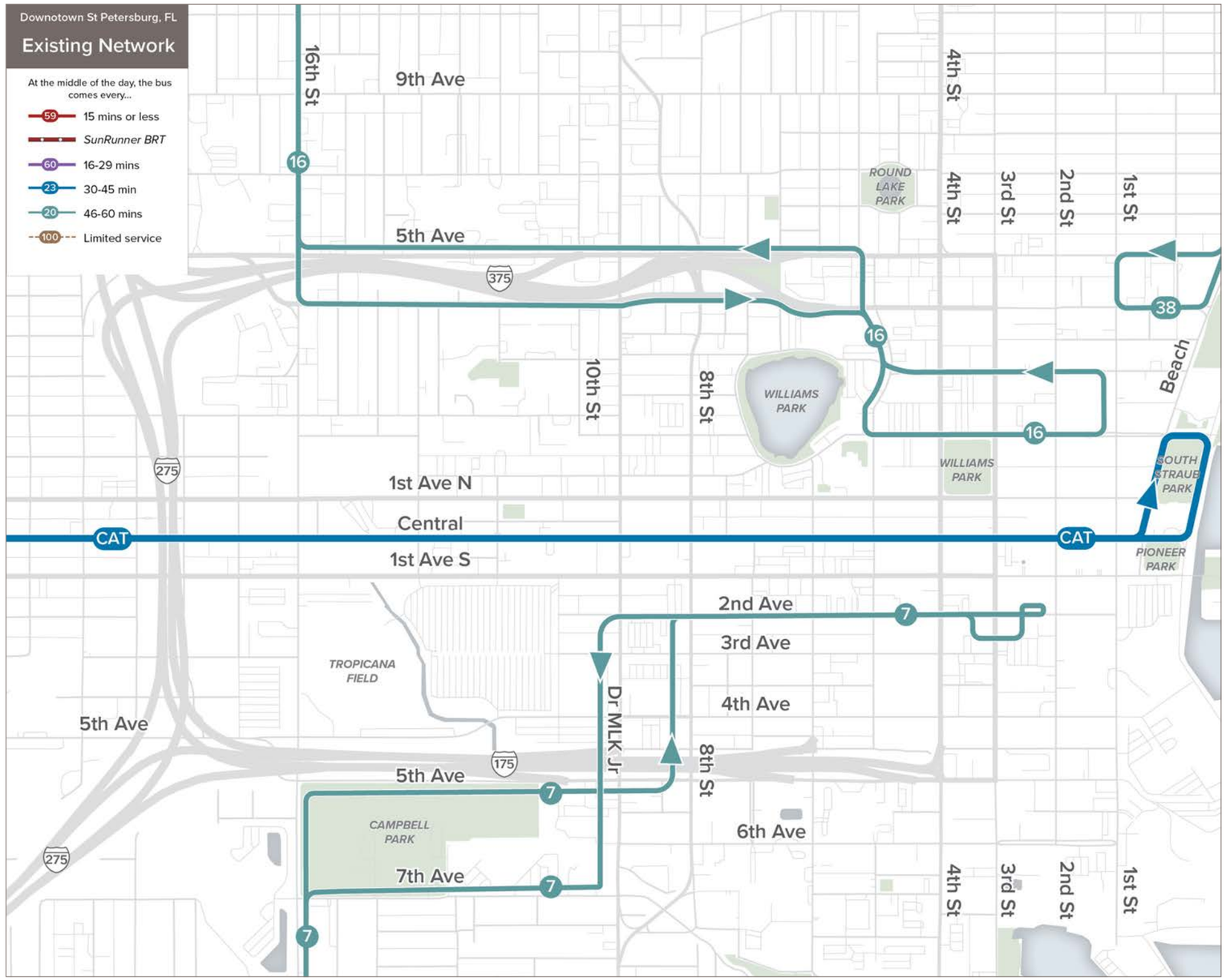


Figure 44: Some routes in Downtown St Petersburg don't connect to each other.

Circulator Routes in Downtown St Petersburg

The Downtown Looper is short, relatively frequent, and circulates passengers in Downtown St Petersburg. The Looper runs every 20 minutes, but it is so short, that if you miss a bus, you can likely walk to your destination before the next bus arrives.

Unless you are traveling from the north end of the Looper (around 5th Avenue North) to the south end (along 6th Avenue South), you can probably walk to your destination in 20 minutes or less. If you are making this trip, you can take the Looper, but you can also take Route 4 which is more direct and more frequent than the Looper.

A key feature about the Looper is that it is free to ride. Decreasing transit fares is known to increase ridership, even when service levels are held constant. Reducing fares to zero has a particularly big impact on ridership because it reduces two kinds of costs for potential riders: the dollar cost of the fare itself, and the hassle of getting information about the fare and then finding a way to pay the fare. It also speeds up bus service by reducing the time it takes riders to board, part of the dwell time at stops, which allows the transit provider to run more efficiently.

Route 32 is also a short circulator route that provides service in Downtown St Petersburg. It is less frequent, running every 35 minutes, and it is also a one-way loop. Out of PSTA's routes that run more frequently than every 60 minutes, the Looper and Route 32 are the least productive routes with 5.5 and 6.8 boardings per service hour, respectively.

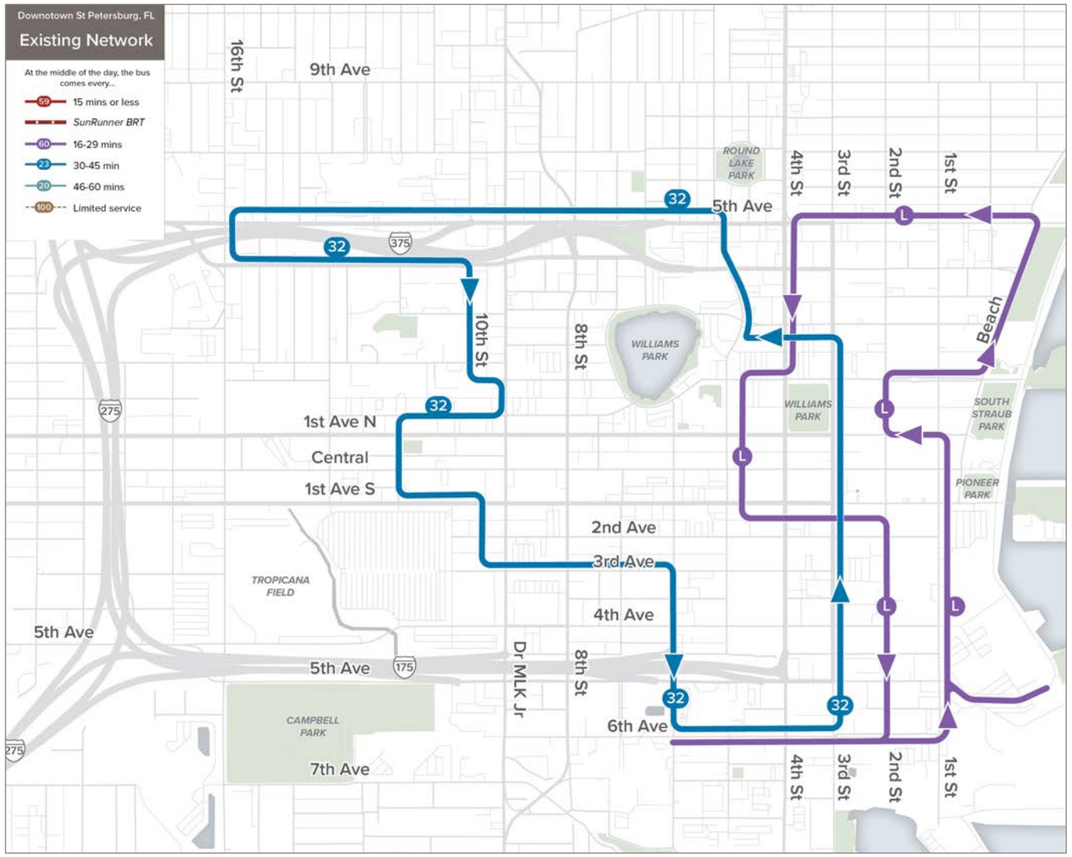


Figure 45: The Looper in Downtown St Petersburg is very short.

Routes with deviations and loops on them can only feel direct to the people who are bound to or from the deviation or a place along the loop—for most other riders, they often feel like a waste of time. People almost never want to be taken out of direction when they are on their way somewhere. This is part of the reason that linearity is one of the five geographic indicators of high ridership potential.

Loops in particular suffer from the challenge that a direct trip along the loop will likely have a very long return trip to get back to your origin, as seen in the abstract example below. In the case of the Looper, if someone wants to ride from the Hilton on 4th Avenue South to the Pier, they have a relatively direct trip to save them the 1/2 mile walk. The return trip, however, would be quite long and out of the way as it would require riding up to 5th Avenue North, across to 5th Street, before coming back to 2nd Street and 3rd Avenue South.

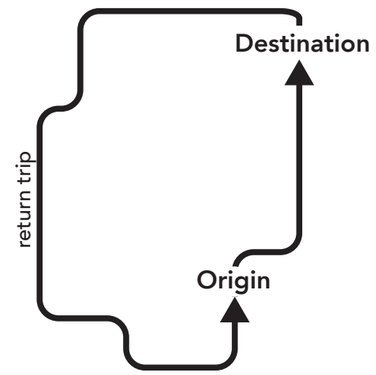


Figure 46: In a one-way loop, the more direct the service from A to B, the more circuitous it's likely to be on the return trip.

Connections and Pulsing

It's unlikely that all the places you might want to go will be located on the bus line nearest to your home. Connections allow people to travel in many directions to reach more destinations. PSTA has several transit centers throughout its service area, but doesn't provide any timed transfers, also called pulses.

Normally, the amount of time a transfer takes depends largely on the frequency of the connecting routes. For an un-timed connection, transferring to a route that comes every 60 minutes requires a 30-minute wait, on average, and in the worst case a 59-minute wait.

In a timed transfer, many routes reach the transit center at the same time and depart five minutes later. These five minutes allow passengers to connect between routes easily. Timed transfers are very important to allow people to use more of the network.

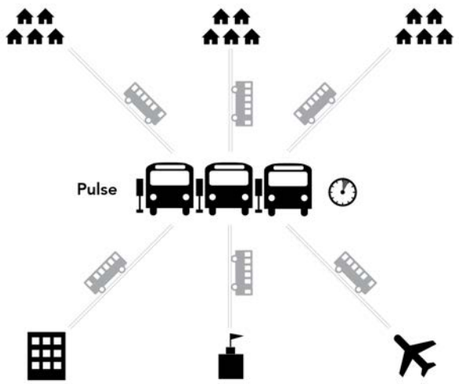


Figure 47: In a timed transfer, routes arrive at the same time, dwell for a few minutes so that passengers may transfer among them, and then depart again.

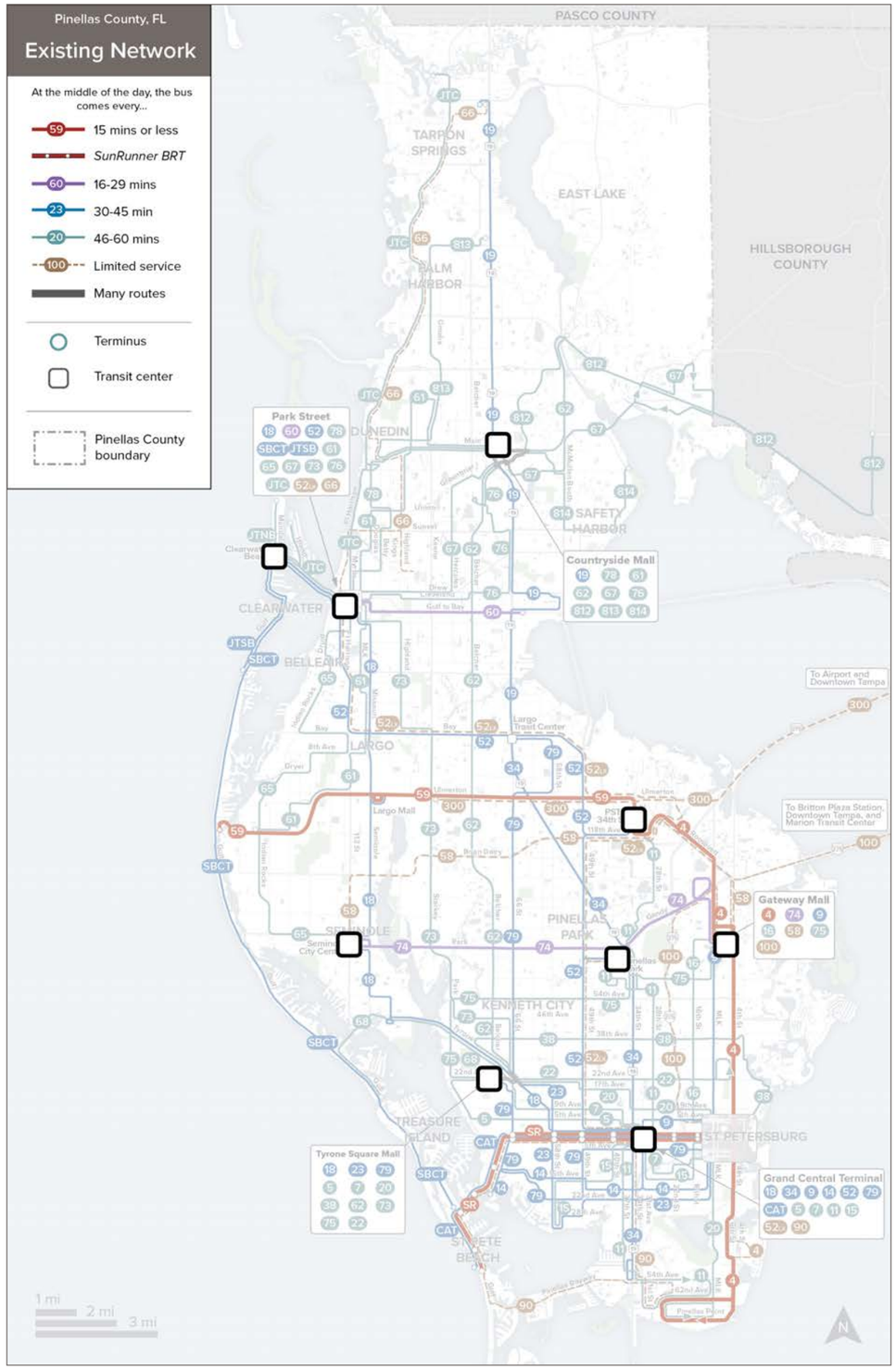


Figure 48: Transit Centers in the PSTA network.

Grand Central Terminal

Grand Central Terminal is roughly located halfway between downtown St Petersburg and St Pete Beach. While Central Avenue and 34th Street are relatively high ridership corridors, the biggest node of activity is Downtown St Petersburg while the nearest major destinations to the west are St Pete Beach and Tyrone Square Mall.

Because of the location of Grand Central Terminal, many routes are designed to deviate into it while also reaching other key destinations. Routes 7, 14, and 15 have circuitous paths as they try to go to both Downtown St Petersburg and Grand Central Terminal.

Today, many other routes end at Grand Central Terminal, but there is no timed transfer there. People connecting to the SunRunner have less of a challenge since it is frequent. Yet if riders are transferring to another route on their trip back they will still have to wait for their other bus. One option is to have a timed transfer at Grand Central Terminal. Having a timed connection would require more people to transfer, but it could make the entire network more useful.

Difficult Connections

When two routes cross at an intersection, people can often get off of one route, walk to another bus stop, and get on the other route. However, this is only possible if it is safe for the pedestrian to cross the streets to get from one bus stop to the other. Across Pinellas County, there are several intersections that were built thinking only about cars. As a result it is not comfortable or safe for pedestrians to cross.

In these unsafe situations, PSTA's best choice is to deviate the routes to a common off-road location where passengers can safely transfer. But deviating a route costs time and money.

The images on the right show the intersection of US-19 and East Bay Drive, where Routes 34 and 52 cross. This huge intersection is unsafe for pedestrians to cross, so it makes transferring difficult. PSTA does the safest thing possible by deviating the routes to an off-road transfer facility at the Walmart. Here, passengers can safely get off of one bus and get on another.

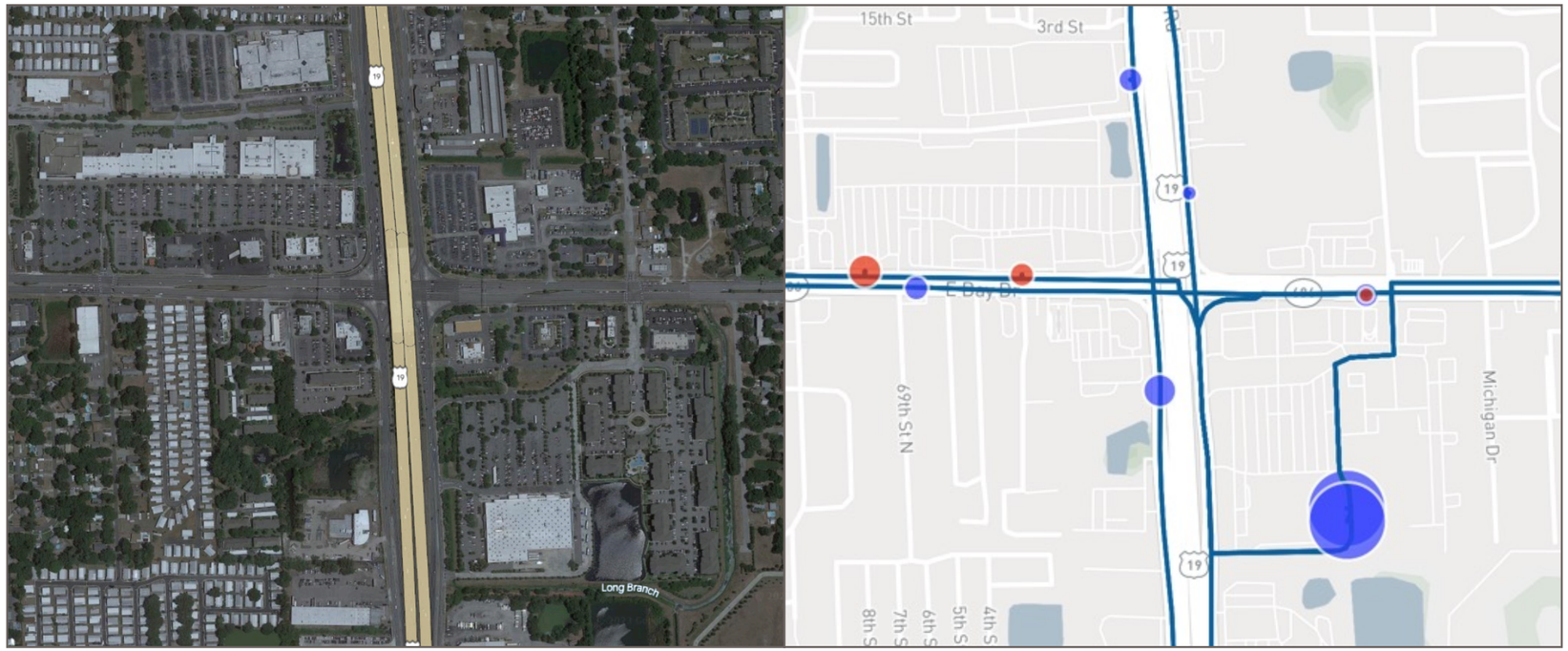


Figure 49: Because many intersection are not friendly for pedestrians, PSTA often has to deviate service to an off-road transfer facility.

Deviations and Complexity

Routes with deviations on them can only feel direct to the people who are bound to or from the deviation—for most other riders, they often feel like a waste of time. People almost never want to be taken out of direction when they are on their way somewhere. This is part of the reason that linearity is one of the four development patters that affect ridership.

The other reason linearity is an indicator of high ridership potential is that circuitous and deviating routes are simply longer, and therefore cost more to operate. The longer a route is, the lower the level of service it can offer for the same cost. The shorter a route is, the more can be spent on frequency or long spans. Deviations are often used as a coverage tool. They bring service close to a larger number of people and places. They reduce walking distances to bus stops. In most cases, they discourage more ridership than they attract, but ridership is not the goal of a coverage service.

In St Petersburg, Routes 7, 11, 14, and 15 deviate to go into Grand Central Station.

Route 52 deviates into the 34th Street Transfer Center.

Route 4 has a double loop at Gateway Mall.

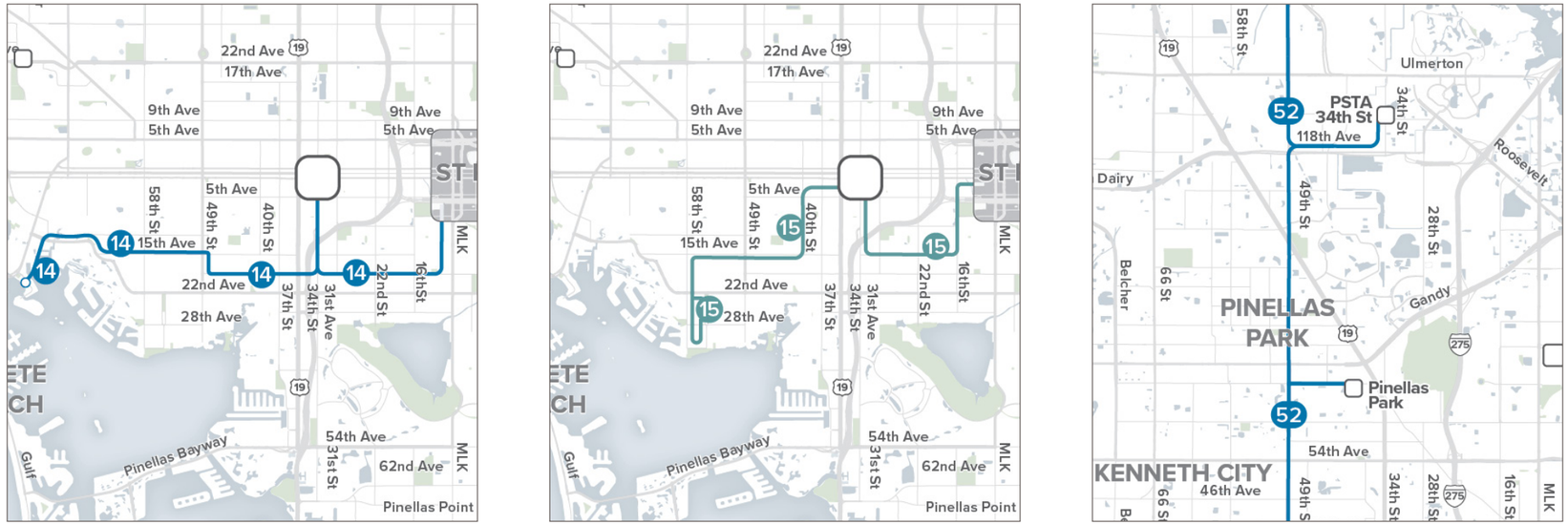


Figure 50: Routes 14, 15 and 52 have indirect paths.

Figure 51: Route 4 loops around Gateway Mall twice in each direction.

Shorter Walks or Shorter Waits

Transit service being divided among more streets inevitably leads to lower frequencies on each street, and therefore longer waits. This is used as a coverage tool to get buses as close to people as possible. However, if someone misses their bus, the wait is quite long.

If parallel routes can be consolidated onto a few main streets, frequency can be made better and waits can be shorter. However, longer walks would be required. This is why walking distance and waiting time are linked in any transit network, and trade-off against one another.

If two routes on parallel streets come every 30 minutes, then they can be combined onto the same street to arrive exactly 15 minutes apart, and someone traveling a short distance could wait at a single stop for either bus. This is exactly the case with Routes 14 and 23 as they traverse 18th Ave S and 22nd Ave S in South St Petersburg where they are only a quarter-mile apart. If they were combined, they could provide more frequent service. This is one approach to increasing frequency on some corridors without significantly sacrificing coverage.

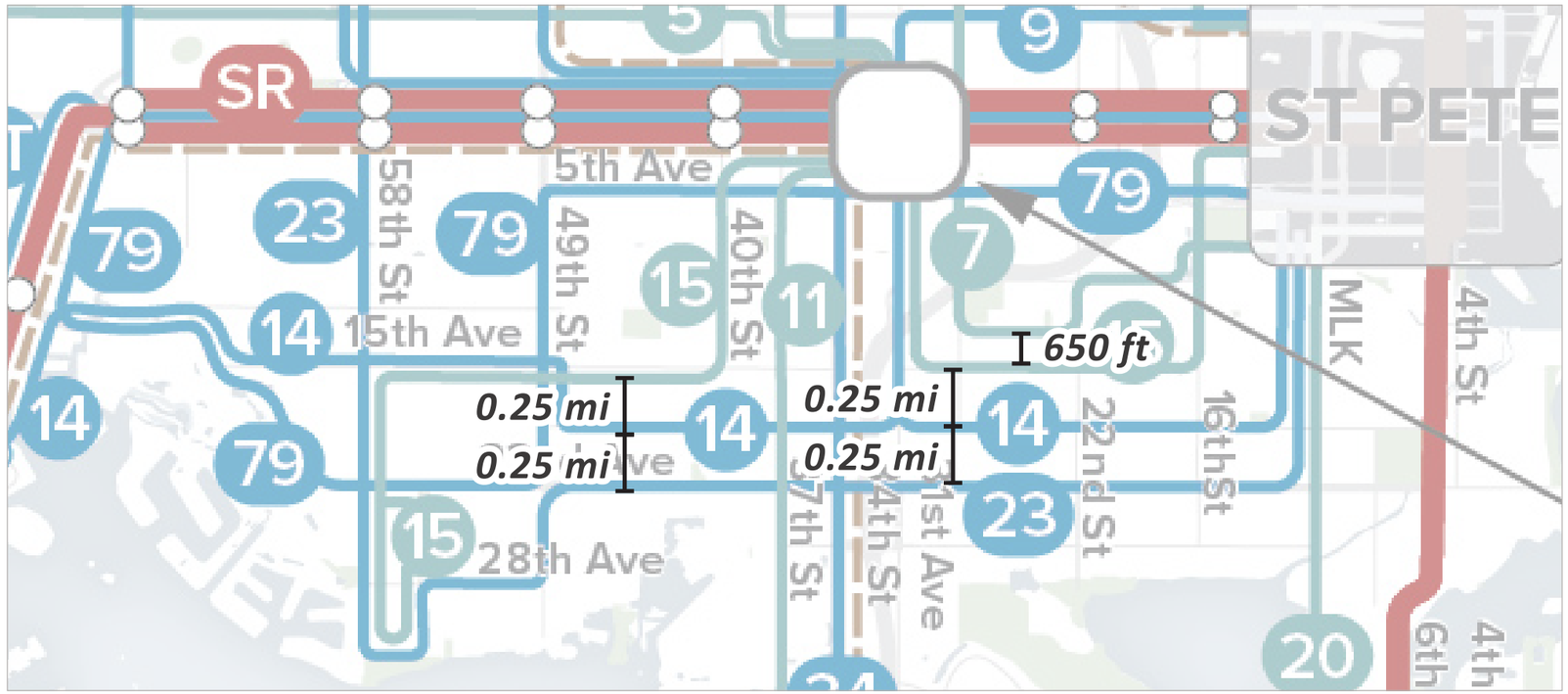


Figure 52: Most routes in South St Petersburg are spaced a quarter-mile apart.

Close Stop Spacing

On most local routes in Pinellas County, stops are about every 0.17 miles (900 feet) apart. For many people along a route, it is easy to walk to any of several stops on a route. Several stops are not necessarily better.

There is a geometric trade-off between closer stop spacing and faster bus speeds. The figure on the right shows the basic trade-off in conceptual terms. As stops are placed farther apart, buses can travel faster and cover more distance in the same time. Faster bus speeds are of greater importance for longer routes and longer trips, and many routes and trips in Pinellas County are quite long, especially in the north or south direction.

Most of the time required at a stop is not proportional to the number of passengers served. Much of the time lost when stopping for passengers is the time to slow down, open the door, and pull back out into traffic. That time is about the same for 1 passenger or 50.

When there are many stops, passengers spread themselves out among them, so the bus stops more for the same number of people. When passengers gather at fewer stops, stopping time is used more efficiently, resulting in faster operations.

Increased speed has two benefits. First, riders can get farther faster and reach their destinations sooner. Also, as speeds increase across the entire transit system, more service can be provided for the same cost. Since the primary cost of transit service is the cost for labor, which is paid based on time worked, the faster buses operate, the more service that can be provided for the same cost. Higher frequency could be provided or routes could be extended to go farther for the same cost.

There are two major downsides to widening stop spacing. First, some people have difficulty walking and will be inconvenienced by a longer walk. Seniors and people with disabilities are more likely to feel inconvenienced by this change. Second, as stops are spaced farther apart, transit becomes less useful for very short trips. This is because walking distances at each end of the trip increase to the point that very short trips would be faster by walking or biking. Some communities view this as a good thing, arguing that the point of transit is to provide an alternative to driving, not to walking.

One key to a successful revision of stop spacing is for it to be a consistent policy applied in all comparable circumstances, and tied to a clear system-wide benefit in travel times. Many transit agencies have successfully widened stop spacing where these benefits were clear.

Most transit agencies, including PSTA, have networks that draw some compromise between maximizing the number of people who have short walks to a bus stop and maximizing the speed of service by having stops farther apart. It is worth asking the question:

What is more important:
Having very short walks to a stop, even if it means slower service and longer trips?
Or having longer walks to a stop and having faster bus trips and, potentially, more bus service?

Wider stop spacing can increase bus speeds, making trips faster and cheaper to operate.

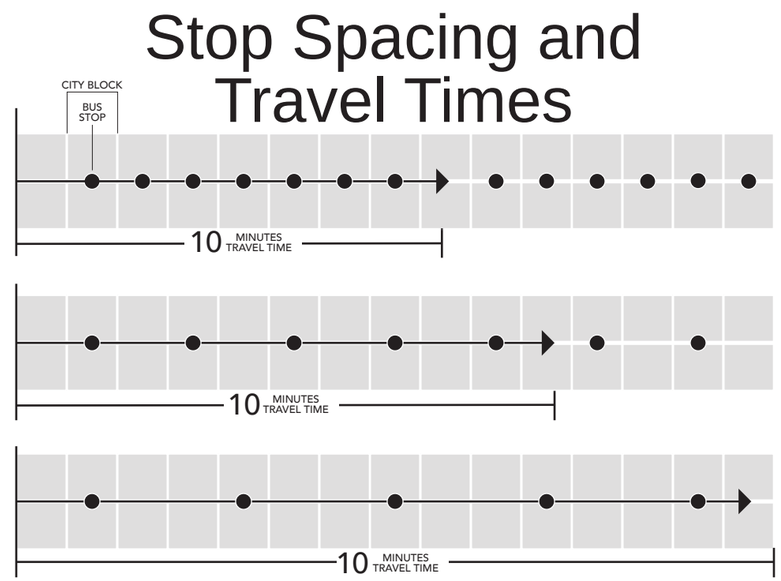


Figure 53: Trade-off between stop spacing and travel time

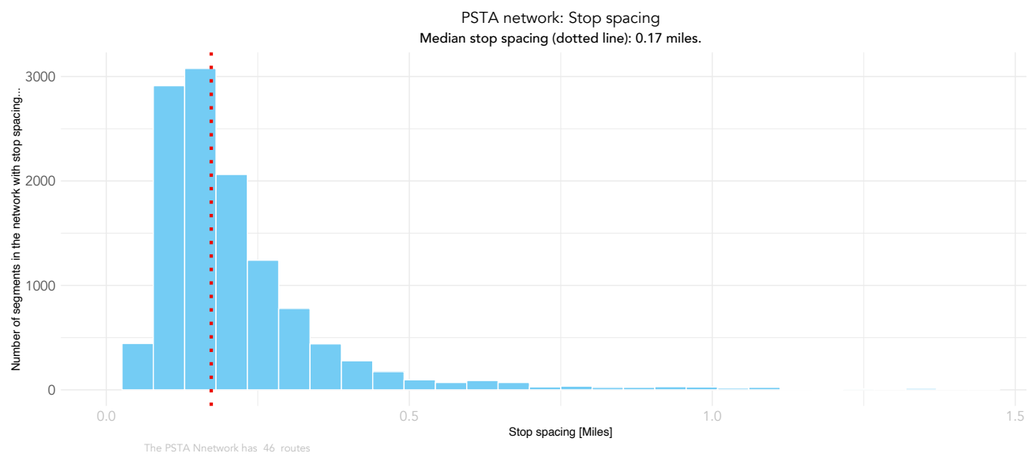


Figure 54: Median stop spacing for PSTA service.

Crowding

Data about the transit network can also be collected from customer input on mobile applications. The maps on the right show how many riders rated their trip as “crowded” on Transit App during the AM peak, the midday and the PM peak. This data is subject to the user’s interpretation of crowding, but it can give us a sense of how crowded a bus route is relative to others.

During the AM peak, the most crowded service was Route 22—over 60% of users rated the bus as “crowded”. Route 58 was also quite high with 46-60% of users rating it as “crowded”. Routes 67, 75, and the SunRunner are on the next cohort—31-45% of users rated them as “crowded”.

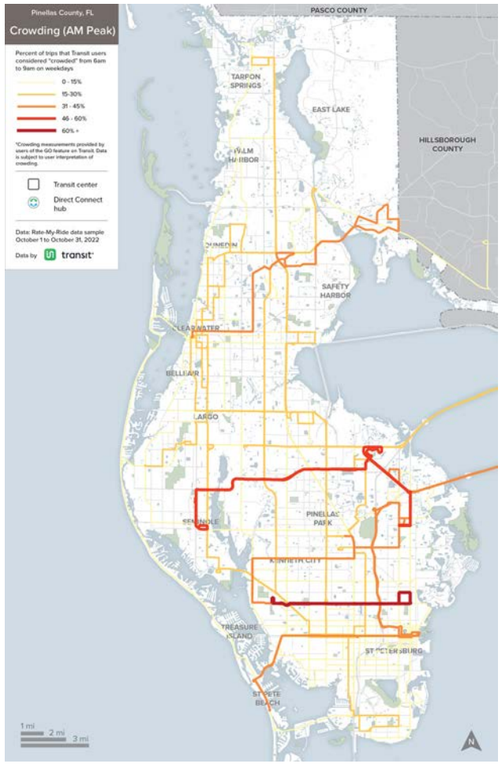
During the midday, very few users rated the bus as “crowded” compared to the peak periods. The only route that stands out as crowded is the Jolley Trolley Coastal Route with over 46% of users rating it as “crowded”.

During the PM peak several routes have some crowding including Routes 11, 58, 60, and 100. However, none of these have a level of crowding as high as some routes in the AM peak.

Some of the crowded services during the peaks are routes that are not very productive (they don’t get many boardings per service hour) as shown on page 39. This data suggests that the few people that are riding these buses are riding them at the same time and over long distances.

In the case of peak-only services, like Routes 58 and 100, people are riding the bus together in one direction, so the bus gets crowded. However, in the other direction, the bus is empty. So, when we calculate the ridership per service hour, these routes are not very productive.

AM Peak



Midday

PM Peak

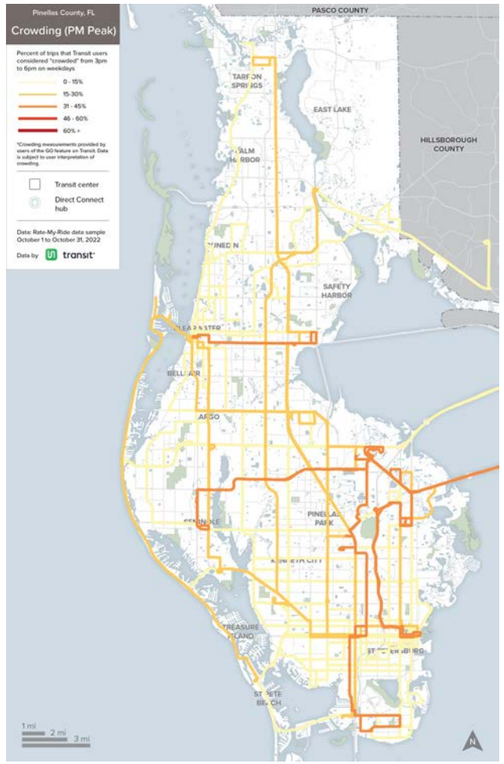


Figure 55: Crowing throughout the PSTA network during the peak periods and the midday.

5 Key Choices

Key Choice: Ridership or Coverage

Pinellas County has a unique opportunity to rethink the purpose of the transit network, and how transit relates to other ways of getting around such as walking, cycling and driving. This Community Bus Plan is an opportunity for everyone to carefully consider how PSTA is spending its transit budget, and the goals and priorities for transit.

The focus of the Community Bus Plan is on what can be done in the next few years, so we can't assume that any new resources are available. This means some hard choices have to be made. This does not mean that Pinellas County thinks that the resources available to provide transit service today are adequate. Nor does it mean that transit couldn't be expanded in the future.

We would like the community to help us decide on the best use of the funds currently dedicated to transit.

Ridership or Coverage?

This Community Bus Plan is a unique opportunity for the County to consider and clearly define the right balance between desirable but competing goals for transit.

The current transit network is a legacy of past generations, and has accrued years of good intentions, good ideas, stop-gap measures, and special requests. Much of the existing network may be worth keeping as is, perhaps because it suits Pinellas County and its values, or perhaps because it is known and familiar to riders, which is a value in and of itself.

It is also possible that since this transit network was last reviewed, Pinellas County has changed enough to justify a fresh start. Transit networks are intricate, interwoven, living things, and adapting them incrementally over time is very difficult.

The most difficult choice for the public, elected officials, and stakeholders will be between providing high frequency, long-span services in order to attract high ridership and providing wide coverage.

Recall that high ridership serves several popular goals for transit, including:

- Competing more effectively with cars, so that the County can grow without increasing traffic congestion.
- Collecting more fare revenue, increasing the share of the transit budget paid for by fares.
- Making more efficient use of tax dollars by reducing the cost to provide each ride.
- Improving air quality by replacing single-occupancy vehicle trips with transit trips, reducing greenhouse gas emissions.
- Supporting dense and walkable development and redevelopment.
- Extending the most useful and frequent services to more people.

On the other hand, many popular transit goals do not require high ridership in order to be achieved, and instead are achieved by providing transit coverage of many places. These include:

- Ensuring that everyone in the service area has access to some transit service, no matter where they live.
- Providing basic transit access for people who cannot use personal vehicles.
- Serving newly developing places, even if they don't yet have the size or density to constitute a large transit market.

This choice is not binary. A transit agency can pursue high ridership and extensive coverage at the same time, but the more it pursues one, the less it can provide of the other. Every dollar that is spent providing very high frequency along a dense mixed use corridor is a dollar that cannot be spent bringing transit closer to each person's home or reaching residential areas in the less dense parts of the County, and vice versa.

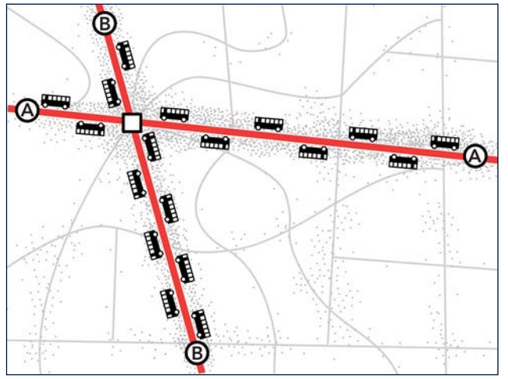
Making the Decision

In a network designed solely for high ridership, a lot of service is concentrated in the places which have the strongest market for transit: more density, walkability, linearity, and proximity. Transit runs frequently and longer during the day to provide useful service. A few routes can be extended to other dense areas in Pinellas County or places with high ridership potential, but most low-density places have very little, or no, transit service.

In the network designed solely to maximize coverage, many routes serve a large proportion of the developed area of the County, but are not very frequent. Most people have some transit service very near to them, but they have to wait longer for the bus to arrive.

No public transit agency focuses solely on either of these goals. Most transit agencies have some direct, frequent, long-span routes on which ridership and productivity are high, and others which run at lower frequencies and more limited times, for specific coverage purposes. We suggest that people think about this choice not as binary, "yes-or-no" decision, but as a point on a sliding scale that the community can help to set.

Ridership Network



Coverage Network

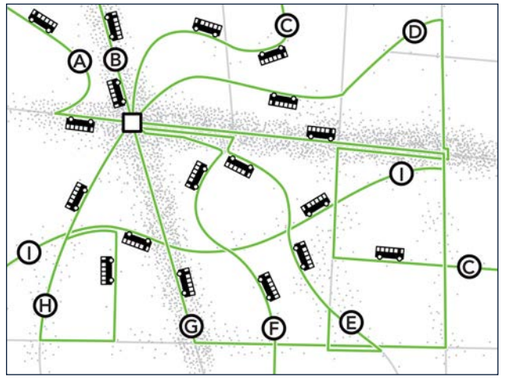


Figure 56: Ridership and coverage goals, while both laudable, are in direct conflict within a fixed budget.

How much of PSTA's budget should be spent on the most useful service in pursuit of high ridership? How much should be spent on providing coverage?

Key Choice: Walking or Waiting

Walking or Waiting?

Another way to think about the question of ridership and coverage is to think specifically about how far a person should have to walk to reach a bus stop, and how long they should have to wait, on average, before the next bus comes.

Walking and waiting are important to consider on their own, because both of these activities add time and inconvenience to any transit trip, and different people have a wide variety of preferences regarding each.

For example, a young person without disabilities who is in a hurry might have no problem walking over a half-mile to a bus stop if the bus is always coming soon. An older person or person with a disability might prefer to have a bus stop much closer to their front door, even if it means they need to memorize the bus schedule or risk waiting a long time.

When transit is divided among several streets, each route will inevitably have a lower frequency on each street. This can be a coverage tool get service close to where many people live. They will have to walk less, but wait a long time. This is the case in South St Petersburg where there is a different route on every street. Therefore, routes are spaced every quarter mile or less.

If parallel routes can be consolidated onto a few main streets, frequency can be made better and waits can be shorter. However, longer walks would be required. This is why walking distance and waiting time are linked in any transit network, and trade-off against one another.

If two routes on parallel streets come every 60 minutes, then they can be combined onto the same street to arrive exactly 30 minutes apart as shown on the right. This is exactly the case with Routes 14 and 23 as they traverse 18th Ave S and 22nd Ave S in South St Petersburg where they are only a quarter-mile apart. If they were combined, they could provide 15-minute service. Someone might have to walk farther to reach a bus stop, but they will have to wait less to get on the bus.

Does the community want people to have a short walk to transit but a long wait or a longer walk for a shorter wait?

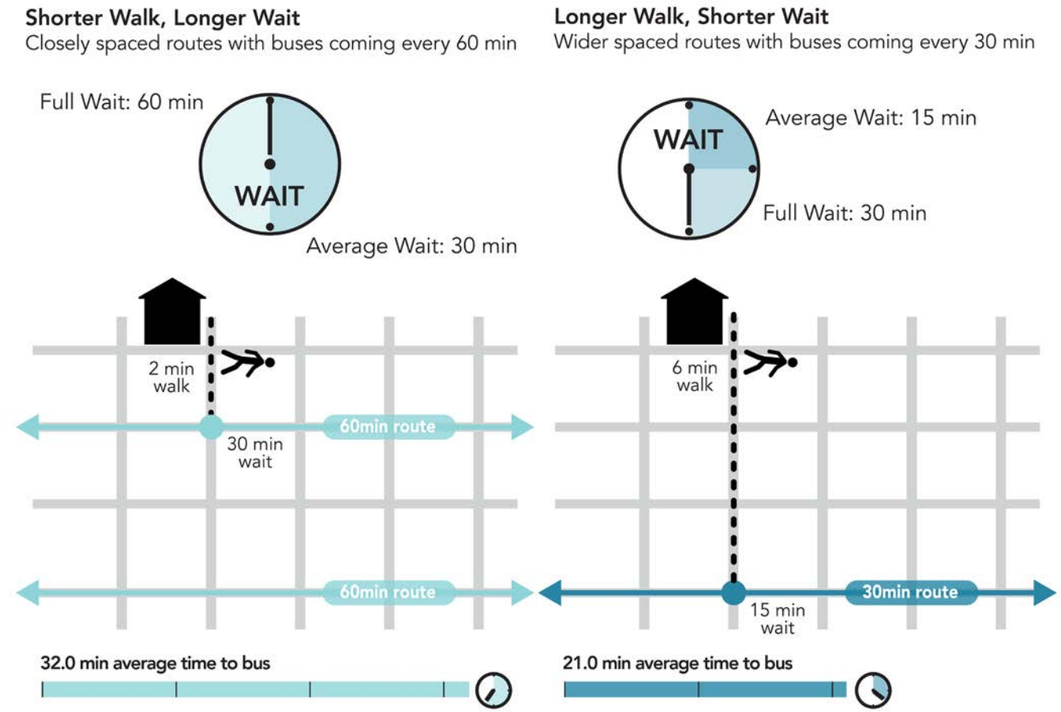


Figure 57: If service is spread out, people can have a short walk to transit but a long wait. If service is concentrated on major corridors, people can have a longer walk for a shorter wait.

Key Choice: Stop Spacing

On most local routes in Pinellas County, stops are about every 0.17 miles (900 feet) apart. For many people along a route, it is easy to walk to any of several stops on a route. But a customer does not need several stops; they need one stop. There is a geometric trade-off between closer stop spacing and faster bus speeds. The figure on the right shows the basic trade-off in conceptual terms. As stops are placed farther apart, buses can travel faster and cover more distance in the same time.

This is because most of the time required at a stop is not proportional to the number of passengers served. When there are many stops, passengers spread themselves out among them, so the bus stops more for the same number of people. When passengers gather at fewer stops, stopping time is used more efficiently, resulting in faster operations.

This increased speed has two benefits. First, riders can get farther faster and reach their destinations sooner. Also, as speeds increase across the entire transit system, more service can be provided for the same cost. Since the primary cost of transit service is the cost for labor which is paid based on time worked, the faster buses operate, the more service that can be provided for the same cost. So, higher frequency can be provided or routes can be extended to go farther for the same cost.

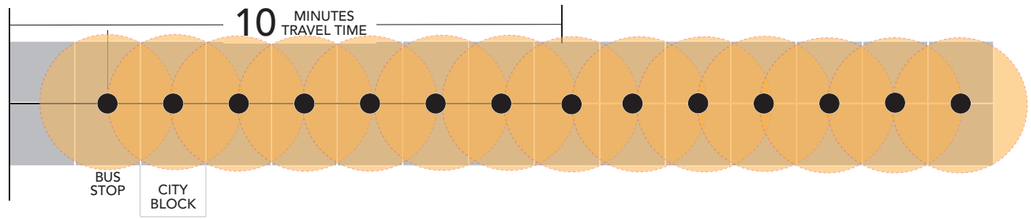
There are two major downsides to widening stop spacing. First, some people have difficulty walking and will be inconvenienced by a longer walk. Seniors and people with disabilities are more likely to feel inconvenienced by this change. Second, as stops are spaced farther apart, transit becomes less useful for very short trips. This is because walking distances at each end of the trip increase to the point that very short trips would be faster by walking or biking. Some cities and agencies view this as a good thing, arguing that the point of transit is to provide an alternative to driving, not an alternative to walking.

One key to a successful revision of stop spacing is for it to be a consistent policy applied in all comparable circumstances across the County, and tied to a clear countywide benefit in travel times. Many transit agencies have successfully widened stop spacing where these benefits were clear.

Most transit agencies, including PSTA, have networks that draw some compromise between maximizing the number of people who have short walks to a bus stop and maximizing the speed of service by having stops farther apart. It is worth asking the question:

What is more important:
Having very short walks to a stop, even if it means slower service and longer trips?

Or having longer walks to a stop and having faster bus trips and, potentially, more bus service?



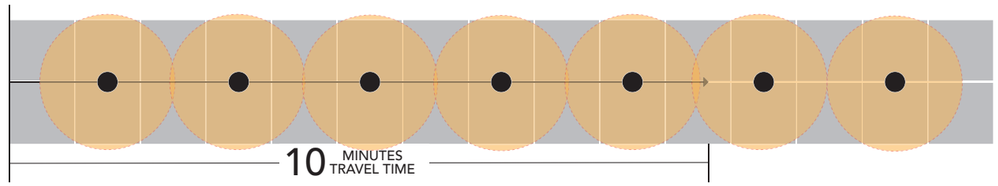
Closer stop spacing means:

shorter walks to a stop

slower bus speeds

less reliable service

longer travel time for many trips



Wider stop spacing means:

longer walks to a stop

faster bus speeds

more reliable service

shorter travel time for many trips

more amenities at each stop

higher average access

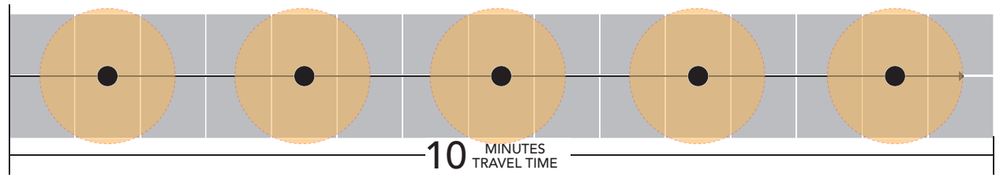


Figure 58: Trade-off between stop spacing and travel time

Key Choice: Connections vs Complexity

Most transit networks start out as networks with relatively few transfers between routes (we often call these Direct Service networks). Yet, as a community grows bigger, Direct Service networks become massively complex. At some point, cities make a transition from a Direct Service network to a Connective one, a transition that often requires severing direct links that people are used to in order to create a structure of very frequent service that is more broadly useful and legible.

The current PSTA system has many long routes that get to a transfer center, but connections to other routes are not timed. Normally, the amount of time a transfer takes depends largely on the frequency of the connecting routes. For an un-timed connection, transferring to a route that comes every 60 minutes requires a 30-minute wait, on average, and in the worst case a 59-minute wait. With a timed transfer, the time to connect from one route to another can be as little as five minutes.

Is the community willing to restructure some routes to have timed transfers?

The PSTA network is quite complex in some areas, with many long infrequent, indirect routes designed to minimize transfers across the large service area. The network also includes many shorter routes designed to provide service within a few areas. There is a lot of overlap and inconsistent spacing between routes in some areas.

This is the case St Petersburg. Routes 7, 14, and 15 have circuitous routing to get to both Grand Central Terminal and Downtown St Petersburg. A more connective network could reduce total trip time over a broad area, provide better frequency, and be simpler because they have fewer routes. We do not want to imply, however, that connective networks, which require more transfers, have no downsides.

The largest disadvantage is simply the effort required. Partway through your trip, you must gather your things, exit the bus, possibly walk to another stop, and wait for another bus. The walk will be very short, and the higher frequencies mean that the wait will be short as well. Many of these connecting stops will have shelters and transit system information. But it will still be an inconvenience. The level of effort may also be greater for people with limited mobility.

The second disadvantage is that transferring can compound risks associated with reliability. There is always the fear of missing a connecting bus and being stuck at the transfer hub. In a connective network, this will only occur in cases of major disruption. In routine operations, there should be so many buses along each route that waits would be short. This advantage is not available to lower-frequency networks which depend on pulsing for transferring.

Because they involve consolidation of service to increase frequency, Connective networks also mean that more walking is required to access higher frequency service. As such, the connections-or-complexity question is related to the waiting-or-walking question as well as the broader ridership-or-coverage question.

In the **Direct Service Option**, on the left, there are nine routes in the network and everyone has a one-seat ride, but everyone must wait, on average, 30 minutes for a bus and therefore fewer people find service useful.

In the **Connective Option**, on the right, there are only three routes and only one-third of trips have a one-seat ride, but the average wait for a bus is now only 10 minutes, and even if you must transfer, your total waiting time is only 20 minutes, 33% less than in the Direct Service Option. So more people find the service useful.

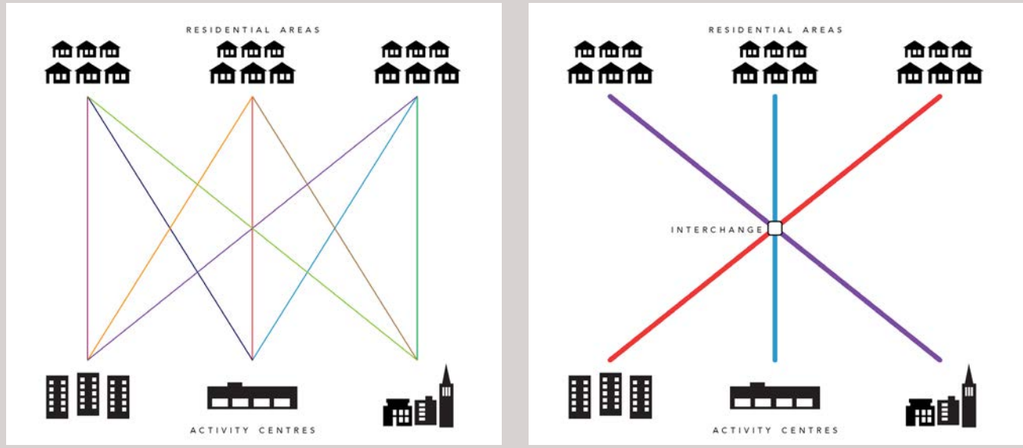


Figure 59: Example of the Connections versus Complexity Trade-off for a simple town.

Key Choice: Peak or All-Day

Demand for transit service tends to be higher at peak periods during weekday mornings and evenings. These peak periods occur at similar times of day as peak traffic on major streets and highways.

In the PSTA Network, Routes 5, 18, and 34 provide higher frequency during the peaks. Routes 58, 66, and 100, 300 only run during the peaks and have low productivity.

There are distinct advantages to focusing a transit network on peak-hour services. For example:

- Peak-hour services have the most potential to produce full buses.
- Peak-hour services have the highest potential for traffic congestion relief on regional streets and highways.
- Peak-hour services have the highest potential to relieve individual riders of the stress of driving.

However, focusing on peak-hour services also has real disadvantages and costs, such as:

- Services focused on peak demand require transit agencies to maintain large fleets of buses that sit unused at most times. These buses must be purchased, maintained, stored and replaced on a regular basis.
- Peak-hour services tend to have a higher average labor cost than all-day services because PSTA must pay drivers for more time driving to and from the garage without serving passengers.
- Also, split shifts for operators may cause long workdays, sometimes exceeding 12 hours, which can be arduous and difficult for operators.
- Peak-hour service tends to focus on the commuting needs of full-time office workers. But there are many other reasons to ride transit and many other types of potential riders. If service is only (or mostly) available at peak hours, many potential transit riders may find that they are able to make a trip in one direction but not in another.

Most transit agencies, including PSTA, have networks that draw some compromise between meeting peak-hour demand and maintaining some level of service for the many transit rides that occur at other weekday times and on weekends. However, it is worth asking the question:

What is more important: fully serving higher demand at peak hours, or providing a useful level of transit service all day, everyday?

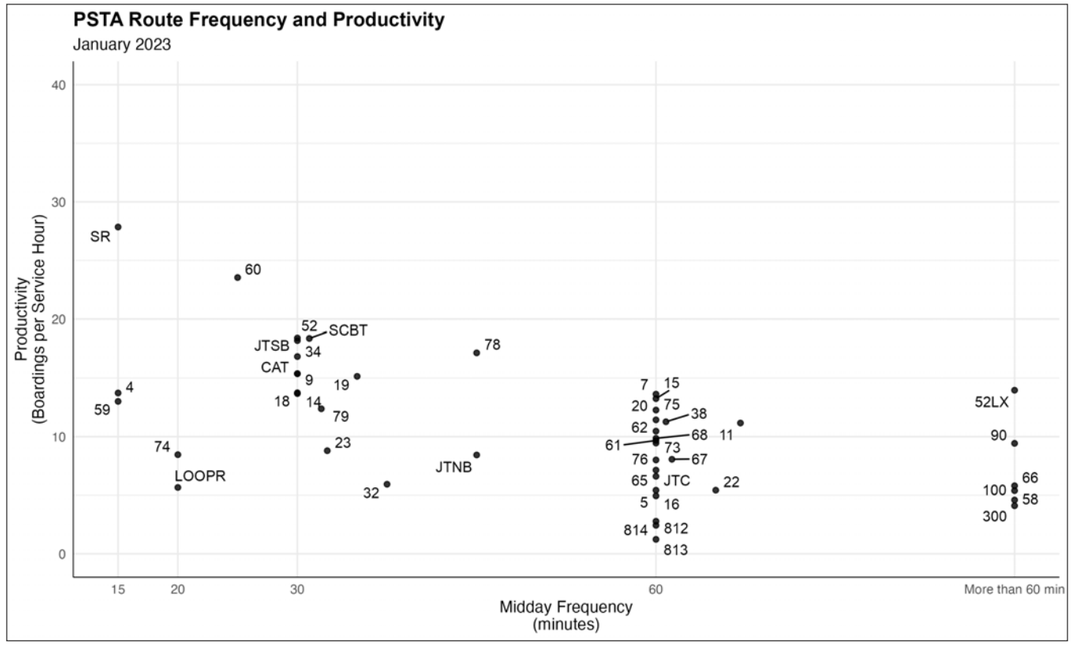


Figure 60: Some of PSTA's peak-only routes (58, 66, 100, and 300) are among the least productive in the network.

Key Choice: Transit Supportive Land Use

As discussed throughout this report, the built environment has a strong affect on transit's ability to succeed:

Density: How many people, jobs and activities are near each bus stop?

Walkability: How many of the people near the bus stop can actually walk to the bus stop?

Linearity: Can transit reach large numbers of people by traveling straight, direct paths?

Proximity: Can transit reach large numbers of people without crossing long, low-demand gaps?

Mix of Uses: Do people travel in both directions, all day?

Transit agencies are commonly placed in a very challenging position. They are expected to provide transit service but they have very little influence in how a city or region chooses to develop. Establishing a clear goal and direction for transit service, including a desired percentage balance of ridership and coverage services, and an agreement with the community on the level of service to provide, can allow a transit agency to more clearly communicate and work with partners in directing future development to be transit supportive.

Once clear direction on transit's goals are set, it becomes easier for the city agencies and regional partners to see how their land-use decisions will encourage or discourage transit's ability to succeed, business developers will have a clear message on where and how best to build if they want the best access to transit, and the community will have a clearer understanding about where and when their transit network is working its best.

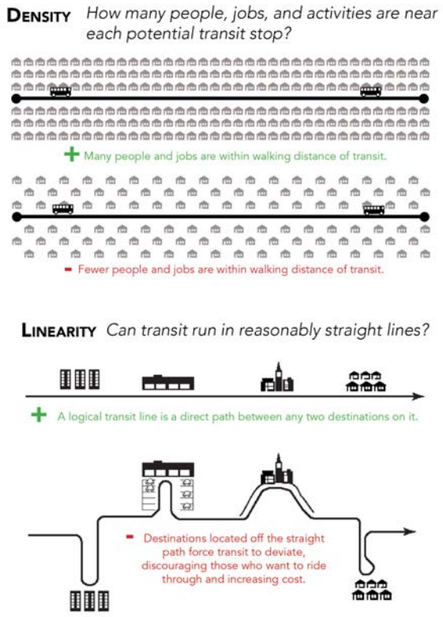
Critically, setting a permanent frequent transit network and a planned future frequent network can be a very powerful tool for the transit agency and city to communicate to the public, developers, businesses and others about where transit is a priority and where people and business should locate if they wish to have the best transit access possible.

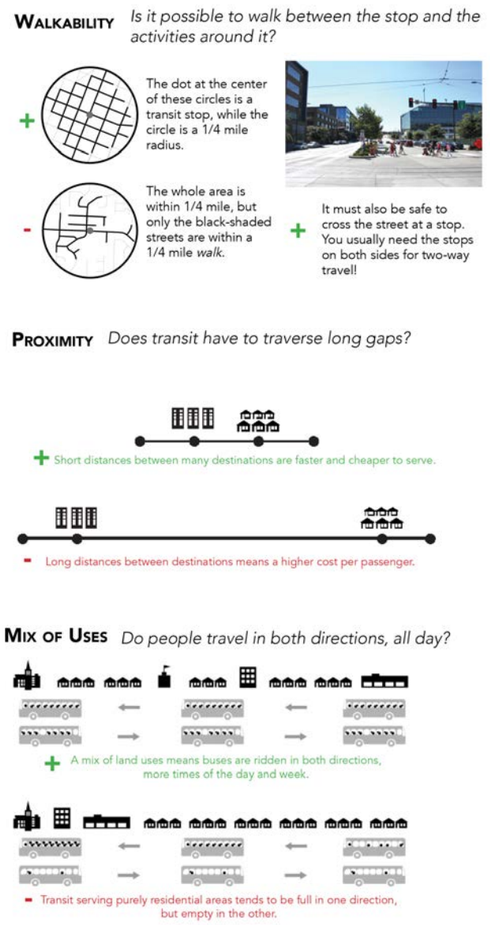
Even in a future with expanded bus service, someone has to pay the price of distance. Pinellas County has apartments, low-wage jobs and essential services spread across enormous distances. Every time new developments are put far away from existing development and existing transit, the people of the region bear the cost of that distance:

- Transit riders spend hours on transit, and hours waiting, to cover that distance.
- PSTA spends more of its budget on distance, which means less can be spent on high frequencies or long hours of service. This undermines ridership potential.
- More people have to own and maintain cars to access opportunities that in other regions are accessible by transit.

A long cascade of social, health, economic and environmental problems follow from those. The grim news is that transit cannot solve this problem. At current transit funding levels PSTA can hardly make a dent. Distance must be crossed, which takes time and money that can't be spent towards other things people value.

This planning process will examine ways that transit access can be increased, or valuable coverage can be added, despite the high cost of distance.





Next Steps

What happens next?

This Choices Report will inform public and stakeholder outreach as part of the Community Bus Plan. PSTA will be conducting surveys and other outreach efforts during the fall of 2023. That outreach process will include the key choices highlighted here and responses from the public and stakeholders will guide the overall direction on the next steps of the plan.

With direction from the public and stakeholders, the study team will design two conceptual networks that can help everyone see more clearly what a more ridership or more coverage-oriented network would look like for Pinellas County. Maps of those networks and measures like job access change, proximity to service, and speed of service will be summarized in a report for the public and stakeholder to review in the winter. The concepts will then be the center of another public conversation to determine the direction for the Community Bus Plan for PSTA.

For more information and to stay involved in the project, go to psta.net to

- take the Phase 1 survey;
- request a phone call, community presentation, or just email and check in with the project team; and
- generally stay up to date on the latest happenings with the Community Bus Plan!

Your voice matters!

Contact the project team and take the Community Bus Plan survey at psta.net