GPCOG
GREATER PORTLAND COUNCIL OF GOVERNMENTS

PACTS
PORTLAND AREA COMPREHENSIVE TRANSPORTATION SYSTEM

American Rescue Plan (ARPA) Call for Projects
Application Form—SPATIAL

Transit Signal Priority on Two Corridors in Portland

Regional Significance Threshold—Please check any boxes that apply to your project. If you cannot check at least one of the boxes, your project does not meet the regional significance threshold and you should not complete the application.

[X]	My project serves regionally significant origins, destinations, and corridors, defined as PACTS priority centers and corridors, including those identified in Transit Tomorrow and the upcoming Metropolitan Transportation Plan (an update to Destination 2040). Regionally significant origins, destinations, and corridors include highly-travelled roads; transportation terminals; employment centers; higher education campuses; major tourism, entertainment, and recreation venues; equity target areas; and places zoned for higher density and affordable housing.
[X]	My project has systemwide benefits. Systemwide benefits include improving the region's major intersections or traffic signal network, applying a technology for system improvement or revenue generation, supporting the transit customer's regional experience, or making a significant connection in the active transportation network.
[X]	My project meaningfully reduces regional greenhouse gas emissions or improves the resiliency of the regional transportation network.

Optional Comments

Transit signal priority will help buses move along the congested urban corridors of Forest Avenue and Washington Avenue in Portland more efficiently, improving bus runtimes, on-time performance, and reliability, while likely boosting ridership. TSP is the recognition that a bus full of people should be prioritized over personal vehicles.

Municipality/Agency

Greater Portland Metro

Regional Partners—Regional coordination is encouraged. If you are working with other municipalities/agencies on this project, please briefly describe your coordination efforts.

City of Portland

Primary Contact Name

Mike Tremblay

Email Address

mtremblay@gpmetro.org

Telephone Number

207-517-3023

Project Name

Transit Signal Priority on Two Corridors in Portland

Project Location—Describe the location of this project, including start and end points and/or other information necessary to identify the location of the project.

23 Intersections in Portland, on Forest Avenue, Washington Avenue, and other proximate intersections. A full list of locations will be provided in an attachment to this application.

Project Description/Scope—Provide a brief description of the scope of the project.

This project would equip 44 buses and 23 intersections with the equipment and software required to operate transit signal priority along the Forest Avenue and Washington Avenue corridors.

Purpose and Need—Describe the "problem" this project will solve. What are the regional and/or local benefits of this project?

Metro's Route 2 and Route 9 are among the best performing Metro routes in terms of ridership, and they largely run along Forest Avenue and Washington Avenue, respectively. These corridors are home to some of Portland's most congested intersections, including Morrill's Corner (Forest at Allen and Stevens) Woodford's Corner (Forest at Ocean and Woodford), and Allen's Corner (Washington Ave/Allen Avenue). In addition to these congested intersections, these corridors have traffic signals at many major side streets and commercial driveways. These signals introduce delay and uncertainty, forcing Metro to build in extra travel time and layover time to account for these delays. Transit signal priority would allow for signals to recognize transit vehicles and hold a green light longer, or end a red light sooner, to accommodate them. This will ideally reduce overall travel time and improve on-time performance. In the best cases, TSP may allow Metro to operate more bus runs with the same number of buses and drivers.

Funding Request—Please indicate how much funding you are requesting for this project. (Please also note if you have obtained or are seeking funding from other sources.)

Metro is requesting $500,000 to procure and install TSP hardware and software on 23 signalized intersections in Portland and 44 Metro buses. This funding would also be used to fund inspection and calibration as needed during the launch phase of the project. A preliminary cost estimate, by location, is included as an attachment to this application; please note that a full inventory is being conducted by Metro's consultant simultaneous with review of this application.

Regional Plans and Studies—Was this project included in a regional plan or study? Please list the plan(s) and page numbers. If possible, provide a link to an online copy of the plan.

TSP, specifically for Forest Avenue, is identified in Section 5.8.5 of PACTS' Portland/South Portland Smart Corridor Study. Implementation of transit signal priority is identified in Portland's Plan 2030 as a future strategy for transportation. Transit signal priority is also a strategy to increase the effectiveness of Bus Rapid Transit in Transit Tomorrow, the region's recently completed 30 year strategic transit plan. It is a specific Action Step under the recommendation "Implement infrastructure improvements on major bus corridors" (p. 71). Transit signal priority is identified as a goal in Portland's Comprehensive Plan, page 76.

GPCOG's Inclusive Transportation Planning Toolkit—GPCOG's Inclusive Transportation Planning Toolkit offers resources on best practices for accessible and inclusive planning. We strongly encourage use of the toolkit in designing and implementing public involvement. Have you implemented any of the practices described in the toolkit?

No

Please tell us about your experience.

No specific outreach was done for this project; however, TSP has been included as goals in recent local and regional planning studies, which solicited public input and feedback.

Title VI Compliance—PACTS is required to comply with Title VI of the Civil Rights Act of 1964 and the related executive orders and regulations, which are intended to ensure that traditionally underserved populations are included in the planning process, benefit equally from investments, and do not experience a disparately negative impact from decisions. Please describe how civil rights requirements have been or will be considered in the development of this project.

All Metro projects and initiatives are subject to Metro's Title VI Program (https://gpmetro.org/DocumentCenter/View/459/2019-Title-VI-Program-final-with-attachments-040119?bidId=). The corridors on which TSP is proposed to be installed (Forest Avenue and Washington Avenue in Portland) directly serve numerous low-income communities. Additionally, these roadways run through some of the more ethnically diverse census tracts in the State of Maine. TSP offers travel time benefits for buses that run along these routes, which directly serve these populations.

Access to Jobs—How many jobs are, or will be, located within 1/4 mile of the project? (3 points)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. You may also enter optional narrative regarding employment benefits beyond the proposed project's extent and/or optional narrative on projected future jobs.

Approximately 9,723 jobs are located within 1/4 mile of the corridors of intersections that will be upgraded to be compatible with TSP, including 6,675 along Forest Avenue and 3,048 along Washington Avenue/Warren Avenue. However, the benefits that TSP will provide will affect the entirety of the routes that benefit from TSP, primarily Routes 2 and 9. These routes run within 1/4 mile of approximately 43,414 jobs. (Source: US Census LEHD tool)

Access to Prominent Tourist, Entertainment, and Recreation Venues—Does the project improve access to regionally defined tourist, entertainment, and recreation destinations? (2 points)

Enter narrative response.

Yes, this project will improve bus service along Routes 2 and 9. These routes serve destinations such as: Portland's Downtown and Old Port districts, Back Cove, the Woodford's Corner neighborhood, Deering Oaks Park, Payson Park, Mayor Baxter Woods, Portland Transportation Center, and more.

Access to the Region's Transit Network—How close is the project to a regionally defined bus stop,[1] ferry terminal, or rail station? (3 points)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. If there is anything you would like to add, please write it here.

This project specifically improves two transit routes (Route 2 and Route 9), and thus is located along all associated bus stops. The TSP project improves signals in the direct vicinity of multiple regionally significant bus stops including Morrill's Corner and Woodford's Corner, and will improve service on Routes 2 and 9,which serve additional regionally significant bus stops including Bradley's Corner, Congress/Valley, Maine Medical Center, Brighton Corner, Congress Street (State-Forest), and Congress Street (Franklin-Washington). Additionally, the Route 9 is within a 1/4 mile walk of Portland Transportation Center, with regional bus and rail connections. Routes 2 and 9A/9B directly serve 5 of the identified regionally significant bus stops and indirectly serves the additional Thompson's Point/PTC via Congress Street at Sewall Street.

Access to the Region's Active Transportation Network—Does the project provide or improve connections to regionally significant bicycle/pedestrian infrastructure? (3 points)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. If there is anything you would like to add, please write it here.

Yes, this project improves access to numerous Portland Trails, including the Back Cove Trail, Mayor Baxter Woods, Canco Woods, Bayside Trail, and the Fore River Sanctuary. Bike lanes are located on Forest Avenue, Allen Avenue, Washington Avenue, Preble Street and coming soon to Stevens Avenue in 2022 so bicyclists using the bus can reach their final destinations readily. Improved on-time performance will attract additional riders.

Universal Access—How will the project accommodate a diverse range of users—including, but not limited to: older adults, children (including parents or guardians with young children), people of color, blind and visually impaired people, deaf people and those with hearing loss, people with intellectual disabilities, people with limited mobility and those who use mobility devices and strollers, people with limited English proficiency, unbanked or underbanked people? (3 points)

Enter narrative response.

---

[1] Regionally significant bus stops will include those identified in the Transit Stop Access Project Phase I Report as potential locations for mini-hubs. The list of locations is included in Appendix B of the PACTS Transportation Funding Framework.

Transit Signal Priority will improve the runtime and on-time performance of the Route 2 and Route 9, which will benefit all existing and future riders, especially those who use transit as their primary mode of transportation. This may include teens who use the bus to get to school on the Route 9, people with visual impairments who cannot drive, older adults who don't feel comfortable driving after dark, etc. From September 1, 2021 through December 20, 2021, approximately 50% of riders of the Route 9 were high school students, and at least another 7.5% were elderly, disabled, and/or on Medicare. On the Route 2, approximately 22% of riders were high school students, and at least 11% were elderly, disabled, and/or on Medicare.

Safety Improvements—Does the project improve safety for active transportation users (pedestrians, cyclists)? Does the project aim to reduce crash severity and crash risk, or improve emergency response, in a regionally defined High Crash Node or Road Segment? (5 points)

This is a "narrative and spatial question." Please enter narrative response. The project location you described at the beginning of the application will also be used for scoring.

The safety benefits of TSP are not explicit; however, any shift in mode to transit has inherent safety benefits, as bus travel is only behind air travel in terms of fatalities passenger mile. Reduced auto dependency due to improved transit is a safety benefit, and if a marked reduction in personal vehicle traffic results, these safety benefits may be applicable to other active transportation modes as well.

Asset Management—To what extent does the project improve the pavement condition and prevent the roadway from deteriorating into lower categories (reconstruction/rehabilitation)? To what extent does the project improve the longevity, lifespan, and functionality of a transit asset (vehicle, facility, guideway)? To what extent does the project improve the longevity, lifespan, and functionality of active transportation infrastructure? (5 points)

This is a "narrative and spatial question." Please enter narrative response. The project location you described at the beginning of the application will also be used for scoring.

TSP is expected to significantly improve the functionality of the buses running on the affected routes. The efficiency gains expected as a result of TSP will help buses make more trips per day, spending less time idling at red lights. TSP may allow Metro to run the Route 2 and Route 9 more often, using the same number of buses as today. Additionally, stopping at fewer red lights will help reduce the wear and tear on buses, as there will be less stopping and accelerating. With improved on-time performance, these routes are anticipated to increase ridership thereby reducing motor vehicle trips wear and tear on the city's streets.

Flow of People and Goods—To what extent does the project improve commercial operations and safety at a regionally significant intersection(s) or corridor(s)? To what extent does the project enhance truck or rail freight reliability and performance on key corridors (highways, rail) and facilities (terminals, ports)? (5 points)

Enter narrative response.

In addition to transit signal priority, the Metro and the City of Portland envision using the Surtrac adaptive system provided by Rapidflow along much of Forest Avenue. This systemcan detect certain commercial vehicles as well as City fleet vehicles. This will help the traffic network function better as a whole, but would especially benefit these commercial and fleet vehicles, as the signal network will be able to anticipate these vehicles' routes and adjust signal timing accordingly. The City of Quincy, Massachusetts has partnered with Rapidflow and the MBTA on a similar system there and seen noticeable results, although the outcomes have yet to be finalized due to fluctuations in activity due to the ongoing pandemic.

Social Equity—To what extent does this project benefit or harm the health or mobility of Environmental Justice (EJ) and Title VI populations? (3 points)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. If there is anything you would like to add, please write it here.

Transit signal priority would apply to all users of Metro, which includes those within Environmental Justice and Title VI communities. The benefits of TSP, including more reliable and frequent bus service, will improve access to and within Portland's peninsula, where many of these populations are located.

Transit-Oriented Development—Is the project located within 1/4 mile of an existing or proposed transit-oriented development?[2] (2 points)

Enter narrative response.

Yes; the routes that will immediately benefit from TSP are located within a short walking distance of transit-oriented development, including an 18-story tower with no on-site residential parking currently under construction a short walk from Congress Street in downtown Portland, and a proposed mixed-use, transit-oriented development in Riverton which would be served directly by Route 9. Morrill's Corner, Northgate Plaza and Westgate Plaza/Libbytown are all identified in Portland's Plan as significant nodes for infill and redevelopment as well as priority centers in a transit-supportive/oriented manner. These are also identified as Priority Centers in Destination 2040. Locations within ¼ mile of a transit route in Portland are exempt from minimum parking requirements making them ripe for TSP/TOD.

Regionally Significant Locations—Is the project located within 1/4 mile of a PACTS priority center or corridor? (2 points)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. If there is anything you would like to add, please write it here.

Yes. The signals that are being equipped with TSP are located along PACTS priority corridors (Forest Avenue and Washington Avenue in Portland). Additionally, the benefits provided to Route 9 service will also benefit

[2] Transit-oriented development (TOD) will be defined, and a GIS layer will be developed, during the development of the Metropolitan Transportation Plan. Until then, applicants are asked to provide narrative regarding the project's impact on the goals of TOD.

riders along another priority corridor (Congress Street in Portland). Morrill's Corner, Northgate Plaza and Westgate Plaza/Libbytown are all identified in Portland's Plan as significant nodes for infill and redevelopment as well as priority centers in a transit-supportive/oriented manner. These are also identified as Priority Centers in Destination 2040. Locations within ¼ mile of a transit route in Portland are exempt from minimum parking requirements making them ripe for TSP/TOD.

Consistency with Local Plans—Is the transportation investment consistent with local plans (e.g., comprehensive plan, locally adopted neighborhood plan) and will the investment complement or support smart growth[3] development? (3 points)

Enter narrative response. Please reference plans, public forums, zoning provisions, etc.

Transit Signal Priority is listed under Portland's Plan 2030 as a priority for future planning in transportation. Transit Signal Priority, specifically along Forest Avenue, is prescribed in PACTS' Portland/South Portland Smart Corridor Project.

Proximity to Affordable or Workforce Housing—Is the project located within 1/4 mile of affordable or workforce housing? (1 point)

This is a "spatial question" and will be scored using the project location you described at the beginning of the application. If there is anything you would like to add, please write it here.

Yes; TSP is being proposed along Washington Avenue at Veranda and Presumpscot streets. Washington Gardens and Front Street Apartments, both operated by Portland Housing Authority, are located within 1-2 blocks of these intersections. TSP is also being proposed along Forest Avenue, which serves Riverton Park, another PHA development.

Vehicle Miles Traveled (VMT)—How does this project impact the number of miles driven in the region? Does it encourage a mode shift away from single-occupant vehicles (SOV)? (3 points)

Enter narrative response.

TSP will allow buses to stop less and make trips more quickly, increasing reliability and reducing travel time, and thus making transit a more appealing option relative to driving alone.

Greenhouse Gas Emissions—How does this project help meet the state's greenhouse gas emission reduction goals? These can be found on the Maine Climate Council's website. (3 points)

Enter narrative response.

According to Maine Won't Wait, 59% of Maine's transportation-related emissions come from light-duty passenger cars and trucks. Making transit more competitive with driving a personal vehicle by prioritizing transit vehicles at intersections will help reduce the number of passenger vehicles on the road.

[3] Smart Growth is defined by the EPA at https://www.epa.gov/smartgrowth/about-smart-growth.

Climate Resilience—How does the project prepare the region's infrastructure for climate impacts (heat, flooding, storm surge, etc.)? (4 points)

Enter narrative response.

Any increased transit use that TSP generates may reduce the demand for impervious area such as excess pavement for parking and lane miles. Additionally, improved transit efficiency can encourage the development of, and demand for, transit-oriented developments both immediately and going forward, meaning less space dedicated to surface parking, less impact to wetlands, and more density in development. Less VMT from internal combustion engines reduces greenhouse gas emissions.

Supporting Files

A. TSP Preliminary Cost Estimate_11-29-21 - STI.pdf

Attachment A

11/29/2021

STI Job # 21869

SEBAGO TECHNICS

Preliminary Engineer's Estimate
Transit Signal Priority Implementation on Washington / Forest
GPMetro

			Description	TSP / Preemption Card w/ Rack and Harness	New Traffic Signal Controller w/ Ethernet	Configure Intersection to TSP Software	
			Engineer's Opinion of Unit Cost	$7,500.00	$5,500.00	$500.00	
MaineDOT Node ID	Major Street	Minor Street					Total Intersection Cost
18524	Baxter Blvd	Preble St Ext		1	1	1	$ 13,500.00
18528	Forest Av	High St Ext		1	0	1	$ 8,000.00
63327	Auburn St	Chapman St		1	0	1	$ 8,000.00
17065	Auburn St	Lyseth Moore Dr		1	0	1	$ 8,000.00
17064	Auburn St	Sanborn St		1	0	1	$ 8,000.00
16872	Forest Av	Allen Av		1	0	1	$ 8,000.00
16851	Forest Av	Revere St		1	0	1	$ 8,000.00
16838	Forest Av	Baxter Blvd		1	0	1	$ 8,000.00
16845	Forest Av	Dartmouth St		1	0	1	$ 8,000.00
16852	Forest Av	Deering Av		1	0	1	$ 8,000.00
16841	Forest Av	Falmouth St,Preble St		1	0	1	$ 8,000.00
16836	Forest Av	Marginal Wy		1	0	1	$ 8,000.00
16853	Forest Av	Ocean Av		1	0	1	$ 8,000.00
19049	Forest Av	Park Av		1	0	1	$ 8,000.00
16870	Forest Av	Stevens Av,Bishop Av		1	0	1	$ 8,000.00
16860	Forest Av	Walton St		1	0	1	$ 8,000.00
16874	Forest Av	Warren Av		1	0	1	$ 8,000.00
18523	Marginal Wy	Preble St		1	0	1	$ 8,000.00
17061	Washington Av	Allen Av		1	0	1	$ 8,000.00
13372	Washington Av	Canco Rd		1	0	1	$ 8,000.00
17045	Washington Av	Ocean Av		1	0	1	$ 8,000.00
17038	Washington Av	Presumpscot St		1	0	1	$ 8,000.00
18737	Washington Av	Veranda St		1	1	1	$ 13,500.00

Total Intersection Costs	$	195,000.00	
TSP Update Software and Hardware at Metro	$	7,500.00	
TSP Software (presumed to be installed on Portland's ATMS.Now Server)	$	20,000.00	
Vehicle Kit for Metro Busses Includes ($5,000 / bus):	$	220,000.00	*44 busses assumed*
VCU RJ-45 (Ethernet) Communication Ports			
Power Cable at 10 feet			
GPS/UHF Antenna (900 MHz) 15 ft. Cable			
Installation Kit			
Total Construction Costs	$	442,500.00	