ENHANCED TRANSIT CORRIDORS
EXECUTIVE SUMMARY
PROLOGUE

Freedom means freedom to choose. We want to choose our careers, schools, friends, groups to belong to, and places to shop. You can also use the word opportunity to describe those same things.

But we have choices and opportunities only if we can get to them. Our crisis is that the places we need and want to go to are becoming harder to reach.

The city is growing denser, and density means more people trying to travel down every major street.

But the space available for travel can’t grow with population. The options for expanding travel space – widening roads or building tunnels and viaducts – cost a fortune and sometimes damage our city. Mostly we have to get better at sharing the space we have.
Cars take up a lot of space per person, so if we are all going to fit down the street in a growing city, we need relatively more people to travel without driving cars. Otherwise we will continue to get in each other’s way, which is what traffic congestion is. That means more people will find themselves cut off from jobs, schools, and other opportunities because it just takes too long to get to them.

These problems affect most community members sooner or later, but do not affect them equally. In the innermost neighborhoods, people live close to many opportunities that will be easy to reach no matter how gridlocked the streets are. But as people with low incomes move to outer neighborhoods in search of affordable housing, they end up having to travel longer distances to reach the same range of opportunities. If we give them no other choice than to go by car, we burden them with greater costs, and generate even more car traffic that our streets do not have room for. This is bad for our equity goals, bad for sustainability, and bad for quality of life.

Prosperity, too, is at stake. Businesses thrive only if customers and employees can reliably get to them in a reasonable amount of time. Those that compete for talent will lose out if their workers’ commutes are just too difficult.

**So when we talk about transportation, we’re talking about sharing space so that everyone can have a life rich with opportunities.** And when we talk about that, we’re talking about almost everything we care about.
If you want to move across the city while taking only your fair share of scarce street space, there are two ways to do it:

1. **Use a vehicle that’s not much bigger than your body, like a bicycle.**

2. **Share a vehicle with lots of other people, like transit.**

Both cycling and transit are critical to addressing the challenge of sharing space in a growing city.

Cycling is one of Portland’s great success stories. The share of Portland commuters who ride a bike to work rose from 2% in 2000 to 7% in 2014, and keeps rising as the city expands its infrastructure.
Transit, by contrast, seems to be stuck. The share of Portland commuters who ride transit to work has hovered around 12 to 13% since before 2000. The City’s adopted goals call for twice that number by 2035, but we don’t seem to be moving in that direction.

There is room for debates about what new technologies may affect transit demand, including dynamic ridesharing, e-bikes, and so on. But what can’t be debated is that high-ridership transit is the most efficient way to move large numbers of people in scarce space.

It’s clear, too, that high-ridership transit must be more than just light rail. Most of our population, and many of our jobs and attractions, are still not on the light rail network or its planned extensions. If those places are going to be reachable in a way that uses space efficiently, buses have to be allowed to succeed. While the tools and strategies discussed in this plan apply to the streetcar as well, buses are inevitably the primary focus, as they are the main form of transit reaching most residents, for the foreseeable future.
Some nearby cities have even less space per person than we do, and they are showing the way. **Seattle, San Francisco, and Vancouver, Canada, are all aggressively investing in bus services and giving them the space they need.** Apart from the 40-year old transit mall, Portland has not done this to the same degree, either as a city or as a region. We have scattered fragments of transit lanes or signal priority, but no plan to achieve the quality of service that matches our transit ambitions.

We can learn one other thing from the denser cities nearby. **Even if you have a great regional transit agency, city governments must play a leading role.** The City of Portland makes countless decisions that determine the success or failure of transit. Planning and zoning bureaus govern how many people will live where transit can get to them easily. A bus’s ability to move down the street depends largely on street design and signal technology, which (except for state highways) is the City transportation bureau’s role.

All of the success stories in similar cities feature strong city leadership on transit. A key step in Seattle’s transit renaissance was the city’s decision, starting with the 2007 Seattle Transit Plan, to adopt its own transit vision and align its actions with that vision. Seattle’s Department of Transportation has its own transit planning department that leads or coordinates these efforts. Today, Seattle has the fastest-growing transit ridership in the US, despite a rail network that is still much smaller than Portland’s.

This report, the Enhanced Transit Corridors Plan, is the first step toward thinking about Portland’s bus and streetcar services in the same way. It asks: **What does the city need to do to help more people move through the limited space on its streets, in a way that connects them with all the opportunities that make up a good life?**
DESPITE TRIMET’S BEST EFFORTS, PORTLAND’S BUSES ARE SLOWING DOWN.

The average speed of most of the major bus lines has fallen by 7-9% in the last eight years. That drop is just gradual enough that it never feels like a sudden crisis, but it adds up over time to a big loss in freedom and opportunity.

Map below shows the area that someone at a particular point could get to on transit in 45 minutes, in 2009 and 2017. For example, if you live near 82nd & Foster, the number of jobs you could get to on transit in 45 minutes has fallen 19%. If you’re a business at that location, the number of customers and employees who could get to you in that time has fallen 8%.

The Shrinking Reach of Transit
Reduction in access from 2009 to 2017

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>LOSS OF JOBS WITHIN 45 MINS</th>
<th>LOSS OF RESIDENTS WITHIN 45 MINS</th>
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<tr>
<td>15TH &amp; DEKUM</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>162ND &amp; DIVISION</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>C. CHAVEZ &amp; BELMONT</td>
<td>6%</td>
<td>10%</td>
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<tr>
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<tr>
<td>MLK &amp; KILLINGSWORTH</td>
<td>7%</td>
<td>9%</td>
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<tr>
<td>PIONEER COURTHOUSE</td>
<td>5%</td>
<td>11%</td>
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<tr>
<td>ST JOHNS</td>
<td>18%</td>
<td>10%</td>
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</tbody>
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SUPPOSE YOU’RE AT 82ND & FOSTER, AND YOU HAVE 45 MINUTES

In 2009, you could get anywhere in the red or blue areas by transit

Today, you can only get to the blue area

The number of jobs you could get to on transit in 45 minutes has fallen 19%

The number of customers and employees who could get to you in that time has fallen 8%
Places you used to get to easily now take too long. **Slower transit is pushing us apart, cutting us off from opportunity.** If the only way to get to opportunity is by car (whether driving yourself or paying someone else to drive you), people will go by car, making congestion worse. Some people even lose out on opportunities altogether, because they can't afford the high cost of driving.

What's more, as speeds drop, it takes a bus longer to drive the round-trip of its route, which means TriMet must put out more buses just to maintain the same frequency. If they didn't, slower buses would mean both slower rides and longer waits for passengers. TriMet is spending more money year after year to run the same frequency as service gets slower. **If the loss in speed could be halted, TriMet could spend that money on making service better**, with higher frequencies or longer hours.

Reliability is also a major problem. Random delays, many caused by traffic, make it hard for buses to stay on schedule, so the waiting time may be worse than published. This can lead to cascading delays all along the bus line, far from where the original delay occurred. This can have a major impact on people's daily lives. People who need to arrive at work on time, or who need to pick up kids from daycare or school, can't afford to have an unreliable transit system.
WHY IS TRANSIT DELAYED?

When we talk about average transit speed, we’re really talking about delay. We don’t really need buses to drive faster. What we need is for them to spend less time completely stopped, or stuck in traffic moving very slowly.

Transit delay has three major causes, which are also causes of poor reliability.

- Traffic congestion and friction. Buses get stuck in traffic, and they also get held up by little things. When general traffic is congested, often at bottlenecks approaching bridges, freeway ramps, and major signalized intersections, transit also gets stuck in this traffic if operating in mixed traffic. Additional little things that delay transit: A car blocks the lane while trying to parallel-park, or while waiting to make a turn. A delivery truck parks in the traffic lane. Even an open car door can be a problem. Buses can go around some of these obstacles, but not always. The streetcar, which lacks this ability, is even more vulnerable to them.

- Stopping time. Every time a bus pulls over to serve a stop, that reduces its speed. The more bus stops there are per mile, and the more likely each stop is to have a person waiting at it (or a person wanting to disembark at it), the more time a bus spends pulling over to stop, and then merging back into traffic again. The delay is exacerbated if drivers are unwilling to let buses back into the travel lane. Because every stop is more likely to be served in the peak travel times, this type of delay is at its worst level precisely when most passengers are trying to get to work or back home in a reasonable amount of time.

- Dwell time. Once the bus has stopped, its dwell time at the stop depends on how many passengers get on and off, and how fast they can do this.
TriMet has a lead role in dealing with many causes of dwell time at stops. The agency already uses low-floor buses with ramps that allow people to board and exit quickly in wheelchairs or mobility devices. Riders are encouraged to exit through the rear door, to speed up fare payment by boarding passengers at the front door. San Francisco speeds up boarding by allowing passengers to get on a bus using any door, just like on light rail and Streetcar in Portland. TriMet intends to try this on the Division Transit Project, and if it succeeds there, it could be extended over more of the network.

TriMet and the City share responsibility for placing bus stops, and deciding how many bus stops there should be per mile. Speed and reliability can be improved by asking passengers to gather at fewer stops. This has other benefits, too: the fewer stops there are, the better the amenities can be. Passengers also feel more secure waiting in groups than alone.

On traffic congestion and friction, though, the City of Portland must lead. On traffic congestion and friction, though, the City of Portland must lead. These kinds of delay are caused by street design, traffic signals, and sometimes law enforcement. The City mostly controls these things, so the City must lead in addressing them.
ENHANCED TRANSIT: BUILDING ON FREQUENT SERVICE

TriMet designates a small set of major bus lines as the Frequent Service network. Frequent Service transit lines run every 15 minutes or better most of the day, every day. At this level of service, a bus is coming soon whenever you need it, and it is easy to transfer from one line to another to travel in many directions. For this reason, high frequency is associated with high ridership. Frequent bus lines are always among TriMet’s busiest. They carry 58% of all bus ridership in the region. The streetcar is not formally part of TriMet’s Frequent Service network, but aspires to the same level of service, so we treat it as part of that network.

The City’s 2035 Comprehensive Plan and planning and zoning process is encouraging more density along much of the Frequent Service network, so over time an even larger share of the population will live on it. Therefore, it makes sense to focus our attention on those lines.

Enhanced Transit is the next step in improving the Frequent Service network so that even more people find it useful. **Enhanced Transit Corridors (ETC) are portions of the Frequent Service network that are high priorities for speed and reliability improvement**, as identified by this Plan.
IMPROVING TRANSIT SPEED AND RELIABILITY IS CHALLENGING

WHY THIS IS HARD

The street design changes needed to improve speed and reliability have monetary costs, but **the real challenge is the impact on other modes of travel and other street uses.** Where transit needs more space, it will most likely take space that’s now being used for another purpose, often as traffic lanes, signal time or on-street parking. There are many ways to mitigate these impacts but in most cases, there is no way to avoid them entirely.

Portland has adopted policy on modal hierarchy in the Portland 2035 Comprehensive Plan. Policy 9.6, the **transportation strategy for people movement, provides policy support for prioritizing transit over single-occupant vehicles.** The Enhanced Transit Corridors Plan is guided by this policy and provides tools for where and how to achieve it.

The design of individual streets requires choices about how strongly to implement this policy and which treatments from the Enhanced Transit toolbox to apply. This will require consideration for the street context and balancing multiple policies, including our Vision Zero policy and others. Many Enhanced Transit Corridors are also High Crash Corridors, so safety is of paramount concern. Care must be taken when implementing toolbox treatments that may reduce the safety and comfort of people walking or bicycling. In what circumstances is it acceptable to remove on-street parking? In what cases can car traffic capacity be reduced to create adequate space for transit? By how much? These are the difficult choices that must be made in the future, if Enhanced Transit is to succeed.
A key tool in building support for Enhanced Transit changes is tactical street redesign. In a tactical project, a proposed street redesign is implemented on a temporary basis, using tools that are easy to remove such as paint, signage, and movable traffic barriers. These experiments, implemented for a few months and evaluated at the end of that time, allow people to see what the impacts of the proposed street change really are before deciding whether to make them permanent.

**THIS PLAN IS A FIRST STEP TOWARD ESTABLISHING CITY POLICIES AND PRACTICES THAT WILL IMPROVE THE USEFULNESS AND ATTRACTIONNESS OF TRANSIT**

This plan does the following:

- Recommends a new approach to transit in Portland, focusing on High Capacity Transit, Enhanced Transit and Growing Transit (section 2.1).
- Recommends a New Vision for Transit that includes an initial network of Enhanced Transit corridors and other improvements to the transit system where addressing transit reliability, speed and capacity is most needed. A corresponding list of priority projects are recommended to be included in the Portland Transportation System Plan and the 2018 – 2040 Project list of the Metro 2018 Regional Transportation Plan (RTP) (section 2.2).
- Recommends additional policy recommendations, actions and next steps to be taken by the City to advance the implementation of enhanced transit in Portland (section 2.3).
- Recommends a City-wide Enhanced Transit Monitoring Program and on-going performance framework to improve transit reliability and speed. This program will set City-wide Enhanced Transit performance guidelines, help identify future Enhanced Transit projects and track transit performance on an on-going basis (section 2.4).
- Recommends an Enhanced Transit Capital and Operational Toolbox of treatments that are widely used in other cities to address these problems (such as bus lanes, signal priority and queue jumps) (chapter 3).
- Summarizes the planning process and initial analysis for identifying priority locations for bus speed and reliability improvements (chapter 4).
- Highlights a few examples of early implementation in Portland (chapter 5).
- Provides a look ahead to the Regional Enhanced Transit Concept Pilot Program, which provides an opportunity for Portland to advance project development and implementation of candidate locations (chapter 6).

Chapter 2 highlights the places in the city where the need for transit speed and reliability improvements are most urgent, but it does not recommend exactly what to do in each place. Instead, it lays out a process by which actions would be identified, developed, funded and implemented. The real goal is to set in motion a new approach to improving speed and reliability, to help meet the city’s goals for transit ridership.

**By improving speed and reliability, we make transit useful to go further. As a result, transit competes less with cycling and walking, and competes more with cars.**
To the right is the long-term vision for an improved transit network, as developed by PBOT in coordination with TriMet for inclusion in the Regional Transportation Plan. The map shows light rail and streetcar improvements from other planning studies, along with a potential rapid transit project on Powell Blvd. The streetcar projects are from the recent Portland Streetcar Expansion Study and operational analysis of the existing streetcar line. This plan has added the following:

- **Enhanced Transit – speed and reliability improvements** – eventually applied to most of the Frequent Service network, including the streetcar and these planned new Frequent Service lines identified in the TriMet Service Enhancement Plans:
  - 122nd Ave (Line 73);
  - Burnside NW 23rd to NE 99th (Line 20);
  - SE Stark, from 99th to city limits (Line 20)

- **Enhancements on the approaches to bridges in the Central City** that are heavily used by buses, especially the Steel, Burnside, and Hawthorne Bridges. These points are critical because cars, buses, bicycles, and pedestrians are all concentrated there, maximizing their potential to obstruct each other and especially for cars to obstruct transit. They are also the places where an improvement to transit speed and reliability will have the most benefit, because so many buses and passengers benefit. The Central City in Motion project will develop these ideas in detail.

In addition to the main ideas above, this report recommends numerous changes to City policies and practices, as outlined in Sections 2.1 and 2.3. See the most important on the following pages.
WHAT DO WE RECOMMEND?

- Establish an Enhanced Transit performance monitoring program (p. 19)
- Re-focus transit on serving longer trips (p. 20)
- Regularly commit City funds to plan and implement Enhanced Transit (p. 21)
- Include Enhanced Transit projects in the RTP for federal and regional funding (p. 21)
- Consider impacts to transit speed and reliability in every project (p. 21)
RECOMMENDATION

Establish an Enhanced Transit performance monitoring program

This Plan includes a programmatic framework for ongoing monitoring and investment in Enhanced Transit to improve transit capacity, reliability and speed in partnership with TriMet. This program will set City-wide Enhanced Transit performance guidelines, help identify future Enhanced Transit projects and track transit performance on an on-going basis.

Measuring the performance of transit is also about making transit riders count. When a bus is stuck in traffic or generally slow, so are all the people on that bus. This affects people further up the line waiting for the bus too.

We want to understand where delay is happening, how long, and what the nature of the delay is. Understanding these symptoms and where they are most severe will help us diagnose the problems, identify effective treatments and learn how well they work after implementation. On-going monitoring will enable us to identify new problems as they arise, measure improvements and track progress towards our goals.

One of the primary Tier 1 performance measures identified in this Plan is Transit Peak Delay. Transit Peak Delay measures how much transit, and all the people on it, slows down during the peak congested time of the day. The greater the percentage is, the slower the bus is and the longer it takes the bus to travel a route segment during peak congested periods versus more free flow traffic conditions. A higher percentage value indicates a higher level of variability and greater delay during the peak.

This plan recommends the following thresholds while monitoring Transit Peak Delay. Crossing these thresholds would be a trigger to take a closer look and take actions to improve performance:

- Over 75% peak delay variation = urgent priority to take closer look in Tier 2
- 50%-75% peak delay variation = take a closer look in Tier 2
- Below 50% peak delay variation = acceptable, take a closer look only if there is other cause for concern

When transit trips cross the 50% peak delay threshold, that means it takes 50% longer to travel during the peak congested time of the day. For example, if a transit trip is 20 minutes in the off-peak, then it may be 10 minutes longer during the peak, for a total trip time of 30 minutes.
RECOMMENDATION

Re-focus transit on serving longer trips

Transit is the optimal mode for trips that are more than about three miles long. For shorter trips, most people can go faster by bike and sometimes even by walking. Obviously, many people ride a bicycle longer distances and ride the bus for shorter ones, but this is a good general guideline that urban cities follow to develop transportation modes that work together rather than competing. The plan recommends that this focus on longer trips be established as city policy.

For short transit trips, the most important things to a potential passenger are finding a stop nearby and having a short wait for service, because the walking and waiting times make up a large proportion of the total travel time.

For long transit trips, the walking and waiting are proportionately less important, and the speed of travel, once you’re on board, matters much more. To get the fastest possible trip, it makes sense to walk further to a faster service, as people already do to reach MAX stations.

Much of Portland’s transit planning has focused on short trips. In the inner city, MAX, Streetcar, and buses have stops every few blocks, offering someone a short walk to service at the expense of a fast ride once they are on board. This easy “hop on, hop off” access has helped to foster great business districts and neighborhoods. But for the long trips that are increasingly a fact of life, especially for disadvantaged people in outer neighborhoods, the resulting service is just too slow.

The next generation of transit investment needs to shift the balance the other way.

Moving bus stops further apart is one key strategy to refocus transit on longer trips. The 2008 Downtown Transit Mall redesign was a first step in this direction, widening stop spacing from two blocks to four or more within downtown. The Streetcar has also removed some stops to speed up service. People need to have a reasonable walk to a transit stop, but asking people to walk a block further, especially in walkable areas with a good street grid, gets them (and everyone else) faster service. This in turn supports the city’s transit goals.

The other key strategy to emphasize longer trips is to use street design and transit signal priority to move buses more quickly and reliably through congested streets, especially in the Central City and inner neighborhoods where congestion is worst. Improvements in the most congested parts of a bus line will benefit everyone riding anywhere along that line, and will benefit people riding longer distances the most.
**RECOMMENDATION**

**Regularly commit City funds to plan and implement Enhanced Transit**

Enhanced Transit costs money to plan and implement. The City will need to commit new ongoing funding to this effort. The City currently spends only $75,000 per year on the Transit Priority Spot Improvement Program, through which most Enhanced Transit projects would be funded. Given the high cost of infrastructure, especially signals, a recommended annual budget of $500,000 would enable PBOT to more aggressively attack transit speed and reliability problems. Consideration to increase this to $1,000,000 per year overtime would provide more benefit.

**RECOMMENDATION**

**Include Enhanced Transit projects in the RTP for Federal and Regional funding**

Federal and regional funding for transit improvements requires that the projects be in the Regional Transportation Plan (RTP), which is prepared by Metro. Portland’s Enhanced Transit projects are recommended for inclusion in the RTP along with the other key projects in the New Vision for Transit (pages 16-17).

**RECOMMENDATION**

**Consider impacts to transit speed and reliability in every project**

Anything PBOT does along a Frequent Service street may affect the speed and reliability of transit service. For this reason, Enhanced Transit must be an approach to the whole task of street design, not just a separate set of projects. This Plan recommends that transit speed and reliability improvements be considered in any plan or project to physically improve streets that carry transit lines. It is also important to ensure that new projects of any kind do not unnecessarily harm transit speed or reliability. If a safety or active transportation project can’t be feasibly designed to avoid negative impacts to a transit line, the City should try to mitigate these effects whenever possible through transit priority investments elsewhere along the line.
DO WE WANT A CITY WHERE EVERYONE CAN EASILY GET TO ALL KINDS OF OPPORTUNITIES?

ENHANCED TRANSIT, AFFORDABILITY, AND URBAN FORM

As a PBOT-led planning process, this Plan speaks primarily to actions that PBOT can take, mostly related to street design, in cooperation with TriMet and ODOT.

However, the real goal of Enhanced Transit – to improve transit’s ability to expand people’s access to opportunity -- obviously engages land use planning as well. Portland has a long tradition of transit-oriented land use planning, including not just MAX stations and streetcars but also the zoning of density in centers and along major frequent bus corridors such as Division and Hawthorne.

Enhanced Transit – eventually applied to the entire Frequent Service bus and streetcar network – increases the usefulness of transit on the affected corridors, and supports the planned higher densities and lower off-street parking requirements in the Zoning Code. These strategies play a critical role in the City’s affordable housing agenda.

The current and planned frequent bus and streetcar network is a response to the current and planned land use, but better transit always creates new opportunities that the land use planning process can build on.
CONCLUSION

Transit is the only thing that can move large numbers of people through very little space, offering efficient freedom and opportunity to everyone. To succeed, however, transit needs its fair share of space, based on how many people it carries. The Enhanced Corridors Plan reflects the City’s commitment to give transit the priority that it deserves.

While this plan talks mostly about where improvements are needed and how to develop and fund street design improvements for transit, the real work ahead is about shifting priorities. Transit needs greater priority over cars. Long transit trips need greater priority over shorter ones. This shift is difficult, because people are used to the priorities they have.

The best way through these controversies is to keep a focus on the big picture. Do we want a city where everyone can easily get to all kinds of opportunities? We know we do. This plan can get us there.