

Transit Master Plan

APRIL 2020

City of Sandy, Oregon



Credits

This report was prepared for the City of Sandy, with the assistance of Sandy Transit staff, by a team of planning and public involvement firms:

- Jarrett Walker + Associates
- David Evans and Associates
- AMMA Transit Planning
- JLA Public Involvement.

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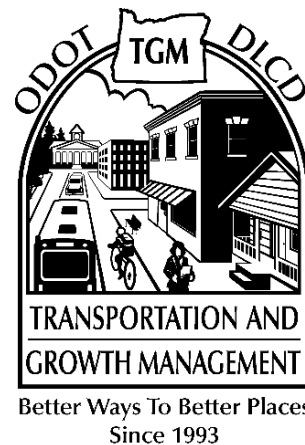
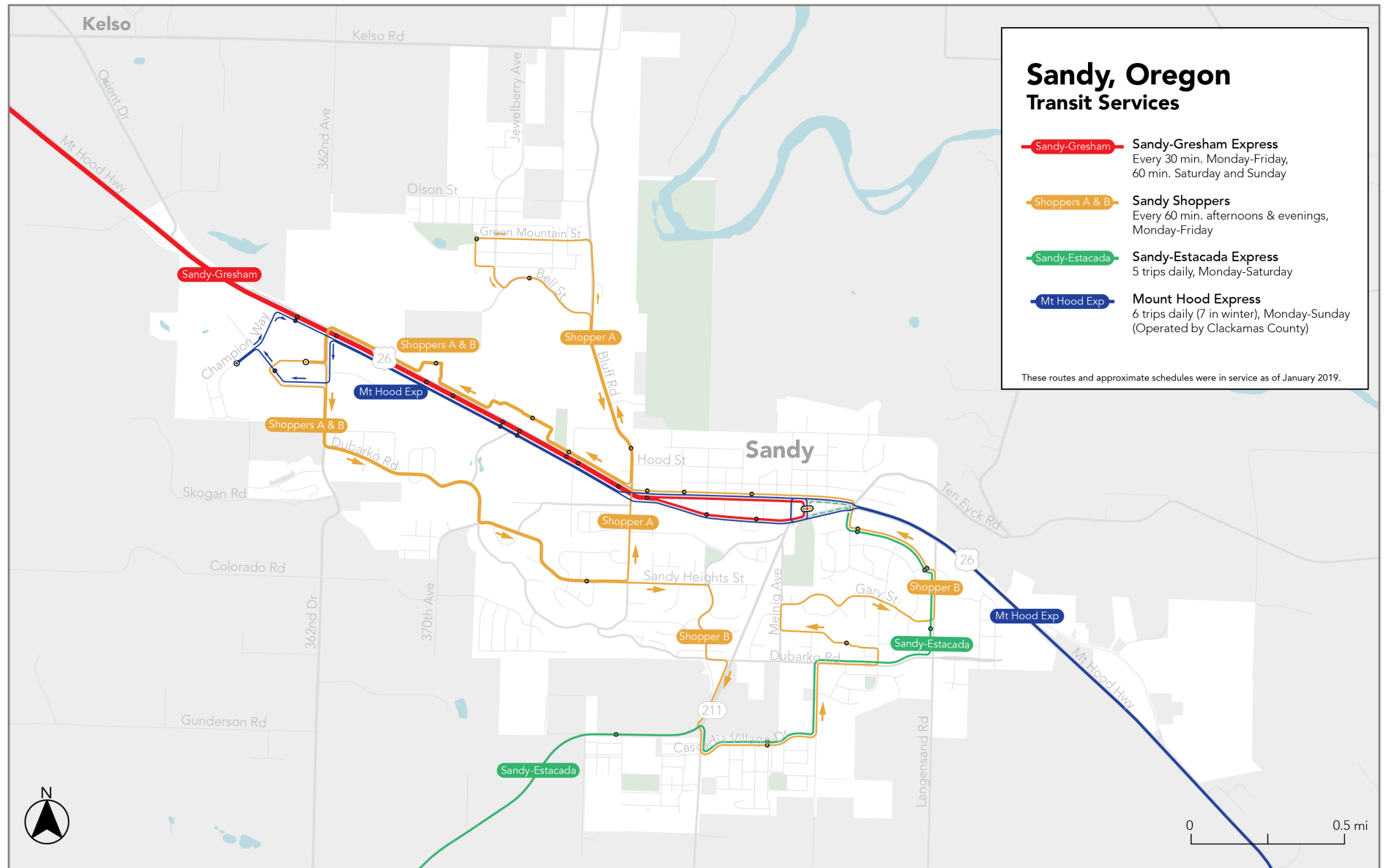


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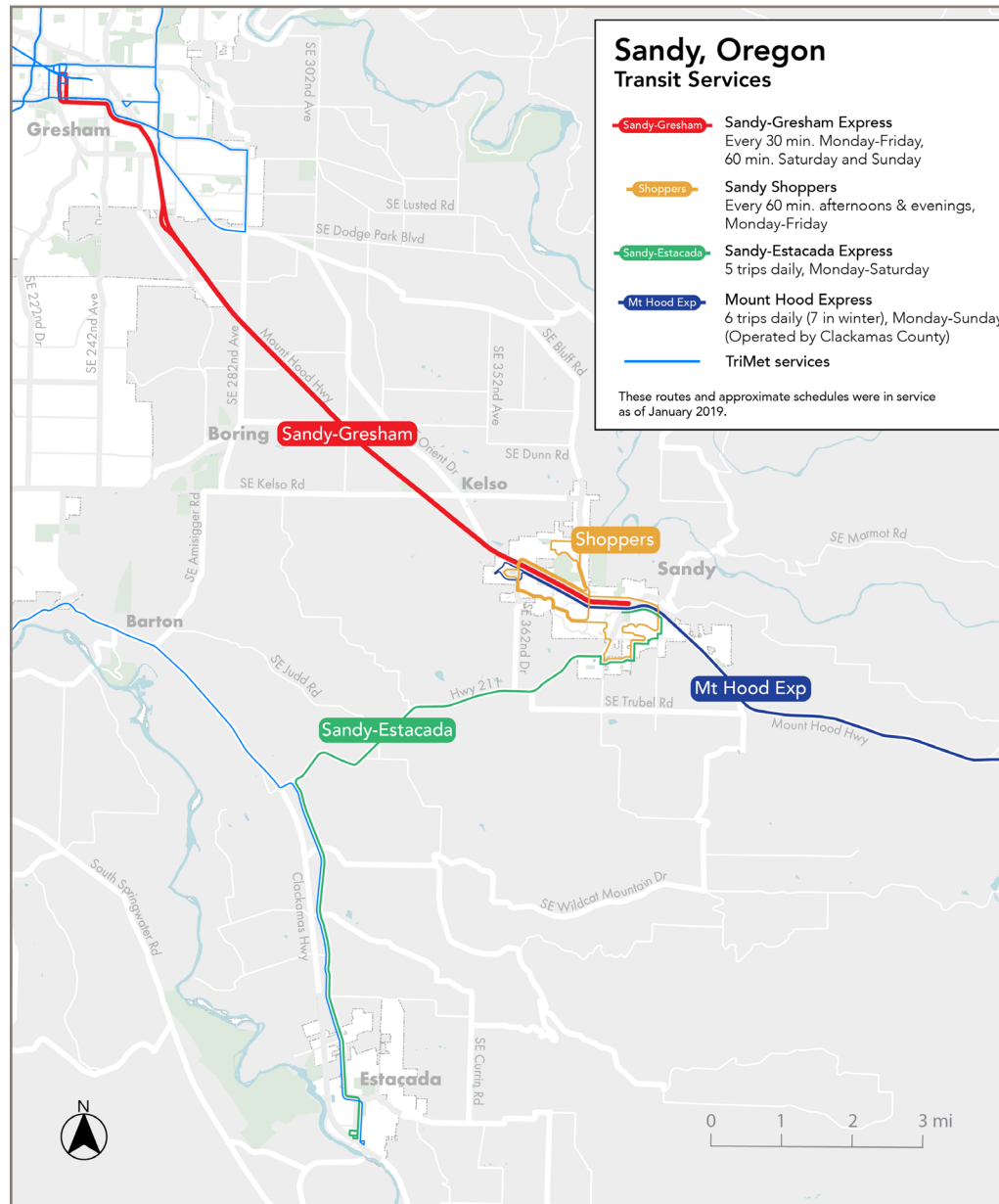
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1. Summary

Sandy Transit System Map - Local



Sandy Transit System Map - Regional



Sandy Transit is a department of the City of Sandy that provides public transportation services for Sandy's residents, workers and visitors. The City of Sandy began providing transit service in the year 2000.

Sandy Transit's major decisions are guided by a *Transit Master Plan*. The Transit Master Plan (TMP) was last updated in 2009.

Updating the Transit Master Plan

A great deal has changed in Sandy, in the region and in the state since 2009. In 2009, the U.S. economy was in a deep recession. The last TMP's recommendations were therefore fairly modest. Most of them had been implemented by the time of this update to the 2009 TMP.

At time of writing, the U.S. economy is booming, and unemployment is low, but the gap between rich and poor is wider than it has ever been. Historically low interest rates have made it easier for working class people to purchase cars, and low gas prices have made driving less expensive.

For all of these reasons, transit ridership in most U.S. communities has gone down since about 2015. However, despite media coverage that makes it sound like a catastrophe, the recent decline has been well

within the range of ups-and-downs of the past thirty years. Most of the conditions that have contributed to this recent drop in ridership are temporary: low interest rates, low fuel costs and high employment. Even with more households able (at least this year) to afford another car, there are still numerous people among us with severe needs for transit, including people with disabilities, youth, people living in poverty, and the rapidly growing number of elderly people.

The State of Oregon recently created a new and dedicated source of funding to distribute to recipients like Sandy for transit. This will make it possible for Sandy Transit to contemplate new investments in its organization, its equipment and the services it offers to the public.

Despite this new source of transit funding, Sandy's total transit budget is and will always be limited. This Plan describes numerous service and capital investments that would be valuable in the next ten years, but how much of this Plan is implemented will depend on whether transit resources continue to grow in the future.

Learn More

Three other documents comprise the full Transit Master Plan, and are good sources of information about how this Plan was formed:

- The "Sandy Transit Choices Report" describes existing conditions and the transit planning choices Sandy faces.
- The Phase One Public Input Summary reports public input on some of the key choices Sandy faced in this plan update.
- The Phase Two Public Input Summary reports public input on specific service and investment ideas.

Goals and Objectives

Sandy's goals, objectives and actions are informed by the Oregon Public Transportation Plan and by input from riders, stakeholders and decision-makers in Sandy.

Sandy Transit's highest level goals are:

1. To provide safe, efficient, high-quality transit service that gives Sandy residents, workers, businesses and visitors more freedom to meet their needs within the city, the region and the state.
2. To create a transit system that offers an alternative to private automobile use, supports efficient use of roadways, and reduces air pollution and energy use.

In working towards these goals, Sandy Transit will:

1. Provide service that is safe, comfortable, and useful to many different kinds of people.
2. Collaborate with other transportation agencies and support user-friendly connections between transit systems.
3. Increase service as the numbers of residents and jobs in Sandy grow.
4. Improve accessibility to transit and connections between transit services for people arriving by foot, by bicycle or with a mobility device.

5. Increase public awareness of Sandy Transit and its connectivity to other transit systems and transportation modes.
6. Operate with the highest degree of fiscal responsibility.
7. Reduce air pollution and energy use through strategies such as conservation, improved technology, and alternative fuels.

Finances

Costs and revenues

Sandy Transit's largest on-going sources of revenue are (in order from largest to smallest source):

- Sandy's own local payroll tax for transit.
- Federal grants.
- The Oregon statewide payroll tax for transit (aka "STIF," established by the Legislature in 2017).
- State grants.
- Fares paid by riders.

Sandy Transit's largest operating costs are (in declining order):

- The driving and operations of fixed-route buses (provided by a local private company, on contract).
- The driving and operations of dial-a-ride and ADA paratransit (provided under the same contract).
- The salaries of Sandy Transit's 2.8 full-time staff (who are City employees).
- Fuel for buses.
- Maintenance of buses.

Sandy Transit also makes capital investments in infrastructure, which vary in size from year to year. Some of the funding for capital investments comes from grants

intended for capital, but some of it comes from Sandy's unrestricted revenue sources, such as the local payroll tax, and is transferred from Sandy Transit's operating fund to its capital fund when it is needed.

The tables on the next page summarize the first half (FY 2019-2020) of Sandy Transit's biannual operating and capital budget (which covers FY 2019-2021). Screen-readable versions of these tables are provided on page 66.

Sandy Transit has been successful in matching and winning state and federal grants for capital investments, which over the past ten years have included the purchase of buses, investments in bus maintenance equipment or facilities, investments in administrative facilities, purchase and installation of bus stops, and investments in improved technology or equipment on-board buses. Most of these investments are periodic, and not all of these are occurring in the next fiscal year, and so not all of them appear in the summary tables on the next page.

Financial sustainability

In the last two months before the adoption of this Plan, Sandy Transit's financial picture changed enormously due to the isolation necessary to manage the Covid-19 pandemic and to the economic downturn that

is likely to ensure. Two of Sandy's funding sources for transit are based on payroll taxes, which will naturally go down in a recession as employment and wages fall.

At the same time, Sandy's long-time transit operator decided to shut down operations, and a new contract or in-house operations plan is being developed. Sandy Transit and its contract operator have been very good at keeping operations costs low for many years. As a result, the new operations contract is likely to require higher operations costs, as much as 50% higher.

These two factors - suddenly falling payroll tax revenues and higher operating costs - mean that current service levels and costs cannot be maintained into the future without a large new source of operating revenues.

Fortunately, for the past decade Sandy Transit has set aside a small annual surplus, building a reserve fund. This reserve will protect Sandy from sudden service cuts. Emergency funding from the federal government, delivered in March 2020, will also help to delay or decrease the severity of those cuts.

Operating budget for fiscal year 2019-2020

Revenue source	2019-2020 budget
Beginning balance/reserves	\$1,767,350
Sandy payroll tax	\$600,000
Federal grants	\$574,516
State payroll tax	\$138,141
State grants	\$128,718
Fares	\$90,000
Intra-city agency loan repayments	\$80,129
Partnership with other agencies	\$67,200
Interest	\$25,500
Miscellaneous	\$5,500
	\$3,477,054

Operating cost	2019-2020 budget
Transfer to Capital Fund	\$838,846
Fixed route transit operations (contracted)	\$534,200
Dial-a-ride/paratransit operations (contracted)	\$247,239
City of Sandy Transit staff salaries	\$202,000
Bus fuel	\$175,000
Bus maintenance and equipment	\$100,200
Payments for City admin. and maint. services	\$69,904
Staff retirement (PERS)	\$48,500
Liability and other organizational insurance	\$47,500
Staff health insurance	\$39,000
Office supplies and services	\$37,300
Major project management (contracted)	\$25,000
Rent for administrative building and yard	\$23,375
Staff payroll taxes (Social Security, transit)	\$16,750
Bus shelter maintenance	\$13,600
Staff training	\$9,000
Transit marketing	\$7,500
Utilities	\$5,500
Staff other benefits	\$750
	\$2,441,164

Capital budget for fiscal year 2019-2020

Capital revenues	2019-2020 budget
Beginning balance	-\$46,387
Transfer from transit operations fund	\$838,846
Federal grants	\$1,018,542
State grants	\$53,000
	\$1,864,000

Capital investments	2019-2020 budget
Improvements to the bus wash	\$150,000
Construction of two bus storage barns	\$810,000
Planning, design and construction of operator break & training room (multi-year project)	\$53,000
Purchase of 7 vehicles and on-board equipment (one half of total funding; two-year project)	\$701,000
	\$1,714,000

Illustrative future scenarios

While Sandy Transit has built up a cash reserve to protect it against sudden service cuts in the case of unexpected costs or a loss of revenue, the City is vulnerable to changes in its financial position, like all public agencies. The four biggest sources of variability in its costs or revenues are:

- **Variations in employment that affect payroll tax receipts.** More than 1/5 of Sandy Transit's annual operating revenue comes from state or city payroll taxes, and payroll tax receipts are sensitive to employment levels. A recession that reduces employment will reduce Sandy's operating revenues. As of March 2020 a recession seems likely, caused by the Covid-19 pandemic.
- **Changes in federal support for transit operations and transit capital investments.** The U.S. Congress may reauthorize the federal transportation bill in 2020, and in doing so may change the amount of funding available to transit providers like Sandy either through formula or competitive grants. Federal grants could be reduced in the next transportation bill. In the short term, additional federal funds have been provided as emergency relief for the pandemic in 2020.
- **Growth in labor costs.** Sandy Transit

has for years benefited from low costs for operations, through a contract with a local company that drives, dispatches and operates its services. Bids from potential new contract operators have been received at time of writing, and suggest that operations costs could increase by as much as 50% per unit of service.

- **Growth in benefits costs.** While benefits for City staff make up a small portion of Sandy Transit's operating costs, growth in the cost of staff benefits (in particular, PERS and health insurance) has far outpaced the rate of growth in every other type of cost. This is a common experience among Oregon public agencies.

In order to illustrate a range of near-future possibilities for the transit budget, this Plan describes two future financial scenarios:

- In a "**Bloom**" scenario, trends of the past few years continue into the next five years. Payroll tax receipts continue to grow (implying that no recession occurs), federal and state grants continue to grow, and costs increase only modestly.
 - ▶ In the Bloom scenario, by fiscal year 2023-2024, Sandy Transit could increase its service levels by about 10% and slightly increase its capital

investment program.

- In the "**Gloom**" scenario, tax revenues would remain flat while unit operating costs would increase. Other costs would increase with inflation. Federal capital grants would fall.
 - ▶ In the "Gloom" scenario, Sandy Transit would deplete its reserve fund in 2025 unless it reduced service levels and other costs. However, given the economic impacts of the Covid-19 pandemic, the reserve account could be used up much sooner without a reduction in service quantity or an additional source of revenue.

These scenarios, and examples of the service additions or cuts that might accompany them, are shown in greater detail in Chapter 7. Financial Scenarios, starting on page 56.

Public Input Guiding this Plan

The public, transit riders, elected officials and other community stakeholders were consulted about the future of Sandy Transit during the development of this Plan. That consultation was organized into two major phases:

- In Phase One, people were presented with some major trade-offs and choices of prioritization that arise in transit planning for Sandy.
- In Phase Two, people were presented with specific service and investment ideas and asked to comment on them and rank them in order of priority.

In each phase, public input was gathered through:

- An online survey.
- A survey distributed on paper on-board Sandy's local and regional bus routes.
- Outreach at public events and in busy public places.
- Meetings with a Stakeholder Advisory Committee.
- Meetings with the Sandy Planning Commission and City Council.

Outreach materials and surveys were published in both English and Spanish. However, participation in the surveys by Hispanic people was low relative to their

presence in Sandy and in the region.

The major takeaways from public input are summarized here. More detailed reports on public outreach and input in each phase have been published as appendices to this Plan.

Regional service is a slightly higher priority than local service.

In both phases, a modest majority of people consulted expressed that they value regional service (which helps people make longer trips beyond Sandy) over local service (which helps people make shorter trips within Sandy). Service to Gresham and Clackamas was particularly popular.

Local routes should be designed with the expectation that many riders will walk to a main street.

Concentrating service onto fewer streets allows that service to be both more direct and more frequent, offering shorter waits and faster rides. However, this means that many people have to walk to a main street to catch the bus, and increases the importance of City efforts to improve walking routes to transit.

Input gathered in both phases, in response to abstract questions and concrete service

proposals, indicates that most people would support local service that requires some walking.

(Note that Sandy Transit provides ADA paratransit citywide, for people whose disability prevents them from walking to a bus stop. However, paratransit and any other on-demand service is very costly to provide on a per-passenger basis. Even a low-ridership fixed route can be less costly per passenger.)

The current balance is about right between services that attracts high ridership and services that attract low ridership but are important for other reasons.

Sandy Transit spends about 60% of its operating budget running fixed routes that attract high ridership relative to their costs. (The Gresham Express and Shopper Shuttle, which move about 11 and 7 passengers per hour.) The remaining 40% is spent on services that get low ridership relative to costs but serve other values not related to ridership. (The Estacada Express, STAR dial-a-ride & paratransit and out-of-town medical services serve about 6, 3.5 and 1 passenger per hour, respectively.)

The public expressed support for both

ridership and non-ridership outcomes, and did not express support for any major shift in the way these competing values are balanced in the existing Sandy Transit budget. This does not mean that Sandy should continue operating the same services in the same way, but simply that its current pursuit of high ridership relative to costs with 60% of its budget is appropriate given community values.

Getting places when it matters is more valuable than amenities.

When asked to rank improvements in priority order, most people ranked improvements to service levels (e.g. weekend service, better frequency or more coverage) much higher than improvements to amenities or the purchase of electric buses.

This is not to say that capital investments should not be made. To the contrary, capital investments are essential to the provision of service, to increases in service and to Sandy Transit's mission. This is to say that investments in passenger-facing amenities should be evaluated in light of how they support mobility - the timely movement of people to the places they want to go.

Potential Service and Capital Investments

This Plan describes potential service and capital investments, how public input can guide their prioritization, and how possible they will be in the Gloom and Bloom scenarios.

This Plan does not prescribe a particular order in which these investments should be made. The order will depend on available funding, qualifications for grant funding, and other opportunities and limits outside of Sandy's control.

These service and capital investments are described in greater detail in the following chapters.

Additions to local service

Fixed routes

Sandy Transit currently operates two "Shopper Shuttle" routes, each coming about once per hour on weekday afternoons. Sandy can add service in multiple ways:

- By adding Saturday service. (The Shuttles currently run only on weekday afternoons.)
- By lengthening the service hours each day.
- By adding an additional Shuttle route that reaches the Vista Apartments.

Flexible services

Sandy Transit's STAR provides general public dial-a-ride and ADA paratransit within the City of Sandy. Demand for the service is high, and with 3.5 passengers per hour it is approaching the limit of what is physically possible for an on-demand service.

Paratransit fares have recently been reduced to \$0 at the direction of federal regulators, and demand is therefore likely to increase further.

Sandy Transit may add a bus and driver to STAR operations to handle the growing combined demands of general-public and ADA paratransit customers on the service.

Electric buses

Sandy Transit's vehicles are aging and new vehicles are being purchased in this fiscal year (as shown in the tables on page 10) and the next.

Sandy Transit can also purchase one or more electric buses, a charging station and the required maintenance equipment. The per-vehicle cost of electric vehicles is about two times the cost of diesel vehicles, but that difference in cost may come down over the life of this Plan.

Additions to regional service

Gresham Express

The Gresham Express currently offers service to the Gresham Transit Center every 30 minutes on weekdays, every 60 minutes on Saturdays and less frequently on Sundays. At the Gresham Transit Center, connections to numerous TriMet Frequent Service lines provides access to many parts of Portland, to Gresham and to Mt. Hood Community College.

Service can be added to the Gresham Express in the form of:

- Higher frequencies on Saturdays or Sundays.
- More night and morning service on Saturdays or Sundays.
- Occasional addition trips that go directly to important destinations, rather than connecting with other frequent lines at Gresham Transit Center.

New Clackamas Express

Regional growth has resulted in much higher demands for travel between Sandy, Mt. Hood and Clackamas than existed when Sandy Transit was established. Sandy Transit can collaborate with partner

agencies (including Clackamas County and TriMet) to plan and fund a route connecting these communities.

Estacada Express

The Estacada Express offers a minimal level of service Mondays through Saturdays between Sandy and Estacada. Sandy Transit can add trips to the daily schedule, or can add Sunday service. The City of Estacada contributes a small amount each year towards the operating cost of this service.

Improved bus stops

Sandy Transit's bus stop at the Gresham Transit Center is far below the standards set both for stops within the city of Sandy and for TriMet's stops at the Gresham Transit Center.

With the cooperation of the City of Gresham and TriMet, Sandy can invest in better stop amenities at the Gresham Transit Center.

2. Potential Service Additions and Changes

Local Service

Fixed route service (Shopper Shuttles)

If new funding is available, as in the “Bloom” financial scenario, **adding Saturday service for the Shopper Shuttles is the least-costly incremental improvement to the service and was the most popular option among public and stakeholder respondents** during this planning process.

If there is no new funding for transit, Sandy can maintain the existing service of two Shopper Shuttle routes at 60-minute weekday frequency, or it can send a Shopper Shuttle to Vista Apartments by reducing all routes to 90-minute weekday frequency.

There is a severe need for transportation access between the Vista Apartments and the city. Many families who live there have only one car (if any), which is typically used by the working parent, and yet there is currently no sidewalk between Vista and the city, making walking or biking into town dangerous and nearly impossible.

Fortunately, the City of Sandy recently decided to build a sidewalk (funded by a grant from ODOT), which may be under construction as early as 2020.



Without new funding, the only way to add Shopper Shuttle service to the Vista Apartments is to worsen frequencies on the existing routes, increasing the maximum waits from every hour to every 90 minutes.

Adding transit service to Vista Apartments would help meet the needs of families there, but without new transit funding, stretching the Shuttles to include the Vista Apartments would mean that all Shopper Shuttle riders would have to wait 90 minutes instead of 60 minutes.

When asked what Sandy should do if no

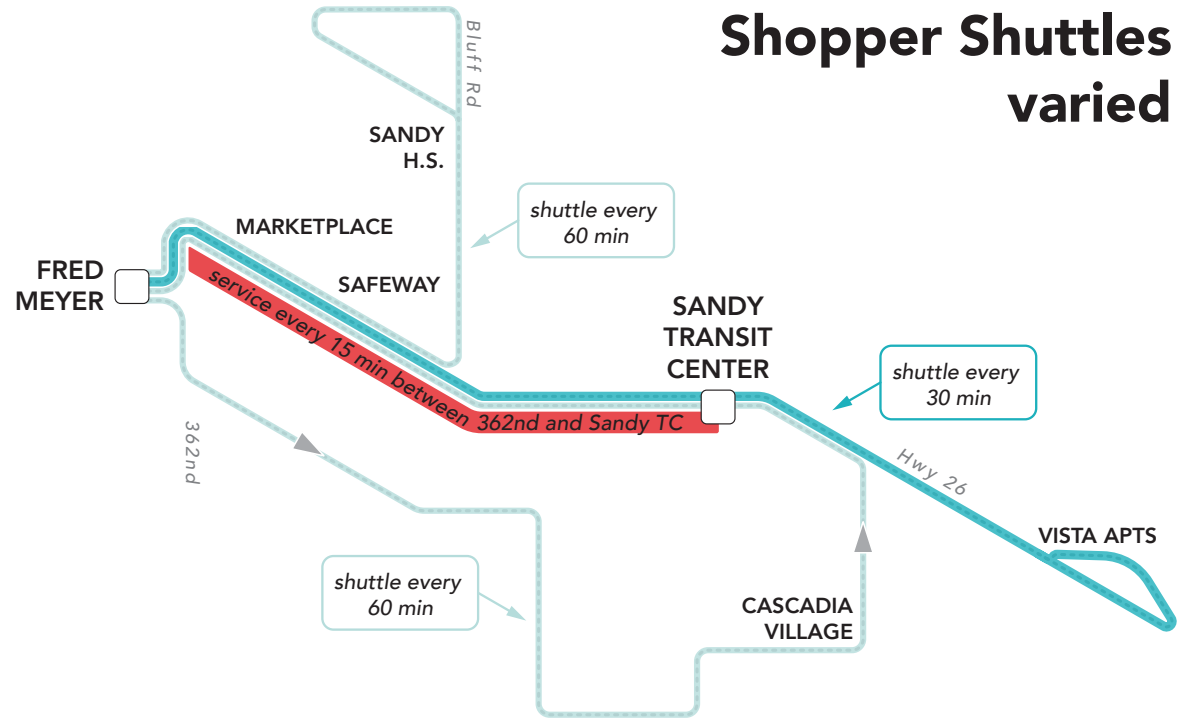
new funding is available, public respondents were split almost evenly on whether to serve Vista.¹ The Stakeholder Advisory Committee, as a group, did not favor

¹ Note that the question about Vista service was asked of the public before the sidewalk project was announced, and we do not know how the public response would have changed with this new information. Stakeholders were consulted on this question later in the process, after funding for the sidewalk had been announced.

adding Vista service in the absence of new funding, given the negative impacts it would cause for existing riders.

With additional funding, Sandy can add Saturday service to the existing two Shopper Shuttle routes (for about \$16,000 per year), or it can provide service to Vista Apartments using one of two different service designs (costing about \$200,000 to purchase an additional bus and \$75,000 per year to operate).

In the first Vista service design, the existing two Shopper Shuttle routes would remain at 60-minute frequency, and a third Shopper Shuttle would serve Vista Apartments at 30-minute frequency. Along Highway 26, the overlap of the Vista Apartments Shopper Shuttle and the Gresham Express would result in a bus every 15 minutes between Sandy Transit Center and 362nd. **This is the new service design preferred by most public and stakeholder respondents.**



With new funding, there are two possible service designs for extending a Shopper Shuttle to the Vista Apartments. The first, shown above, would be to add a third route between the Vista Apartments and Fred Meyer that comes every 30 minutes. The combination of this route with the Gresham Express would mean that a bus was coming every fifteen minutes between the Sandy Transit Center and 362nd. This service design was preferred by most respondents.

In the second variation, all three Shopper Shuttle routes – the two existing routes and the new Vista Apartments routes – would run at 45-minute frequency, an improvement to the existing routes.

Of the two potential service designs that would reach the Vista Apartments, public and stakeholder respondents preferred the first option (15-minute service between the Sandy Transit Center and 362nd).

However, if new funding were available, public and stakeholder support was strongest for adding Saturday service to the existing Shopper Shuttle routes, not just over adding a route to the Vista Apartments but over all other regional and local investment options.



The second possible service design is to add a third Shuttle route between Fred Meyer and the Vista Apartments, and provide all three of the routes every 45 minutes.

Flexible service (STAR dial-a-ride and ADA paratransit)

Sandy Transit's dial-a-ride service, STAR, provides advance reservation, curb-to-curb trips to people who are unable to use local fixed route services due to a disability, and are making local trips. STAR provides Americans with Disabilities Act (ADA) complementary paratransit to eligible, certified riders as required under this 1990 Civil Rights legislation.

STAR also provides trips to members of the general public, including older adults and others, who appreciate its curb-to-curb service for local trips and can make the required advance reservation.

The fixed routes which are "complemented" by this ADA service are the local portion of the Gresham Express that operates within Sandy. Federal regulations require that ADA paratransit be provided within 3/4 mile of these fixed routes. Sandy Transit meets that standard and exceeds it, opting to provide paratransit (and general public dial-a-ride) for any trip that starts and ends within the City of Sandy, regardless of its proximity to a fixed route.

STAR transports about 52 passengers each weekday and 22 riders each Saturday. Some proportion of these are

ADA-certified riders, who receive priority in booking trips. The others are general public riders and travel on a space-available basis. Until recently, all passengers have paid a \$1.00 fare and those who are older adults or with a disability receive a token for their return trip, effectively making their one-way fare 50 cents.

STAR ADA paratransit fares have recently been reduced to \$0 at the direction of federal regulators, as they can be no more than two times the local fixed route fare (which is \$0). Paratransit demand is therefore likely to increase, which will put a strain on this combined paratransit/general public dial-a-ride service.¹ With 3.5 passengers per hour, STAR is approaching the limit of what is physically possible for a flexible service.

Sandy Transit may add a bus and driver to STAR operations to handle growth in demand. However, this should be done in consideration of public input that supports the current balance of investments in services that can handle high ridership relative to costs (fixed routes) and services that cannot (flexible services). While Sandy Transit does not have discretion about how

much ADA paratransit demand it serves, it does have discretion about how much general public demand it serves with dial-a-ride.

The capacity and efficiency of flexible service has so much to do with operating practices that we include in this section a review of and recommendations for internal practices, rather than simply service additions.

An additional STAR-related recommendation regarding dispatching technology is included in the Capital Investments chapter starting on page 31.

Free fares

A challenge for Sandy Transit moving forward with now free paratransit fares will be to maintain compliance with the Americans with Disabilities Act, specifically the requirements for paratransit services.

The new free fare policy for an ADA complementary paratransit program is unusual. There are just a handful of programs across the country where ADA trips are free, largely because free fares can drive higher demand on a service that is expensive to operate and on which every additional trip adds additional costs. In this way paratransit (and any flexible service) is completely

¹ The E&D Out-of-Town medical fares, at \$2 per ride, need not change. See the Choices Report for a summary of existing fares and costs per ride.

unlike fixed routes, on which the marginal cost of serving each additional rider is often zero and only ever very small.

The primary concern that the STAR program confronts with a new free fare policy is that *it must serve every ADA paratransit trip requested by its eligible, certified riders* – or negotiate a trip pick-up time within an hour on either side of the requested trip time. The program cannot deny trips to ADA eligible, certified riders and still maintain ADA compliance. Therefore, this section recommends ways the this service can maintain its capacity for ADA-certified riders, so that no trips are denied.

Monitor use and capacity

It will become more important than ever that Sandy Transit monitor STAR use and capacity to ensure there are no ADA trip denials.

Fare policy often acts as a damper on demand for expensive flexible services, helping to ensure that these programs have the capacity to match passengers' requests for trips without a big increase in operating budget.

Without a passenger fare for the STAR demand response service, it is conceivable

that demand for trips could outstrip the STAR program's ability to serve these trips, particularly as there is generally just a single vehicle in STAR operation at one time. It will be important to ensure there is adequate capacity to meet paratransit demand during its days and hours of service, specifically for passengers who are certified ADA riders.

If capacity problems arise, Sandy Transit is not permitted to deny service to ADA certified passengers. If there is a recurring pattern of trips requested by ADA riders that are denied, it may become necessary to cease offering this service to the general public, or at least to not do so during periods of high demand.

STAR dispatchers and Sandy Transit staff must carefully monitor dispatching practice to ensure:

1. That ADA certified riders are identified and given priority in trip booking, and
2. That no ADA certified riders are denied trips, although they can be offered a negotiated pick-up time, within a one-hour window on either side of their requested time.

Minimize late cancellations and no-shows

In a free fare system, riders may develop a tendency to take the service for granted and be less inclined to cancel a trip reservation promptly if they no longer need it. A demand response vehicle trip, whether it carries the rider or not, incurs costs. Excessive late cancellations, no-shows or cancellations-at-the-door represent costs to Sandy Transit and a lost opportunity to serve other riders with that portion of the operating budget. In other words, late cancellations and no-shows reduce capacity.

It will be important for Sandy Transit to monitor the rate of cancellations and no-shows for each individual rider of its STAR service to ensure that riders are not depleting the service. Minimizing this wasted capacity has several dimensions:

1. It requires first setting clear definitions of what is a "late cancellation," a "cancel-at-the-door" or a "no-show" and doing robust education of existing and new riders about the standards. Sandy Transit staff currently provide each new STAR rider with a paper brochure explaining the policies.
2. Staff must track and review both the monthly totals and proportions of these lost trips, both in total and for each

individual rider.

3. Staff must then enforce standards that protect STAR's valuable capacity from wastage. This commonly starts with warning letters. For what is usually a tiny number of stubbornly non-compliant customers the enforcement process can end with a temporary or permanent suspension.

Many times simply the act of warning and advising riders of the impact of their actions upon others is sufficient to encourage timely cancellation and to measurably reduce no-show/ late cancellation rates.

Of course, dispatchers should use some discretion around enforcement, for example waiving policy for individuals whose physical conditions may vary from day-to-day and who find themselves making plans that, on the day-of-service, they are unable to keep.

STAR dispatchers and staff should review existing procedures for late-cancellations and no-shows, and evaluate whether existing procedures, definitions and standards are sufficient to prepare the agency for free paratransit fares. A recommended goal is that no-shows and late-cancellations combined make up no more than 5%, and ideally 2% or less, of completed trips.

Consider ADA eligibility process

Currently trip requests are given priority by a STAR dispatcher if the customer has been certified as an ADA rider. Sandy Transit makes these certifications based a 13-question application form that it provides to people desiring ADA paratransit. This form is also used for the Elderly & Disabled Out-of-Town Medical Transport.

Related to concerns about STAR capacity and continuing to ensure priority to ADA riders in a free-fare environment, it may become necessary to tighten existing certification procedures, thereby limiting eligibility and to more clearly delineate who is an ADA certified rider.

Sandy Transit may want to move towards a functional determination of ADA eligibility, or at least an in-person interview that is more focused on whether or not an individual can use a fixed-route bus for some or all of their trips.

A functional determination involves some assessment of the individual's physical or cognitive capacity. Functional limitations in riding a bus can be attested to by a medical professional and don't necessarily require an in-person interview or assessment, as some agencies require. Functional

determinations go beyond age alone.

For the purposes of compliance with federal regulations, a more strict determination of eligibility is not necessary for the Elderly & Disabled Out-of-Town Medical Transport. This is not an ADA service and neither age nor disability alone qualify someone to use this service. Given the very high cost to provide these regional rides (averaging \$44 per one-way ride per person) Sandy Transit already works diligently to ensure that only the people who need the service most are given access to it.

Sandy Transit can consider adding an in-person interview to current ADA certification processes, asking a handful of functionally-oriented questions about the individual's mobility in a short interview. Transportation to and from the interview could be provided by STAR for free.

Clarify ADA information

There will be value in clarifying Sandy Transit website information, particularly in relation to its ADA passengers. At present, the landing webpage for Sandy Transit does not have a left-hand menu, and the link to ADA information is very discrete in small font at the top of the page.

Once on one of the two ADA pages, the topics of certification application, requesting accessible format information and filing complaints are all addressed in a single sentence. Creating some sub-headings on this page to separately address ADA application procedures, ADA-certified passenger trip reservation practices, and general public trip reservation practices is recommended. This is also an excellent place to publish the formal STAR Dial-a-Ride no-show/late-cancellation policy.

Clearer public information can help create a distinction between ADA certified riders and those members of the general public who do not have STAR priority use. It can also serve as a resource to Sandy Transit staff in their conversations with customers.

Regional Service

Gresham Express

Frequency of service to Gresham Transit Center

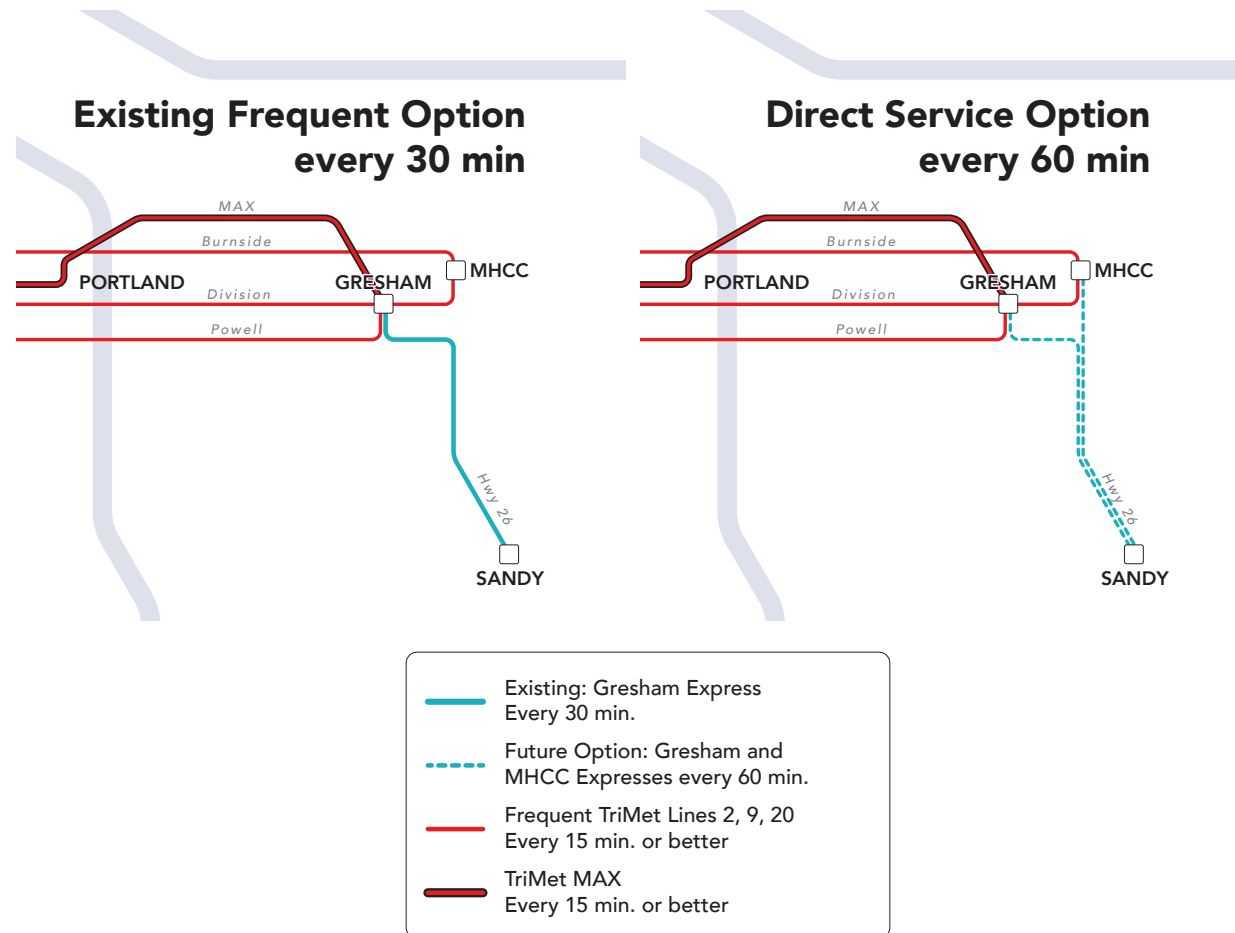
One of the service ideas presented in Phase Two of this planning process was whether the Gresham Express should send some trips directly to Mt. Hood Community College (MHCC), rather than to the Gresham Transit Center.¹

The Gresham Express currently makes connections with four TriMet Frequent Service lines, which take people to numerous regional destinations (including MHCC) with a quick transfer. (The map at left shows the existing connections.)

Branching the Gresham Express to send every-other-bus to MHCC directly would save almost no time for trips to MHCC (because instead of being able to reach class every half hour people could only reach class once an hour). Meanwhile, trips to all other regional destinations would take an extra half hour compared to the travel times today.

This Plan recommends that the Gresham

¹ The driving time between them makes it impossible to do both without significantly worsening the frequency of the route, and causing riders to spend extra time as the route deviates.



The second possible service design is to add a third Shuttle route between Fred Meyer and the Vista Apartments, and provide all three of the routes every 45 minutes.

Express maintain its existing routing, serving Gresham Transit Center every trip every 30 minutes, rather than branching and directly serving MHCC every other trip every hour.

MHCC is currently reachable with a fairly quick transfer from Sandy's Gresham Express to TriMet's frequent Line 20 at Gresham. Branching the Gresham Express, alternating between serving Gresham TC and MHCC, worsens frequency to hourly, instead of half hourly, for riders headed to Gresham TC and beyond.

For those riders who transfer to TriMet to reach MHCC, they are paying an additional fare, and having a direct ride from Sandy (for a low \$1 fare) would therefore be helpful. However, there are two financial programs in place to help them: MHCC's student transit program (reduced fare) and TriMet's low-income fare program. With the aid of just the latter program, the transfer would cost at most \$2.50 per day, and thanks to TriMet's new fare capping policy (in which regular riders can "earn" a pass throughout the month, and stop paying fares once they have ridden numerous times) most people would have an even lower effective fare.

It is unclear how many Gresham Express riders are actually headed to MHCC. Based

on SAM's on-board surveys in 2016 and 2017, very few of the people riding the Gresham Express were going to school during those years.²

Branching would:

- Improve fares *only* for MHCC students
- Not improve travel times for MHCC students.
- Worsen travel times for riders to nearly every other destination in the region.

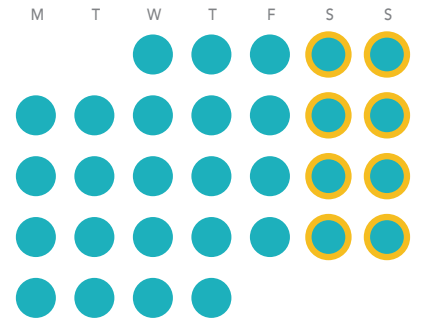
Thus this change would worsen transit service overall for most of Sandy Transit's existing and potential Gresham Express riders.

Respondents in the public online survey were evenly split on whether to branch, while the large majority of the Stakeholder Advisory Committee did not support branching.

If new money becomes available, direct service to MHCC could be added without worsening the frequency of service to the Gresham Transit Center.

² The sample sizes for these surveys were relatively small: 105 respondents in 2016 and 50 respondents in 2017. Of the two groups combined, just one person said that their current trip was to "school." In earlier years, when the economy was weak and more people were enrolled in community college, student ridership on the Gresham Express was surely higher.

More Weekend Service to Gresham



Weekend service

The most-supported type of investment in the Gresham Express with new funding was an **increase in the frequency and hours of weekend service**. It would cost about \$40,000 per year to make Saturday service run as frequently and late in the evening as weekday service. (Note that restaurant and retail jobs typically require employees to work on weekends.)

NE 2nd & Kelly bus stop

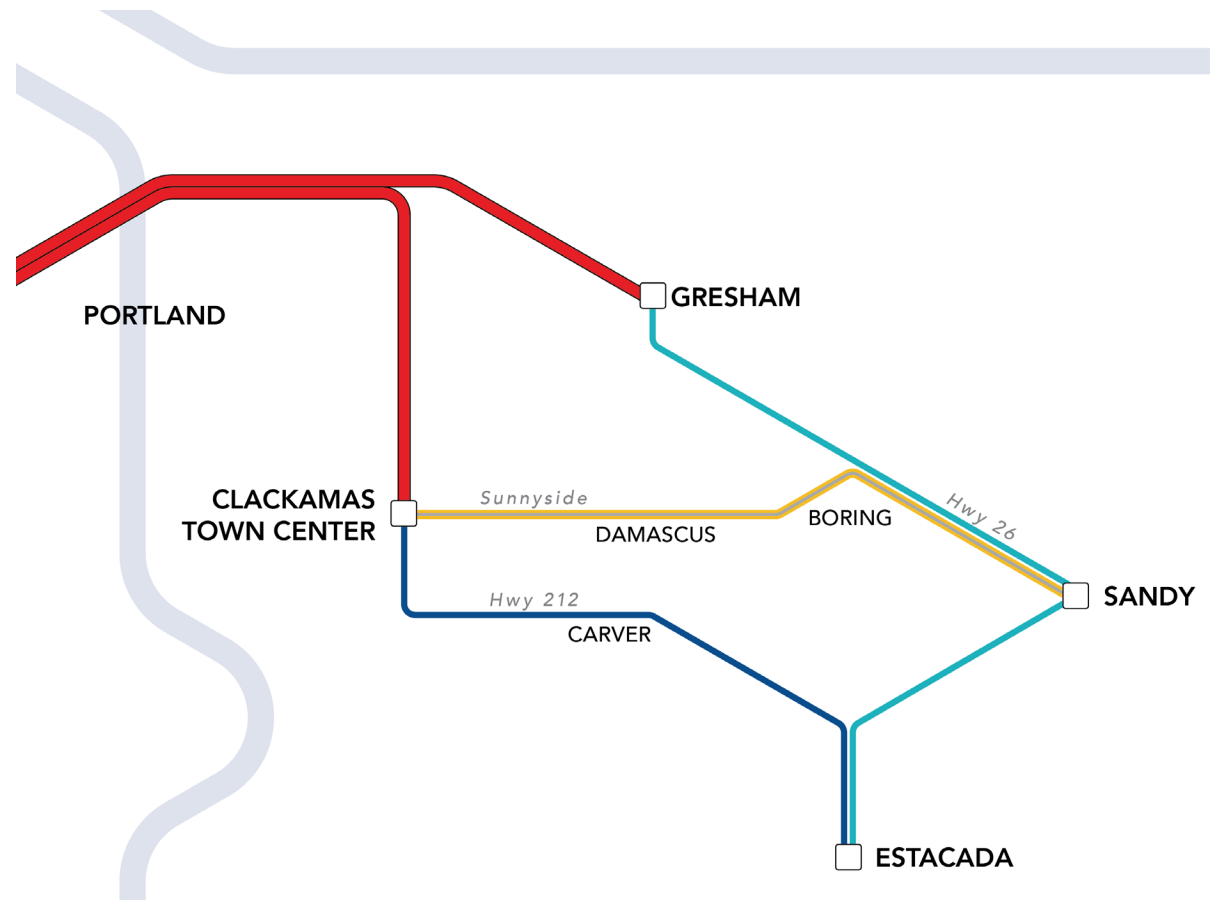
A small change to the service pattern of this route in Gresham is recommended by this Plan. A new inbound (to Gresham) stop should be added on NE Kelly near NE 2nd. This stop would allow people on either side of Powell Blvd. to reach service without a long walk to the Gresham Transit Center, and it would not require any extra time for inbound buses. Adding this stop requires permission of the City of Gresham.

Sandy Transit staff have explored the possibility of entering Gresham via Powell Valley Road, but determined that it would cause the round-trip driving time to exceed 30 minutes, which would “break” the route’s 30-minute frequency. The 30-minute frequency is valuable because it makes the schedule very easy to read and memorize.

Clackamas Express

Growth in Clackamas County over the past decade means that there is now considerable demand for travel between Sandy and Clackamas, and some continuous demand along the roads linking the two areas.

A route linking Sandy and Clackamas would be in the interests of City of Sandy residents, workers and businesses, but would traverse many other jurisdictions. Funding



Growth in Clackamas County has increased demand for travel to Clackamas Town Center, from Sandy and from other nearby communities.

such a route is not Sandy’s responsibility alone. Sandy does not even have the authority to run service along part of this route without permission from TriMet. Public agency partners in a future route like

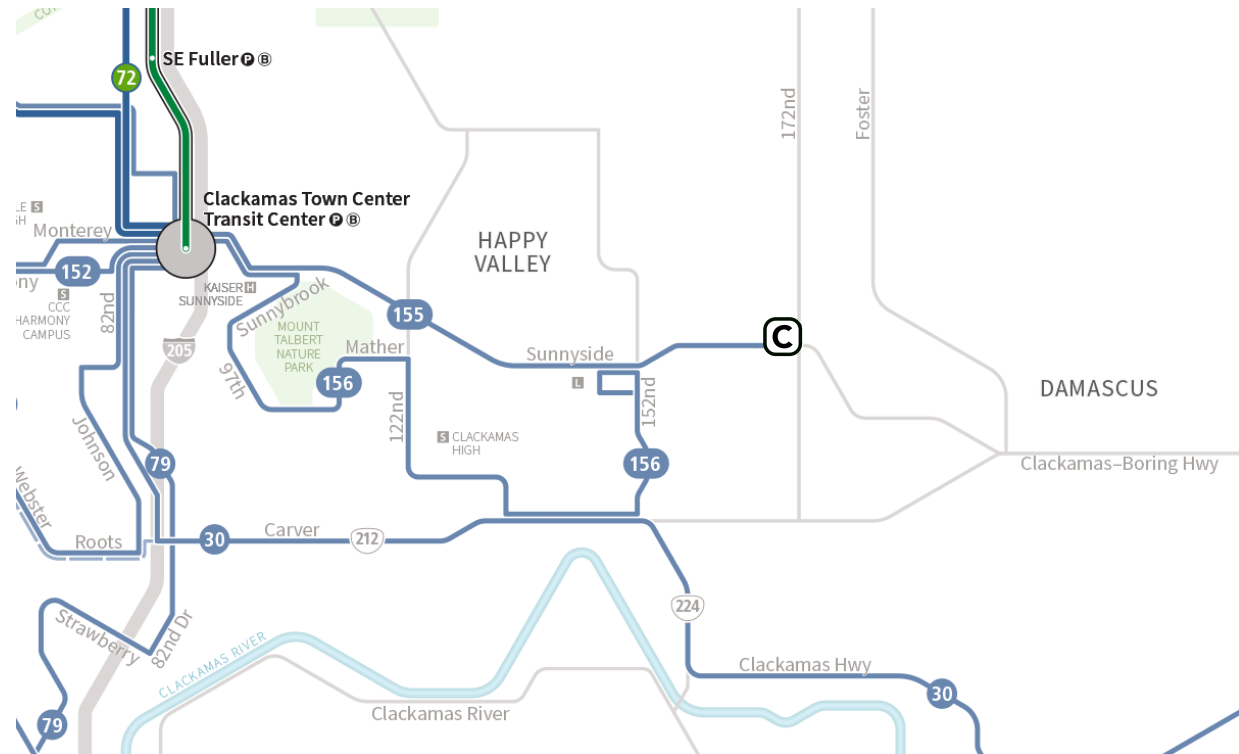
this one could include the City of Sandy, Boring, the City of Happy Valley, Clackamas County and TriMet. Private partners like Kaiser Sunnyside or Clackamas Town Center might also have a role to play.

The operating cost of a route like this that made four daily round trips, Monday through Saturday, would range from \$100,000 to \$250,000 per year, depending on which agency operated it. It would also require the purchase and storage of a dedicated vehicle.

As an alternative to a single route that traverses so many jurisdictions, Clackamas County and Sandy could collaborate on a route that makes a timed connection with TriMet's Line 155 on Sunnyside Road at 172nd. A timed connection provides a reliable short transfer between two routes which, if they simply connected at random, would result in waiting times that are much too long for most people to bear.

However it is delivered, service between Sandy and TriMet's service district would likely be "Express," meaning that it makes widely-spaced stops and follows a direct route. Express routes do not require ADA paratransit for all trips within 3/4 mile of the route. Providing door-to-door paratransit trips along this entire corridor would be prohibitively expensive in the foreseeable future.

This service idea was popular among the public and Stakeholder Advisory Committee members, and reflects their stated desires to see more investment



Sunnyside Road is the most direct route between Sandy and Clackamas, and much of it is in TriMet's service district. Collaborating to operate a single route along this corridor would be complicated. Sandy and Clackamas County could also provide a route with a timed connection at the eastern end of TriMet's Line 155, marked "C" on this map.

in regional services. However, its relatively high cost (mostly arising from the need to acquire another vehicle) and the complication of delivering service across multiple jurisdictions tempered peoples' enthusiasm. Out of six potential service investments, web survey respondents

ranked it fourth and Advisory Committee members ranked it third.

Estacada Express

The Estacada Express offers five daily round trips, from morning until evening, Mondays through Saturdays, between Sandy and Estacada. This route also provides some local mobility to people living along the route in Sandy.

Sandy Transit can add trips to the daily schedule, or can add Sunday service.

The City of Estacada contributes a small amount each year towards the operating cost of this service.

Mt. Hood and Gorge Connections

Sandy Transit is in partnership with Clackamas County offering a seamless transit trip from Gresham to Mt. Hood, via the Gresham Express and the County's Mt. Hood Express.

At the time of writing, planning is also underway for more transit improvements among the Portland area, Mt. Hood, eastern Oregon and the Gorge, which may emulate the type of connection already being made in Sandy.

The possibilities for regional connections and service improvements that might involve Sandy Transit are currently very

broad and untested. They include:

- A Sandy Transit/Gorge Express connection, for example in Troutdale or at Gateway Transit Center.
- Conversion of the Gresham Express/Mt. Hood Express timed connection arrangement into a single route that operates all the way from Gresham to Mt. Hood or even Gateway to Mt. Hood.
- An even longer route that operates all the way from Sandy to Hood River or, in the long term, even Bend.

These ideas will be developed and evaluated through a separate planning process (currently called "Vision Around the Mountain") in which Sandy Transit is participating.

Elderly & Disabled Out-of-Town Medical Transport

Sandy Transit provides a regional flexible service for qualifying people, transporting them to medical appointments outside of Sandy. Only appointments for services that are not available within Sandy are eligible for this service due to its high cost per ride.

3. Capital Investments

Vehicles

Sandy Transit is making a major capital investment in its fleet early in the life-time of this Plan, purchasing 7 new transit vehicles during Fiscal Years 2019-2020 and 2020-2021.

Sandy Transit is also evaluating when to begin investing in electric vehicles. Some of the considerations are:

- The purchase cost of electric vehicles, which is 1.5 to 2 times as high as the purchase cost of a diesel bus.
- The purchase and installation cost of a charging station.
- The costs of maintenance equipment and tools needed to maintain electric buses. (While the manufacturers typically include a few years of maintenance, it becomes the agency's responsibility after that period.)
- The cost of hiring or training mechanics in electric bus maintenance.
- Potential cost savings from using electricity rather than diesel fuel for propulsion.

Other Oregon agencies have begun piloting electric buses, including Wilsonville SMART, Josephine Community Transit and TriMet. Sandy Transit will be able to learn from their experiences in judging when to begin investing in electric buses, how many

to purchase initially, and how to deploy them.

Another option that may lower greenhouse gas emissions, but does not require the purchase of new and more costly vehicles, is the use of "renewable" diesel fuel which is made from fats or vegetable oils and has a lower carbon footprint than petroleum-based diesel.

As Sandy Transit purchases new vehicles and overhauls existing vehicles to extend their useful life, new bike racks that can hold three bikes (rather than two) should be installed.

Some of the service investments described in the previous chapter can be made using Sandy Transit's existing fleet, for example increases in nighttime or weekend service. Others would require the purchase of additional vehicles because they increase the peak fleet requirement on weekdays during the daytime. These include the addition of a local route to the Vista Apartments, the addition of service to or towards Clackamas, and increased STAR service.

Dispatch Technology

Sandy Transit should procure technology that assists with daily trip reservations, dispatching of vehicles and monitoring of rides and riders, for STAR Dial-a-Ride and ADA paratransit service.

STAR is working well with existing, manual-assisted dispatch procedures. However, more fully automating the dispatching process is strongly recommended.

Currently, Sandy Transit uses an EZ Rider/Mobilitat software program to plan trips. However, if a dispatcher determines that a trip cannot be served or is not eligible, that trip is not loaded into the software at all. A consequence of this is that there is no record of trips that could not be provided. This makes capacity monitoring difficult and Sandy Transit cannot truly know whether or not passengers are being adequately served and/or whether additional vehicle capacity may be needed either to serve general public or ADA paratransit customers. In the new free-paratransit environment, monitoring will be more important than ever to ensure that STAR is adequately meeting the trip needs of its ADA certified riders.

Capacity monitoring is possible with existing dispatch software, though additional training or software upgrades may make it more feasible.

Beyond administratively-oriented technology, there are numerous customer-facing technology innovations that Sandy Transit should consider acquiring. These include an ability to find out through the Sandy Transit webpage “Where’s my ride?,” thereby saving dispatcher time. The STAR vehicle is currently shown on the website of DoubleMap (Sandy Transit’s real-time data contractor), but this site is not reachable from the Sandy Transit website.

Finally, some newer systems support on-line reservation-taking for demand response trips, with an accompanying policy that only dispatcher-acknowledged and accepted trips will be served. This ability to book trips on-line is a convenience appreciated by some riders who dislike waiting on-hold and can, instead, put in their trip reservation request directly via a website.

Concern about Internet use among older people and those with disabilities is sometimes raised as a reason not to pursue web-based, customer-oriented technology in public transportation. However, there is increasing smartphone use among older adults, particularly with the aging of the baby boomer cohort. People with disabilities often rely upon Internet access as an important window tool that expands their

capabilities when physical mobility is otherwise more limited.

Sandy Transit should actively pursue technology applications that improve dispatching, monitoring and reporting for STAR, and should embrace those customer-facing technology innovations that improve customer access and confidence and reduce Sandy Transit’s per-customer costs.

Bus Stops and the Transit Center

Sandy Transit's standard (set in the previous Master Plan) is to provide a shelter and bench at bus stops with more than 10 boardings per day.

Bus stops within Sandy are currently meeting that standard, as the City and private parties have made these investments in its high-ridership stops in the past decade.

The two high-ridership bus stops in the City of Gresham are at SE Powell & Rene Ave. (Eastbound) and at the Gresham Transit Center. The former benefits from a shelter and bench placed and maintained by TriMet.

The SAM stop at Gresham Transit Center is the highest-ridership stop in Sandy Transit's system, higher even than at the Sandy Transit Center. It is the top priority for improvements and investment. There is currently no shelter, no bench and no direct walk from TriMet bus stops. The single pole marking the stop is hard to see from afar. This minimal stop does not represent the impressive frequency, reliability and comfort of service provided on the Gresham Express route.

The westbound stop at 362nd has moderate daily boardings (an average of 5-10 per weekday) but terribly sub-standard

conditions. There is no shelter, bench or lighting, and people waiting there must walk along and then stand in a ditch. It is the next priority for basic shelter improvements.

The design of bus stops along State Highways 26 and 211, and will be guided by ODOT's 2012 Highway Design Manual. [Chapter 12](#) describes bus stop considerations such as:

- Near-side, far-side and mid-block stop locations.
- The use of pull-outs and curb-extensions.
- Bus stops adjacent to bike lanes.
- ADA accessibility.
- Passenger waiting and information amenities.

More guidance from Chapter 12 of the Manual is included in the Appendix of this document, starting on page 70.

Additional improvements should be made to high-ridership stops within Sandy such as the addition of lighting and of real-time arrival information. The highest priority stops for installation of real-time arrival boards are at the Sandy Transit Center, the Gresham Transit Center and Bluff Road (westbound), which are the

highest-ridership stops in the system.

The Transit Center has an additional need for better pedestrian crossings, which are described in the following section.

Like most cities, the City of Sandy requires developers to pay for related transit improvements such as concrete pads, shelters, benches, signs or amenities. Because Sandy Transit does not know the exact locations, designs and scales of developments in the future, it is impossible to predict where such investments will be needed to support each developable parcel. These improvements should be planned and funded in consultation with Sandy Transit during the land use planning and permitting processes.

Pedestrian Improvements

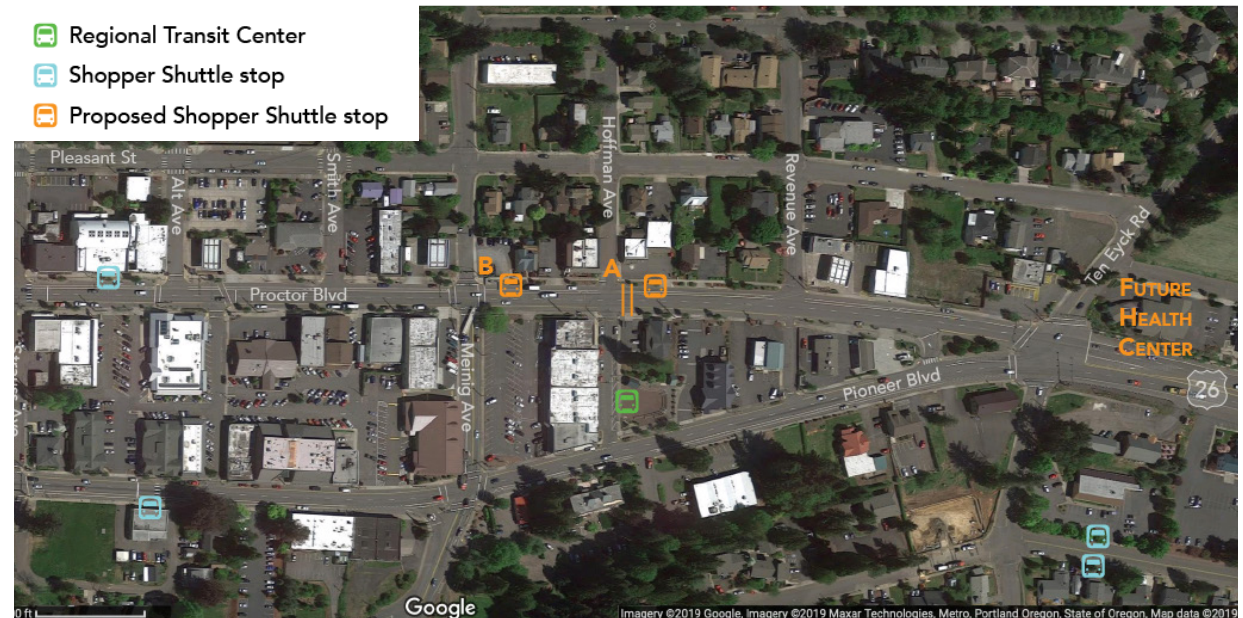
Sandy Transit Center

The current Sandy Transit Center does not permit easy transfers between regional and local services. The Gresham, Estacada and Mt. Hood Expresses connect there, but the local Shopper Shuttles cannot stop at or close to the Transit Center (due to the one-way couplet on either side of it). This means that Sandy's services are not working as a network, providing for complete trips and the "last mile," as they should.

The closest local (Shopper Shuttle) stops to the Transit Center (shown in blue on the map at right) are:

- On McCormick Drive, east of Wolf Drive.
- On Proctor Blvd. east of Strauss Ave.

Both stops are about 1/4 mile walk away from the Transit Center, with 4-5 road crossings, some signalized and some unsignalized. While asking people to walk to transit service has many benefits (allowing agencies to run more direct and more frequent service), asking people to walk to *transfer* is generally frowned upon. It is in the agency's interest to make transfers as easy as possible, because transfers allow agencies to run simpler and more frequent services, rather than circuitous services that



The Sandy Transit Center currently does not offer a "last mile" transit connection for many people, because the transfer between regional services and local services requires a walk of many blocks. The transit center generally is hard to approach on foot from the east. Additional crossing treatments would solve both of these problems, as would a new local stop (at "A" or "B") closer to the Transit Center.

take people from everywhere to everywhere else without a transfer.

The Sandy Transit Center is located one block east of the traffic signal at Meinig and two blocks west of the signal at Ten Eyck. East of Meinig, Highway 26 ceases to feel like a city street and starts to feel like a high speed highway (even though the speed limit is supposed to be 25 mph all the way

to Ten Eyck). It would therefore be inappropriate to put a Shopper Shuttle stop just across Proctor Blvd. from the Transit Center, because there is no safe way for a person to cross from there to the Transit Center, given the lack of a signal, the width of the highway and the actual speeds on the highway in that place.

In the future, there should be crossing

treatments from every direction to the City's Transit Center. *If it is truly a "center," this suggests that people should be able to reach it from all directions on foot.*

This will become a more urgent issue when Clackamas County opens a new full-service health center (with primary care, dental, and behavioral health services) on the north side of Highway 26 just east of Wolf Drive. While this new facility is very close "as the crow flies" to the Shopper Shuttle stop on McCormick Drive, there is no crosswalk across Highway 26 for north-south travel to and from this clinic. As a result, the walk to the Shopper Shuttle stop requires *four separate signal cycles* in order to cross Highway 26.

(The existing transit services in this area are shown in an inset map on the following page.)

In the near term, a Shopper Shuttle stop should be added on Proctor Blvd. just east of Meinig Ave (at location "B" on the map on the previous page). This would reduce the walk to transfer between regional and local service to just 1.5 blocks and two street crossings.

In the longer term, the City of Sandy and ODOT should add crossing treatments across Proctor and Pioneer Blvds. at

Hoffman Ave. so that:

- The Sandy Transit Center is truly a "center," and is reachable on foot from all directions.
- Sandy's local transit services can stop close its regional services (at location "A" on the map on the previous page), making transfers easy.
- Sandy's local transit services can stop closer to the new County clinic.
- People using the urbanizing area east of the Sandy Transit Center have the benefit of safe crossings at every intersection.

Evans St. crossing

The Shopper Shuttle currently makes a very large zigzag in order to drive down Evans Street with the Evans Street Senior Apartments on the bus's right-hand side. This allows riders from those Apartments to avoid crossing Evans Street without a crosswalk or other aid. (Because their building is set far back from the street, they have already walked through a large parking lot by the time they reach the street.)

The addition of a crosswalk or traffic calming on Evans Street would allow Sandy Transit to provide more direct service to all other passengers. It would also reduce the driving time of the Shopper Shuttle route and therefore its operating costs.

As Sandy Transit identifies other places where vulnerable people need to cross the street to reach bus stops, investments in improved crossings may also be beneficial. Allowing people to use fixed route transit instead of dial-a-ride or ADA paratransit gives them more independence and saves transit operating funds.



Improvements to street crossings on the east side of town can make the Shopper Shuttle more direct and less costly to operate, and can improve connections among regional and local routes.

Street Connections

A lack of street connectivity can force transit providers to run circuitous or deviating patterns. It can also force transit providers to divide service into more routes, with each route less frequent than it could be if fewer routes were necessary.

The latter situation is prevalent in Sandy. There are two places in particular where investment in a new (transit-operable) street connection and signals would allow Sandy Transit to either cover the same places at lower cost or cover those places with a more useful service.

Dubarko and “New” Roads

Sandy’s 2011 Transportation System Plan (TSP) describes two new roads as the eastern edge of town which would connect neighborhoods to Highway 26 and, across Highway 26, to Vista Loop.

Lacking these street connections, the only way Sandy Transit can provide transit close to residents of the Vista Apartments is to operate an entirely new and separate transit route that provides unique coverage only to Vista Loop. Once these street connections exist, it may be possible to extend an existing local route to reach the Vista Loop, or at the very least to serve a stop on the west side of the highway which people can reach by walking across the highway at

a signalized crossing.

The road plan from the 2011 TSP is shown on the following page. Two projects are identified that are relevant to this problem – M20 (Dubarko Road) and M22 (“New” Road).

Either segment would be useful to transit, as long as it were accompanied by signals at its intersection with Highway 26 and at the intersection of the opposite end of Vista Loop and Highway 26. M22 (“New” Road) would allow for a simpler transit path and fewer signals needed in order to make two-way transit service through Vista Loop possible. Making two-way service on Vista Loop possible is important because it allows Sandy Transit to run, for example, a large two-way circulator that offers people in Vista Loop the option of traveling west across southern Sandy or northwest directly to downtown Sandy. A traffic pattern that only allows one-way service on Vista will mean that residents of Vista might have to ride all the way around such a circulator, rather than riding directly to where they want to go. In addition, assuming that transit will always run one-way down Vista Loop implies that no matter what development happens beyond Vista Loop, the people living in Vista Loop will only have transit service into the city, not out beyond

Vista Loop. This would be problematic if, for example, a middle school opened beyond Vista Loop, but the service pattern only allowed residents to be picked up by westbound buses.

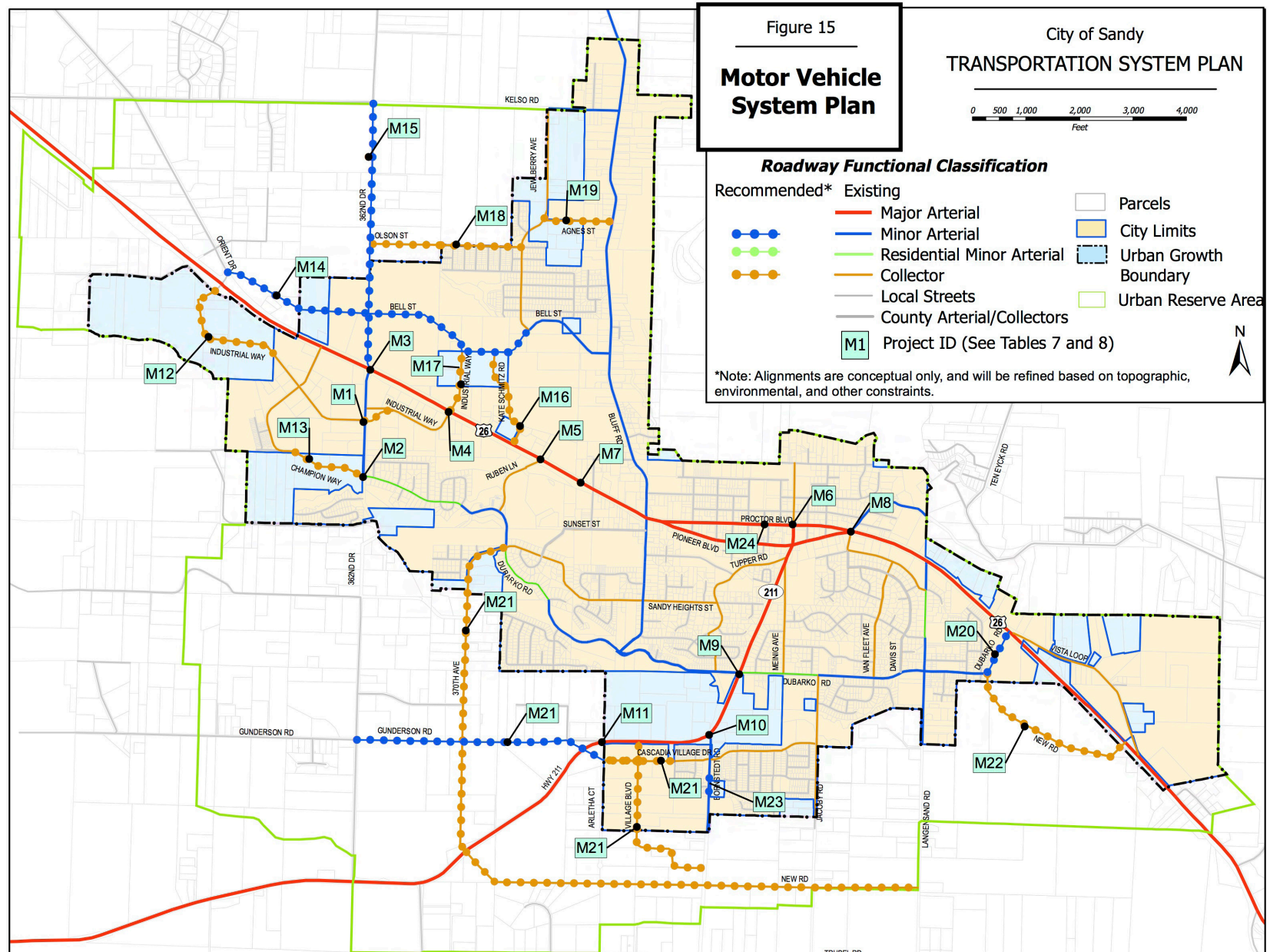
The TSP is being updated soon after this TMP and so the relative priority of these street connections and related signals can be addressed in that update. The test for the transit-operability of any street segments and signals in this area will be a two-way route can serve Dubarko Road, Vista Loop and Proctor Blvd., on which buses can make all of the necessary right and left turns onto and off of Highway 26, with no driving in circles.

Bluff Road

A similar problem exists between developments on Bluff Road and developments on Highway 26. Because Bluff Road is on the way to no other transit destinations, Sandy Transit has to run a separate route just for that area. Once a street connection to the highway exists (via Bell, or via Olson and 362nd), Sandy Transit will have the option of offering more direct transit rides to more destinations.

These new roads are in the TSP but have not been funded as development that makes them critical has occurred.

2011 Transportation System Plan Road Recommendations



Administrative Building and Equipment

Operator break room, training room and restroom

Sandy Transit has an urgent need to increase the amount of space available for operator training, operator breaks, staff breaks and staff meetings. Sandy Transit currently shares space at 16610 Champion Way with other City staff. Transit staff and operators have access to a single open-plan room for all trainings, meetings and breaks, with little privacy and complete exposure to noise from dispatchers, the kitchen, customer service and other functions.

The restrooms provided in the Operations Center are currently insufficient to meet demand. There are only four stalls for all genders, and they serve 30-40 staff per day plus members of the public. New or expanded restrooms are needed.

Planning and design for a new operator break and training room will begin this fiscal year (2019-2020). Construction and build-out of the room, and the addition of any training equipment, will need to be funded in later years.

Emergency planning and equipment

Sandy Transit should prepare for a large scale emergency with both planning and equipment, so that it is prepared to act in support of other agencies in the case of a major emergency such as the Cascadia subduction earthquake.

Equipment would include large diesel tanks and diesel generators, potable water storage, backup radios, sanitation supplies and medical supplies. Staff time may also be required to participate in a City-wide emergency planning effort.

Space for City staff, contractors or partners

Sandy has thus far been a natural place to garage and maintain buses for the Mt. Hood Express (funded by Clackamas County) and of course for Sandy's own regional services. If investments in service increase, this will increase the number of people working at Sandy Transit, for its service contractor(s) or for partner agencies who have some operating relationship with Sandy Transit. There may therefore be needs for more space and equipment at 16610 Champion Way or another facility, such as:

- Office space for employees who plan and supervise the service.
- A new vehicle maintenance bay, as foreseen in the facility's master plan.
- Bus storage and maintenance space.
- Maintenance equipment for a larger fleet or a more diverse fleet.
- Parking for a larger number of operators or staff.

The City owns two undeveloped acres behind the current Operations Center. This land could be developed into additional parking for operators, staff, bus riders or visitors. The land could also be used to store transit equipment such as vehicles, bike trailers, ski boxes, unused bus shelters and maintenance equipment. This additional storage space could be used for regional services (such as the Mt. Hood Express or future County services) as well as for Sandy's own services.

More generally, the service increases and improvements to customer service, public information and regional connections described in this report would require not only one-time investment in staff or contractors to set up, but ongoing staff capacity to deliver and maintain.

On-Vehicle Equipment and Technology

Automated Passenger Counters

Sandy Transit currently collects data on route performance, boardings and fare payment using on-board tablets into which operators enter data. On the back end, a limited set of reports can be generated by staff.

This system is outdated, impractical and does not generate the high-quality data that Sandy Transit would like to use to make decisions and report performance to funders.

The appropriate technology for a system of its size is Automated Passenger Counters (APCs), which automatically count boardings and alightings and relate them to the bus's location and time, without the participation of the person driving the bus.

APCs should be installed on all fixed route buses. Software that can allow Sandy Transit to make use of APC data should be acquired and staff should be trained in its use. Additional staff or contractor time may be needed to make the best use of APC hardware, software and data.

Real-time information

Sandy Transit currently publishes its bus schedule according the General Transit Feed Specification (GTFS). This is what allows Google Transit and other trip-planning apps to direct people to ride Sandy Transit's fixed route services.

Sandy Transit does not currently publish GTFS-realtime, which would allow trip-planning apps to incorporate realtime information about Sandy Transit vehicle locations into itineraries. Sandy Transit has realtime data about the location of its buses and their predicted arrival times, but it is published through a proprietary app, rather than shared openly.

This Plan recommends that Sandy's future investments in hardware and software support the open release of data, most urgently of realtime vehicle location data. This may require the purchase of new equipment, the purchase of new software, staff training, and different specifications given to technology contractors.

GTFS-flex and GTFS-ride

A new GTFS standard that supports trip planning using flexible services has recently been introduced, called "GTFS-flex." This may also become within reach of Sandy Transit and its riders, with or without capital investments, during the life of this Plan.

ODOT is encouraging local agencies like Sandy to prepare for a new ridership-reporting standard called 'GTFS-ride.' This standard for the collection and sharing of ridership data will make it possible for transit agencies, funders and partners to analyze ridership trends and patterns among and across jurisdictions. New APC hardware and software can also support the GTFS-ride standard.

Dispatch software

Recommended dispatch investments – both staff-facing and customer-facing – are described starting on page 31.

Other supporting investments

Other capital investments that will support Sandy Transit's mission and the service additions described in the previous chapter include:

- Cameras for installation in vehicles, particularly in flexible service vehicles, and the software to capture and file recorded information.
- Upgraded fareboxes that can handle tap cards and phone-based payments.
- A fare card vending machine, or a partnership with a local retailer who can sell fare cards, either located near the Sandy Transit Center.

The improvements on this page and the previous page would make the transit customer's experience better, but in most cases would require additional staff capacity to implement, deliver and maintain. The City of Sandy will find that delivering a high-quality product to a growing city requires the baseline level of staff to grow as well.

4. Future Internal Practices

This section describes recommended improvements to Sandy Transit that require staff capacity and may require additional training or software, but are not necessarily capital investments.

Regional collaboration

Sandy Transit has since 2013 worked in partnership with Clackamas County to offer a seamless transit trip from Gresham to Mt. Hood, via the Gresham Express and the County's Mt. Hood Express.

Planning is now underway for more transit improvements among the Portland area, Mt. Hood, eastern Oregon and the Gorge. Service ideas will be developed and evaluated through a planning process (currently called "Vision Around the Mountain") in which Sandy Transit is a participant.

Participating in a larger regional network is beneficial for Sandy's local stakeholders because it may:

- Provide them with access to a greater number and diversity of job, educational, recreational and social opportunities.
- Provide businesses and organizations with access to a larger number of workers and customers, and to workers with a broader range of skills.
- Allow them to benefit from grants and

other funding sources for which transit service to Sandy alone might not qualify.

In addition to regional service planning, Sandy Transit should collaborate with neighboring transit providers on fare integration. As more people take transit trips across jurisdictions, the ability to pay multiple fares easily with one type of fare media (such as a card or a phone) is valuable.

However, easy use of fare media across multiple transit systems is not the only problem to solve. More affluent people may be satisfied if they can simply wave their phone at any bus and pay the fare, but people of limited means are very affected by the total number of dollars they are paying for a ride, especially for a ride they make regularly. Thus fare *structure* must not be neglected in pursuit of integrated fare *media*. It is the fare structure that determines whether someone gets a free or discounted transfer to another transit line, or whether a costly pass is good on multiple agencies' services.

Fare structures can help differentiate between tourists and recreational riders, who can justifiably be asked to pay a higher fare, and those who are riding a transit service regularly as part of their commute.

Updated branding and marketing

The Sandy Transit brand "SAM" is well recognized within Sandy, and the City of Sandy's over-arching brand has recently been refreshed. However, other aspects of Sandy Transit's service branding are complex and due for a refresh.

Transit service branding is different from product branding, whose purpose is to distinguish a product from competitors. Service brands help people see useful layers of a transit system and how they relate to one another.

Not only do service brands help existing customers see the transit network more clearly, they also allow everyone involved in managing the city understand how the transit network relates to their own activities. For example, the Shopper Shuttles and the Gresham Express provide extremely different levels of service and provide for types of travel that will be useful to people in different life situations. Development, land use and business location decisions should respond differently to these two routes.

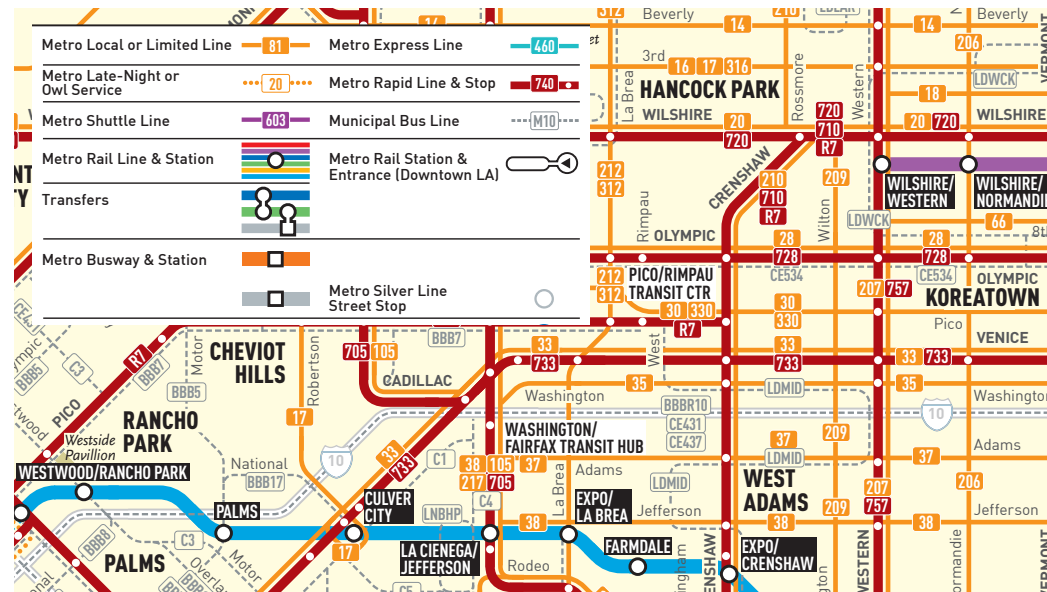
Sandy Transit's system is starting to get large enough that some meaningful service brands will become valuable. They are

already developing with the care of staff, into:

- “SAM,” short for “Sandy Area Metro,” which consists of the Gresham and Estacada Expresses (which can also be ridden just within the city).
- The “Shopper Shuttle,” which at the start of 2019 was split from a single loop into two loops with some overlapping segments.
- “STAR” which provides general public dial-a-ride and ADA paratransit for any trip within Sandy.

Larger agencies provide some helpful demonstrations of service brands, especially brands that distinguish between local or slower services and regional or faster services. For example, LA Metro’s “Rapid” services use red buses and appear red on maps, on timetables and in trip planning apps. LA Metro’s “Local” services use orange. The transit agencies in Seattle and San Francisco use similar names and color distinctions. Express and flexible services are generally given quieter brands, reflecting their design around the needs of smaller numbers of people and their higher operating costs per passenger.

Every service does not need its own service brand. Services that are very expensive to provide are often un-branded because the



As transit systems grow, service branding can make the most broadly-useful services quickly visible, and can make clear the ways that different services fit together into a complete network. LA Metro uses red and orange to distinguish its Rapid and Local services, on vehicles (at top) and maps (at bottom) as well as on bus stops, timetables and in trip-planners.

agency does not wish to attract more riders than absolutely need it. Service information can be communicated clearly without service branding. Sandy Transit would therefore reasonably never brand its Elderly & Disabled Out-of-Town Medical Transport service, and might decide to de-emphasize its STAR brand if free paratransit overwhelms existing capacity on that service.

As Sandy Transit engages in more regional service partnerships, its brands will be judged not just on their local usefulness and clarity but also on how they work as part of a larger network. For example, “Sandy Area Metro” may cause some confusion with “Oregon Metro,” which is the regional government just to the northwest of the city. The SAM route named for “Gresham” is not as meaningful for people who are starting their trip in Gresham, who may be looking for a route named for Sandy (or Mt. Hood).

A related investment can be made in the graphics and signs that make Sandy Transit services visible on the street. The existing bus stop sign has complex graphics and no dominant color, which makes it disappear into the background from afar. TriMet’s signs provide a nearby example of how bright colors and simple, large-scale graphics can make a transit stop stand out in a

busy urban landscape.

Website organization

The Sandy Transit web pages were recently transitioned along with all other City web pages. Information on the Transit pages has become scattered and hard to find, and the hierarchy of information both within each page and within the menus (when menus are available) should be revisited. The graphic design of the City website is appealing, but investment in a reorganization of the content on the Sandy Transit web pages would be timely and valuable.

Surveying

Sandy Transit conducted surveys of the Gresham and Mt. Hood Expresses in 2016 and 2017, and the information collected has proved valuable. Unfortunately, proper on-board surveying requires a great deal of staff time and is therefore hard to fund from on-going transit operating budgets. Sandy should conduct more on-board surveys of its services in future years.

Spanish language operations

Sandy Transit publishes nearly all of its materials bilingually. Given the large and growing number of Hispanic residents and workers in Sandy, continuing this practice is important. In addition, Sandy Transit should strive to employ Spanish-speaking outreach, operations and/or dispatch staff so that Hispanic riders and potential riders have access to customer service in their native language.

5. Related Plans and Decisions

Land Use and the Comprehensive Plan

This chapter describes how values expressed in the Sandy Transit Master Plan and Sandy Transit’s technical expertise about transit operations can inform other plans and decisions.

The 1997 Comprehensive Plan has a *village area* designation, which is envisioned as having:

“...Housing, retail shops, public uses, a village green or park, and, potentially, a transit stop.”

Yet these designated village areas in current are not located in a way that makes it possible to serve them with transit that attracts high ridership relative to its costs.

Some land use plans contain excellent guidance on how to design a neighborhood to be “transit-friendly,” as the Sandy Comprehensive Plan does.¹ Yet the transit-orientation of a neighborhood depends enormously on where it is located.

If the updated Sandy Comprehensive Plan assumes that dense development will be supported by useful and high-ridership transit, those developments must be *on the*

way.

An efficient transit line – and hence one that will support high levels of service – connects busy places *but is also reasonably straight* so that through-riders experience it as direct. A direct line tends to be *shorter*, which means it costs less to operate, which means it can offer better frequencies or longer spans of service.²

Few people find deviating or circuitous routes worth waiting for, especially for short trips, because they spend so much of their travel budget riding away from their destination.

This means that for a development to be transit-oriented, it must be *on the way* between other dense or active places.

At a larger geographic scale, the entire city of Sandy is such a place, located on the way between Bend, Mt. Hood and Portland. As a result, numerous transit services, private and public, pass through it connecting those places. At a smaller scale, dense developments within Sandy can be transit oriented if they are *on the way* between other dense developments.

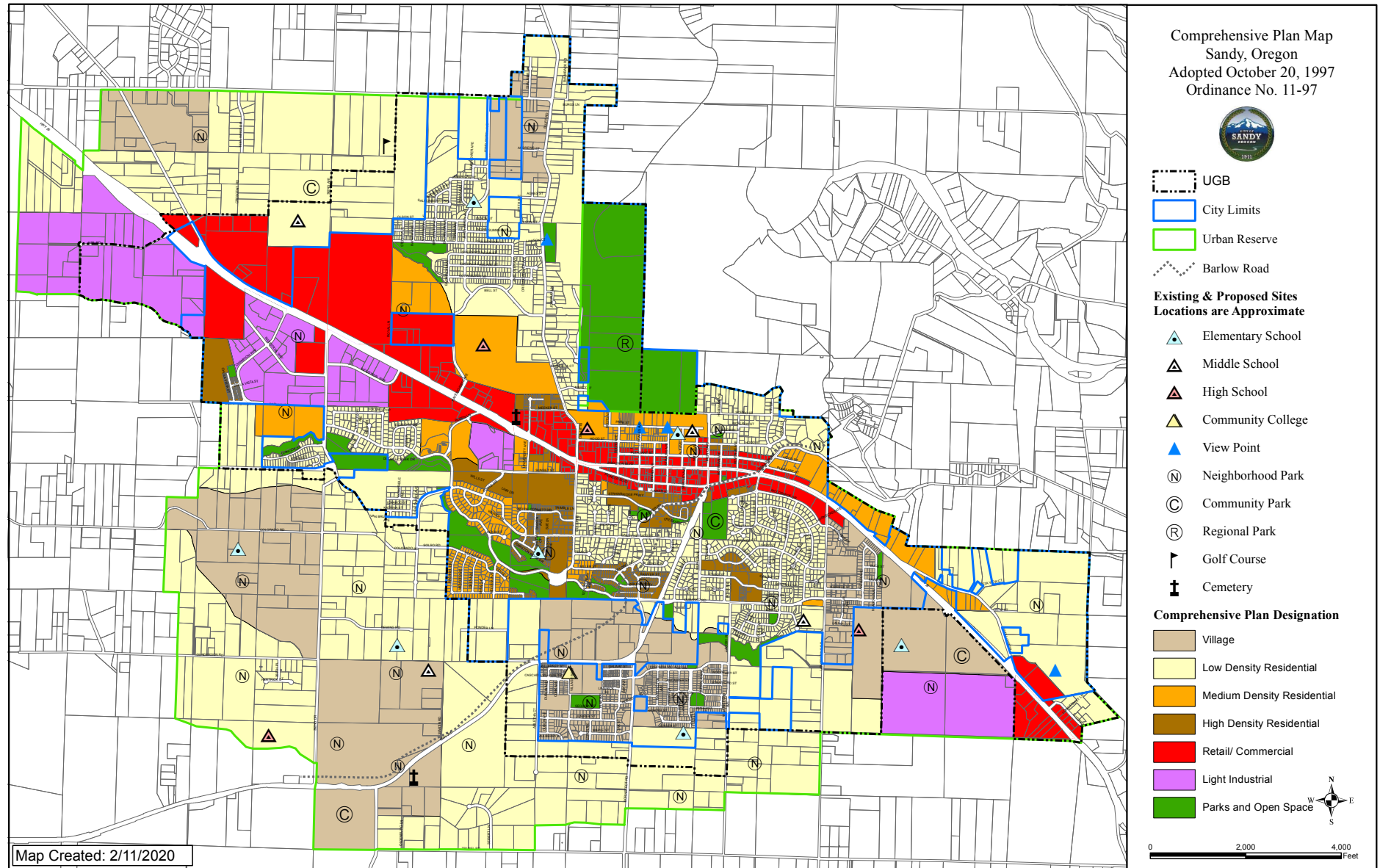
The map on the following page shows the

most recent Comprehensive Plan map, updated in 2020.

¹ The 1997 Comprehensive Plan was adopted when TriMet served Sandy with a single route down Highway 26. Sandy Transit took over that service, and later added more, starting in 2000.

² More about being *on the way* here: humantransit.org/2009/04/be-on-the-way.html

City of Sandy Comprehensive Plan Designations



In the map on the previous page, “Village areas” and High Density Residential are both shown in shades of brown.³

A network designed to reach these village areas would have to cross areas of low density and low transit demand in order to reach the center of each “village,” and then immediately turn around and go back the other way (since the villages are at the edge). This network could not offer many routes that went straight for long enough that people with trips *starting and ending in different places* all found them relatively direct.

As a result, Sandy Transit would have to offer a single unique route to nearly every village area, or a very long and circuitous loop that touches them all. In either case, the number of route miles required to serve the village areas would be quite high. High route miles means either that the frequency that could be offered would be poor, or the cost of offering decent frequency would be high.

The 1997 Comprehensive Plan calls for high densities and a mix of uses along Sandy’s

³ Sandy planning staff report that most of the “Village” areas have not been built out since it was established in the 1997 Comprehensive Plan. The linearity problems this designation presents are thus mostly hypothetical for the time being.

most linear transit corridor, Highway 26, which are extremely *on the way*, both for local service within Sandy and for inter-city service between Portland and Bend. Regardless of how much operating funding Sandy Transit has, Highway 26 will always be the place where the most frequent, direct, useful and therefore high-ridership transit is provided.⁴

In an update of the Comprehensive Plan, the City of Sandy can support highly productive transit by placing dense and active land uses (such as apartments, schools, senior housing and medical services) in areas that are:

- Contiguous and proximate (rather than separated by low-density uses).
- On the way to other busy places, along major transit-operable streets (rather than at the ends of cul-de-sacs or loops).
- Walkable, with well-connected streets or paths.

The 1997 Comprehensive Plan requires the street and path connections that allow the

⁴ While developments along Highway 211 are also *on the way*, they are on the way to much smaller places (Estacada) than the places connected by Highway 26. Highway 26 is currently served by public and private bus lines between Portland and Bend, many times every day of the year. The level of service between Sandy and Estacada is much lower and is always likely to be lower.

maximum number of people near a transit stop to actually reach the transit stop.

Transportation System Plan

Better street connectivity

As described on page 35, a lack of street connections causes the local transit network to be more deviating, complex and infrequent than it would otherwise need to be. Better connections among major (transit-operable) streets, and the organization of development along those major streets, would allow Sandy Transit to provide more direct routes with better service levels.

Lower-order street connectivity is also important for transit ridership because local streets almost always define walking distance to a nearby bus stop. In a network of cul de sacs and loops, a bus stop may be 1/4 mile away as-the-crow-flies but a longer distance on foot. Poor walkability can cause a transit agency to run longer, more circuitous routes. These routes cost more to operate and attract lower ridership than more direct routes.

Pedestrian improvements

The Sandy Transit Center is currently less of a center and more of a peninsula due to the lack of pedestrian crossings to the north, to the south and to the east. Meanwhile, Sandy is continuing to develop east of the Transit Center, including a new Clackamas County Health Clinic. Local and regional buses cannot stop near one another due to

a lack of crosswalks. These conditions are described on page 33, and they should be addressed in an updated TSP.

Redefining “transit street”

The 2009 Sandy TMP defined “transit streets” much too broadly, as any street down which existing or planned fixed route transit runs. The City’s Development Code (Title 17) requires particular setbacks, building orientations and pedestrian connections along such “transit streets.”

One potential interpretation of the TMP and Development Code is that “transit streets” are all Collectors and Arterials, but not Local Streets. (A map of existing and planned roadway classifications from the 2011 TSP is shown on page 36.) This is a reasonable interpretation. Yet Sandy Transit currently runs fixed routes on some Local Streets to reach dense developments. Simply turning around a bus at the edge of town may also require using Local Streets.

Dense and “village” areas have been planned for the edges of the city or inside larger swaths of low-density development. This will require more miles of fixed route transit than if dense developments were concentrated on and near major roads. If “transit streets” is defined simply as any street with fixed route service on it, then

there will be “transit streets” on which service will always be minimal, because the land uses and development pattern will not support high ridership.

Many cities now go beyond simple references to the presence or absence of transit, and instead incorporate information about transit’s potential usefulness and therefore its potential ridership.

This more nuanced approach can focus private parties’ investments in the places where they will be most useful. It can help the City prioritize public investments in the right-of-way. And it can make the most of transit’s power to mitigate the traffic and parking impacts of growth, by orienting developments towards the most useful transit routes.

Sandy’s Comprehensive Plan, development code and Transportation System Plan could refer to the presence of all-day transit, or all-week transit, or some other threshold that defines the usefulness of transit. This standard could be used to decide when certain investments or design criteria must be met by developers, and when denser development or lower car parking supplies are permitted.

Clackamas County Transit Development Plan

Clackamas County is creating its first Transit Development Plan (TDP) starting in 2020. This TDP will provide an opportunity to define transit needs in the County, identify funding sources and define future services.

Mt. Hood Express

Sandy Transit currently provides operation, maintenance and storage of the Mt. Hood Express under contract for Clackamas County. The County funds the Mt. Hood Express in order to provide job access for County residents and for resorts and other businesses on the mountain, but the County has not decided that it should be a transit operator itself.

Both agencies participate in the “Vision Around the Mountain” planning process that may influence future regional connections and services through the County.

Estacada

Sandy Transit currently provides a route to Estacada six days per week, with five round trips per day. This route is currently the least productive among Sandy’s fixed routes, with just under 6 boardings per hour. The City of Estacada contributes \$10,000 per year, which covers a little more than 1/5 of the direct operating costs of the route.

Community members report that some high school students use the route to access educational programs in the other city that are not available at their own school.

Among surveyed transit riders and stakeholders in Sandy, additional investment in the Estacada Express route was given very a low priority. This route was started with funding from a federal grant program which has since gone away. It would be prudent for Clackamas County, Sandy and Estacada to discuss additional future funding sources for this route. It may be hard for the City of Sandy to justify continuing to fund it at the same level if an economic recession forces Sandy Transit to cut services.

Boring

The unincorporated community of Boring is near (but not on) Highway 26, where the Gresham Express operates. Some Boring residents and in particular employees and visitors of Guide Dogs for the Blind wish to have access to transit.

Deviating the Gresham Express off of Highway 26 is not a good solution to the problem of Boring’s transit access, as it would add considerable travel time and operating cost to the Express route. Because the population of Boring is so

small, this long deviation would likely decrease ridership between Sandy and Gresham by more than it increased ridership from Boring.

This Plan has identified another possible fixed route service that would cover Boring, which is a route connecting Sandy and Clackamas via Boring and Sunnyside.

There may also be ways to serve some of the transportation needs in Boring with demand response transit, though the cost per rider will be high and the capacity for growth is extremely limited, unlike with a fixed route. Another option worth considering for large employers or social services located far from other major destinations is a vanpooling program which, in the case of Boring, could be based out of Gresham, allowing participants to reach the vanpool by transit.

6. Goals, Policies and Actions

Sandy's goals, objectives and planned actions are guided by the Oregon Public Transportation Plan and by input from riders, stakeholders and decision-makers in Sandy.

Sandy Transit's highest level goals are:

1. To provide effective, safe, and equitable transit service that gives Sandy residents, workers, businesses and visitors more freedom to meet their needs within the city, the region and the state.
2. To create a transit system that offers an alternative to private automobile use, supports efficient use of roadways, and reduces air pollution and energy use.

In working towards these goals, Sandy Transit will:

1. Provide service that is safe, comfortable, and useful to many different kinds of people.
2. Collaborate with other transportation agencies and support user-friendly connections between transit systems.
3. Increase service as the numbers of residents and jobs in Sandy grow.
4. Improve accessibility to transit and connections between transit services for people arriving by foot, by bicycle or with a mobility device.

5. Increase public awareness of Sandy Transit and its connectivity to other transit systems and transportation modes.
6. Operate with the highest degree of fiscal responsibility.
7. Reduce air pollution and energy use through strategies such as conservation, improved technology, and alternative fuels.

Some of the Actions described are directly under the control of Sandy Transit, while others are directly controlled by Sandy Transit's service contractor (currently RoJoy).

Policy 1:

Provide service that is safe, comfortable, and useful to many different kinds of people.

Action 1.1

Ensure that bus operators receive regular training in customer service, service for people with disabilities, lift operation, defensive driving, mental health first aid response, and emergency preparedness.

Action 1.2

Ensure that drivers make use of a transit-related language tool when appropriate to aid in communication with non-verbal passengers and those who have limited

English.

Action 1.3

Encourage the hiring of operators and/or customer service staff who are fluent speakers of Spanish.

Action 1.4

Require the inspection and repair of all buses according to manufacturers' maintenance schedule to ensure that there are no breakdowns during service hours. Ensure that buses are kept clean during service and that they are thoroughly cleaned at the end of each day.

Action 1.5

Maintain a record of 90% on-time service on all routes.

Action 1.6

Upgrade flexible service dispatching software or improve the use of existing software through training. Require the monitoring of flexible service capacity and denials, and the keeping of records of trips that cannot be served for general public and ADA-certified passengers.

Action 1.7

Consider adding a functional evaluation of riders' capabilities to the certification process for ADA paratransit.

Action 1.8

Evaluate the feasibility of online booking for general public Dial-a-Ride and ADA paratransit trip requests.

Action 1.9

In public materials and on the website, clarify the difference between general public Dial-a-Ride and ADA paratransit, and set customer expectations for each distinct service.

Action 1.10

Maintain a 0% rate of trip denials for requests by ADA-certified passengers who request a ride by 5 p.m. the previous day.

Action 1.11

Maintain a 2% rate of late-cancellations and no-shows by all Dial-a-Ride users.

Action 1.12

Record information about customer comments that are submitted through comment cards, letters, calls or e-mails, along with resolution or action taken.

Action 1.13

In selecting sites for bus stops, give preference to locations that can accommodate a future bench or passenger shelter within the public right-of-way, and at locations that operate safely given roadway traffic conditions.

Action 1.14

Ensure that shelters are provided at all bus stops with 10 or more boardings per day both within and outside of the City of Sandy.

Action 1.15

Work with the City of Gresham and TriMet to develop a SAM bus stop at the Gresham Transit Center that meets Sandy's standards for high-ridership stops.

Action 1.16

Ensure that lighting is provided at all bus shelters to enhance safety and visibility.

Action 1.17

Provide real-time arrival displays at the Sandy Transit Center and at other bus shelters with more than 30 boardings per day.

Action 1.18

Install cameras in all vehicles, especially flexible service vehicles, and acquire software and a protocol for archiving recordings.

Action 1.19

Develop an emergency plan. Acquire and maintain equipment that will allow Sandy Transit to support other City and regional partners in case of a large-scale emergency.

Action 1.20

Seek collaboration with and feedback from

Latinx people to understand how transit can be useful, comfortable and safe for those members of the community.

Action 1.21

Provide a machine or partner with a local retailer for the sale of fare cards, available most hours of the day near the Sandy Transit Center.

Policy 2:

Collaborate with other agencies and support user-friendly connections between transit systems.

Action 2.1

Coordinate transit schedules as closely as possible with connecting transit providers so that transfers are reliable and short.

Action 2.2

Work with neighboring providers to develop fare reciprocity agreements, match fare technologies when possible and support easy and affordable transfers between systems.

Action 2.3

Maintain an accurate GTFS feed and update it regularly and publish GTFS-realtime, for consumption by third-party trip planning apps.

Action 2.4

Participate in and support regional planning initiatives. Enter into regional and statewide collaborations that improve the usefulness of transit connections across jurisdictional boundaries in Oregon.

Action 2.5

Explore the feasibility of a route or routes connecting Clackamas, Sunnyside, Damascus, Boring and Sandy, funded collaboratively by regional partners.

Action 2.6

Support efforts to streamline the process for ADA paratransit transfers between providers, to reduce operating costs and to maintain the ease with which passengers can schedule a multi-jurisdictional trip.

Policy 3:

Increase service as the numbers of residents and jobs in Sandy grow.

Action 3.1

Design and construct an operator break room, training room and expanded restroom. Evaluate the need for additional space for administrative staff and operators as service levels and community expectations grow.

Action 3.2

Conduct regular surveys of transit riders (in multiple languages) to assess the existing

use of and market for transit.

Action 3.3

Reassess the locations, densities and demographics of Sandy residents once 2020 Census data becomes available. Analyze if and how access to transit differs for people of different incomes, ages and races.

Action 3.4

Report regularly to the employers and employees who pay the Sandy Transit payroll tax on the performance of the transit system, such as through a short Annual Report.

Action 3.5

Work with other government agencies to provide service that improves public health in the City of Sandy and surrounding areas.

Policy 4:

Improve accessibility to transit and connections between transit services for people arriving by foot, by bicycle or with a mobility device.

Action 4.1

Continue to require that development on “transit streets” be designed to support transit use through site planning, pedestrian connectivity and walkability.

Action 4.2

Continue to require that new developments on “transit streets” provide transit improvements such as bus shelters, bus stop signs, benches, and lighting, if fixed-route transit service is currently provided in that location or is expected within the next three years.

Action 4.3

Work with other City departments and ODOT to plan and fund pedestrian crossing treatments to the Sandy Transit Center from all four directions.

Action 4.4

Work with other City departments and ODOT to plan and fund a new bus stop and a crossing treatment at Proctor Blvd. and Hoffman Ave. to allow local and regional buses to stop near one another.

Action 4.5

Provide bike parking at regional transit stops with more than 10 boardings per day.

Action 4.6

Add three-bike racks to existing buses and purchase such racks with all new buses.

Action 4.7

Continue to coordinate with the Sandy Senior Center to provide seniors with the ability to reach medical appointments, run errands and socialize.

Action 4.8

Take feedback on the system's accessibility for seniors, people with disabilities and other vulnerable passengers through the Transit Advisory Board.

Action 4.9

Ensure that all new transit facilities meet ADA requirements.

Action 4.10

Continue to provide transit information in Spanish and provide customer service in Spanish. Provide audible on-board stop announcements in Spanish as well as English.

Action 4.11

Work with other City departments to improve pedestrian crossing conditions directly in front of the Evans Street Senior Apartments, in order to establish a Shopper Shuttle bus stop on the far side of the street (eastbound) and make the Shuttle more direct for through-riders.

Policy 5:

Increase public awareness of Sandy Transit and its connectivity to other transit systems and transportation modes.

Action 5.1

Maintain an accurate GTFS feed and update it regularly and publish

GTFS-realtime, so that new residents and workers can easily discover Sandy Transit services.

Action 5.2

Market routes and general-public Dial-a-Ride through promotions, events and social media.

Action 5.3

Announce schedule and route changes clearly on the website, on-board buses, at bus stops, in the local newspaper and through social media.

Action 5.4

Reorganize the Sandy Transit web pages on the City of Sandy's website.

Action 5.5

Refresh the Sandy Transit service brands, graphic designs and marketing materials.

Action 5.6

Market Sandy Transit services in a way that also promotes local businesses and services.

Action 5.7

Continue to recruit and train volunteers to provide one-on-one travel training, either directly or through partner organizations.

Policy 6:

Operate with the highest degree of fiscal responsibility.

Action 6.1

Maintain a capital improvement plan that identifies needs, costs, and funding sources.

Action 6.2

Maintain local funding sufficient to provide a match for state and local capital grants.

Action 6.3

Maintain a cash reserve balance of at least 50% of a single year's budgeted operating expenditures (not counting contributions to capital), to protect against sudden service cuts in the event of an unexpected revenue shortfall.

Action 6.4

Evaluate bus pull-outs on a case-by-case basis to ensure safety for passenger loading and unloading, safety for road operations, and with a conscious evaluation of the resulting delays to transit riders.

Action 6.5

Conduct triennial fare reviews to establish and maintain a fare structure that balances revenue needs against ridership outcomes, and is conscious of the use of fares to control demand for flexible services with

their high marginal cost for each added passenger.

Action 6.7

Purchase and install APCs on-board all fixed route buses. Purchase supporting software that allows for each collection, analysis and reporting of ridership data, and regularly train staff in its use.

Action 6.6

Evaluate fixed routes and flexible services regularly based on ridership levels, cost, unique coverage provided and other non-ridership-related outcomes.

Action 6.7

Acquire computer-aided dispatch software.

Policy 7:

Reduce air pollution and energy use through strategies such as conservation, improved technology, and alternative vehicle propulsion.

Action 7.1

Evaluate the costs, benefits and savings of using electric vehicles to provide service. Invest in electric vehicles, charging stations, maintenance equipment and maintenance staff training when and as appropriate.

Action 7.2

Evaluate the use of alternative fuels to

reduce greenhouse gas emissions.

Action 7.3

Install photovoltaic lighting at new bus shelters, whenever the cost is reasonable compared with conventional power.

Action 7.4

Explore the viability of transportation system management (TSM) techniques, such as traffic signal priority and queue jumps to help reduce bus travel times and make transit more competitive with driving.

7. Financial Scenarios

The City of Sandy's adopted budget covers the biennium from July 2019 through June 2021. Summary tables showing the first half of the Sandy Transit biannual budget, for FY 2019-2020, are on page 10.

Two hypothetical financial scenarios for the three fiscal years (FY 2021-2024) following the current adopted budget are described in this section. The purpose of these scenarios is to set expectations for degree of change in service or capital investment that could occur in the near future. These scenarios illustrate how much Sandy Transit's "bottom line" might swing if either the economy continues to "bloom" as it has since the end of the Great Recession in 2009, or enters a period of "gloom" in which growth slows. Given the Covid-19 pandemic and its economic impacts as of the time of writing this plan, the Gloom scenario seems much more likely to occur.

This Plan does not prescribe what service additions or cuts should take place under either scenario. The direction, degree and timing of any change to Sandy Transit's bottom line are too hard to predict with accuracy to make specific prescribed service additions or cuts useful. We also do not know how conditions may change in the time period between now and when the financial picture changes: new funding

sources may become available for certain types of service; development in Sandy may accelerate or take a different form; the locations of major employers, schools or stores could change. These and many other unpredictable factors will affect how Sandy responds to changing financial conditions over the life of this Plan.

"Bloom"

The Bloom scenario on the following page reflects the existing situation in which Sandy Transit's revenues are greater than its current operating cost obligations, and these assumptions about the near future:

- Nearly all revenue sources grow by a steady 3% per year.
 - ▶ However, fare revenue does not grow, due to the recent introduction of a free paratransit fare.
- All costs grow by a steady 3% per year.
- As a result of growth in revenues outpacing growth in costs:
 - ▶ Sandy can add about 10% more fixed route service and 9% more flexible service by FY 2023-2024.
- A reserve equivalent to one half year's operating costs could be maintained in this scenario through 2029.
- Thanks to 3% growth in Federal and

State capital grants, and continuing contributions from the operating budget, more than \$1 million in capital investments could be made per year by FY 2023-2024.

With an additional \$56,000 per year in funding for fixed route services, there are a few modest additions Sandy Transit could make:

- Additional Saturday service on the Shopper Shuttles;
- More Saturday or Sunday service on the Gresham or Estacada Expresses; or
- A contribution towards operations of a future Sunnyside-Boring-Sandy corridor service.

The operating costs of adding another Shopper Shuttle route on weekdays would be greater than this amount, and an additional bus would be required. With an additional \$24,000 per year in funding for flexible services, Sandy Transit could add two additional hours per weekday of a Dial-a-Ride/ADA paratransit vehicle and driver, to address peaks in demand.¹ There is an additional cost of a new vehicle.

¹ Descriptions of what service additions would be possible with this additional funding in FY 2023-2024 are based on an assumed 3% annual inflation in cost per service hour charged by Sandy Transit's contractor, which is \$45.47 in FY 2019-2020.

"Bloom" financial scenario FY 2021-2024

	"Bloom" forecast operating revenues		
Revenue source	2021-2022	2022-2023	2023-2024
Beginning balance/reserves	\$1,143,277	\$1,168,030	\$1,150,073
Sandy payroll tax	\$618,000	\$636,540	\$655,636
Federal grants	\$591,751	\$609,504	\$627,789
State payroll tax	\$142,285	\$146,554	\$150,950
State grants	\$132,580	\$136,557	\$140,654
Fares	\$90,000	\$90,000	\$90,000
Intra-city agency loan repayments	\$80,129	\$80,129	\$80,129
Partner agencies	\$69,216	\$71,292	\$73,431
Interest	\$25,515	\$25,530	\$25,546
Miscellaneous	\$5,665	\$5,835	\$6,010
	\$2,898,418	\$2,969,972	\$3,000,219

	"Bloom" forecast operating costs		
Operating cost	2021-2022	2022-2023	2023-2024
Fixed route transit operations (contracted)	\$550,226	\$566,733	\$583,735
Add'l fixed route transit operations (contracted)	\$21,000	\$49,000	\$56,000
Dial-a-ride/paratransit operations (contracted)	\$254,656	\$262,296	\$270,165
Add'l dial-a-ride/paratransit operations (contracted)	\$9,000	\$21,000	\$24,000
Staff salaries	\$208,060	\$214,302	\$220,731
Bus fuel	\$180,250	\$185,658	\$191,227
Bus maintenance and equipment	\$103,206	\$106,302	\$109,491
Transfer to other city funds	\$72,001	\$74,161	\$76,386
Transfer to Capital Fund	\$50,000	\$50,000	\$50,000
Staff retirement (PERS)	\$49,955	\$51,454	\$52,997
Insurance	\$48,925	\$50,393	\$51,905
Staff health insurance	\$40,170	\$41,375	\$42,616
Office supplies and services	\$38,419	\$39,572	\$40,759
Major project management (contracted)	\$25,750	\$26,523	\$27,318
Rent for administrative building and yard	\$24,076	\$24,799	\$25,542
Staff payroll taxes (SS, transit)	\$17,253	\$17,770	\$18,303
Bus shelter maintenance	\$14,008	\$14,428	\$14,861
Staff training	\$9,270	\$9,548	\$9,835
Transit marketing	\$7,725	\$7,957	\$8,195
Utilities	\$5,665	\$5,835	\$6,010
Staff other benefits	\$773	\$796	\$820
Total operating costs	\$1,730,388	\$1,819,899	\$1,880,896
Forecast reserve (revenues minus costs)	\$1,168,030	\$1,150,073	\$1,119,323

	"Bloom" forecast capital revenues		
Capital revenues	2021-2022	2022-2023	2023-2024
Federal grants	\$885,564	\$912,131	\$939,495
State grants	\$54,590	\$56,228	\$57,915
Transfer from transit operations fund	\$50,000	\$50,000	\$75,000
	\$990,154	\$1,018,359	\$1,072,410

Finally, this operating surplus could be used for capital investments (as a local match for grants) rather than for service increases.

Screen-readable tables are provided on page 58.

Legend	
	Yellow-highlighted cells reflect an assumed 3% growth rate.
	Green-highlighted cells represent discretionary increases in funding for service.

"Gloom"

The "Gloom" scenario on the following page reflects these assumptions:

- A 25% increase in Sandy Transit's cost to deliver service in FY 2021-2022.
- Most other costs increase by 3% per year.
- Payroll tax receipts (from the City and State taxes) stop growing and remain flat.
- State and Federal grants for operations remain flat, as would fare revenues.
- Federal grants for capital investment are cut by 15%.
- As a result, Sandy Transit's reserves would be drawn down by about \$200,000 in the first year of this period and \$250,000 in the second year, an unsustainable trend.
- Sandy Transit's Capital Fund would be reduced to about \$830,000 per year.

Just as this Plan is being readied for adoption, a more severe recession has begun due to the Covid-19 pandemic. The duration of this recession is unknown - because it is contrived in order to protect us from disease, it could be shorter than a "natural" recession. However, the number of job losses is incredibly high, and it could

potentially be very severe. Were the Gloom scenario being developed today, it would include falling payroll tax revenues. It would also reflect a greater increase in unit operating cost, up to 50% greater based on bids received from potential operators at time of writing. Future federal funds for operations and capital are uncertain: while the CARES Act in early 2020 has delivered an infusion of needed, additional funding, funding for 2021-2024 is as uncertain as ever. Federal funding is decided during reauthorization of the federal transportation bill every six years, and is subject to political forces which are hard to predict. The next reauthorization is expected in 2020.

Sandy Transit currently has a fleet of 11 transit vehicles. Each has a useful life of about 10 years, which means at least one vehicle should be replaced on average every year. At time of writing, a diesel transit vehicle costs between \$180,000 and \$500,000. Electric vehicles cost between \$700,000 and \$900,000 and require additional investments in charging stations, tooling and power transmission upgrades. Transitioning to electric vehicles would consume most of Sandy Transit's Capital Fund for about a decade, in the "Bloom" scenario. It would not be feasible in the "Gloom" scenario given the agency's non-vehicle capital needs.

Sandy Transit would neither propose nor operate on a budget that erodes reserves at such a pace as shown in this "Gloom" scenario. The agency would likely plan for service cuts, administrative cuts and the postponing of capital investments if the "Gloom" scenario were on the horizon (and, at time of writing, it is). The cuts needed in order to make the budget balance in FY 2022-2023 would be fairly deep.¹ As an illustration, if the cuts to balance the "Gloom" scenario were to come entirely from service (though they probably wouldn't), they would need to equal the equivalent of one-half of the service on the Gresham Express or nearly all Dial-a-Ride/ADA paratransit service.

Sandy Transit's healthy cash reserves protect it (and its riders) from sudden service cuts. Both the "Gloom" scenario and the even gloomier outlook as this Plan is being finalized show that the reserves can only forestall service cuts for one or two years before they are depleted.

The tables on the next page offer more detail, and screen-readable tables are provided on page 69.

¹ These costs are based on 25% unit cost growth in FY 2021, followed by 3% cost growth.

"Gloom" financial scenario FY 2021-2024

	"Gloom" forecast operating revenues		
Revenue source	2021-2022	2022-2023	2023-2024
Beginning balance/reserves	\$1,143,277	\$981,222	\$765,062
Sandy payroll tax	\$600,000	\$600,000	\$600,000
Federal grants	\$574,516	\$574,516	\$574,516
State payroll tax	\$138,141	\$138,141	\$138,141
State grants	\$128,718	\$128,718	\$128,718
Fares	\$90,000	\$90,000	\$90,000
Intra-city agency loan repayments	\$80,129	\$80,129	\$80,129
Partner agencies	\$67,566	\$67,943	\$68,331
Interest	\$25,515	\$25,530	\$25,546
Miscellaneous	\$5,665	\$5,835	\$6,010
	\$2,853,527	\$2,692,035	\$2,476,453

	"Gloom" forecast operating costs		
Operating cost	2021-2022	2022-2023	2023-2024
Fixed route transit operations (contracted)	\$667,750	\$687,783	\$708,416
Dial-a-ride/paratransit operations (contracted)	\$309,049	\$318,320	\$327,870
Staff salaries	\$208,060	\$214,302	\$220,731
Bus fuel	\$180,250	\$185,658	\$191,227
Bus maintenance and equipment	\$103,206	\$106,302	\$109,491
Transfer to other city funds	\$72,001	\$74,161	\$76,386
Transfer to Capital Fund	\$50,000	\$50,000	\$50,000
Staff retirement (PERS)	\$49,955	\$51,454	\$52,997
Insurance	\$48,925	\$50,393	\$51,905
Staff health insurance	\$40,170	\$41,375	\$42,616
Office supplies and services	\$38,419	\$39,572	\$40,759
Major project management (contracted)	\$25,750	\$26,523	\$27,318
Rent for administrative building and yard	\$24,076	\$24,799	\$25,542
Staff payroll taxes (SS, transit)	\$17,253	\$17,770	\$18,303
Bus shelter maintenance	\$14,008	\$14,428	\$14,861
Staff training	\$9,270	\$9,548	\$9,835
Transit marketing	\$7,725	\$7,957	\$8,195
Utilities	\$5,665	\$5,835	\$6,010
Staff other benefits	\$773	\$796	\$820
Add'l dial-a-ride/paratransit operations (contracted)	\$0	\$0	\$0
Add'l fixed route transit operations (contracted)	\$0	\$0	\$0
Total operating costs	\$1,872,304	\$1,926,973	\$1,983,282
Forecast reserve (revenues minus costs)	\$981,222	\$765,062	\$493,171

	"Gloom" forecast capital revenues		
Capital revenues	2021-2022	2022-2023	2023-2024
Federal grants	\$730,805	\$730,805	\$730,805
State grants	\$53,000	\$53,000	\$53,000
Transfer from transit operations fund	\$50,000	\$50,000	\$50,000
	\$833,805	\$833,805	\$833,805

Legend	
	Yellow-highlighted cells reflect an assumed 3% growth rate.
	Orange-highlighted cells represent an unfortunate 25% increase in unit operating costs, i.e. costs to provide each hour of service.
	Blue-highlighted cells represent an unfortunate 15% cut in Federal capital grants.

8. Additional Resources

The State of Oregon, other transit agencies, national organizations and the Federal Government offer resources and guidance that will be useful to Sandy Transit in the implementation of this plan.

These resources are summarized briefly here, with their relevance to particular Plan recommendations noted if appropriate, and with links to the current locations of reference documents.

Transit Choices Report and Public Input Summaries

These documents were published in earlier phases of this Transit Master Plan update. The Transit Choices Report describes existing conditions of Sandy Transit in 2019 and the decade prior. The two public input summaries describe how input was gathered, from whom, and guidance that can be taken from this input about how Sandy should prioritize potential investments or changes.

[Link to online Choices Report]

[Link to online Public Input Summary Phase One]

[Link to online Public Input Summary Phase Two]

Oregon Public Transportation Plan

The OPTP provides a statewide vision for the public transportation system and a policy foundation to assist state, regional, and local transportation agencies in making decisions. It will guide the Oregon Transportation Commission's investments in the coming years.

<https://www.oregon.gov/ODOT/Planning/Pages/OPTP.aspx>

Published 2018

Transit in Small Cities: A Primer for Planning, Siting, and Designing Transit Facilities in Oregon

This primer was created by the Oregon Transportation and Growth Management Program to help small cities like Sandy with planning and design for capital investments such as transit centers, bus stops and maintenance facilities.

https://www.oregon.gov/LCD/Publications/Transit_for_SmallCities_2013.pdf

Published 2013

Oregon Highway Design Manual

This Manual will guide the design and placement of bus stops along Highways 26 and 211 in Sandy. [Chapter 12](#) describes bus stop considerations such as:

- Near-side, far-side and mid-block stop locations.
- The use of pull-outs and curb-extensions.
- Bus stops adjacent to bike lanes.
- ADA accessibility.
- Passenger waiting and information amenities.

Design diagrams from Chapter 12 of the Manual are included in this document starting on page 70.

<https://www.oregon.gov/ODOT/Engineering/Pages/Hwy-Design-Manual.aspx>

Published 2012

Transit Streets Design Guide

This guide by the National Association of City Transportation Officials offers design advice for more urban settings, as a complement to the more rural- and suburban-oriented advice contained in the

highway design manuals most familiar to state transportation departments. Designs for pedestrian access to bus stops on Sandy's main streets (Proctor and Pioneer Blvds.) and for streets shared by buses and bikes may be informed by this guide.

<https://nacto.org/publication/transit-street-design-guide/>

Published 2016

A Guide for Planning and Operating Flexible Public Transportation Services

This guide from the Transit Cooperative Research Program (TCRP) describes best practices in the provision of flexible services in cities of Sandy's size.

<http://www.trb.org/Publications/Blurbs/163788.aspx>

Published 2016

On-Board and Intercept Transit Survey Techniques

This synthesis by the TCRP summarizes the knowledge of many agencies about how to survey transit passengers, for many different purposes. As Sandy Transit prepares to survey riders of its fixed routes in the future, this document may provide some

helpful guidance about how to get the most out of the considerable staff effort required.

<http://www.trb.org/Publications/Blurbs/156542.aspx>

Published 2016

A Fare Framework

If Sandy Transit is unable to absorb the increase in demand that may arise from free ADA paratransit fares, a review of existing fare policy may be necessary. The TransitCenter has published this guide to thinking about fares and how they relate to an agency's strategic goals.

<https://transitcenter.org/publication/a-fare-framework-how-transit-agencies-can-set-fare-policy-based-on-strategic-goals/>

Published 2019

The Data Transit Riders Want

This Transit Center guide explains what transit data does, the role transit agencies should play in producing and publishing it, and how to get the most out of an investment in public-facing transit data.

https://transitcenter.org/publication/transit_data/

Published 2018

From Sorry to Superb

Sandy Transit already has some very nice bus stops, but this TransitCenter guide describes not only bus stop designs but also maintenance and funding strategies that may be of use to Sandy over time.

<https://transitcenter.org/publication/sorry-to-superb/>

Published 2018

A Bid for Better Transit

This report describes how transit agencies can improve service through contracted operations. Sandy Transit has long contracted operations of fixed-routes and flexible services to a local business, but some outside guidance may be helpful during the next procurement cycle for that contract.

<https://transitcenter.org/publication/a-bid-for-better-transit/>

Published 2017

Americans with Disabilities Act Guidance

The Federal Transit Administration publishes all of its guidance relating to transit

and the ADA in this document. It covers many topics mentioned in this plan including fares, complementary paratransit, certification of ADA passengers, combining ADA and general public riders on one vehicle, trip time negotiations and more.

<https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/americans-disabilities-act-guidance-pdf>

TriMet Service Enhancement Plans: Southeast and Eastside

These TriMet enhancement plans describe potential service investments in two areas that may be relevant for Sandy Transit's planning, and for collaboration among Sandy, Clackamas County, TriMet and other local agencies. First, TriMet may make some investments in and around Clackamas, on Sunnyside Road and along Highway 224. It may be relevant in conversations with TriMet and Clackamas County about whether and how to service trips among Sandy, Boring, Damascus and Clackamas. Second, TriMet may make investments in Gresham and East Portland that affect connections to the Gresham Express, the Mt. Hood Express and the Gorge Express, and in that way are relevant to the "Vision Around the Mountain"

planning in with Sandy Transit is currently a participant.

<https://trimet.org/future/southeast.htm>

<https://trimet.org/future/east.htm>

Published 2016

Appendix

FY 2019-2020 Operating budget tables (from page 10)

FY 2019-2020 Operating Budget - Revenues	
Revenue source	
Beginning balance/reserves	\$1,767,350
Sandy payroll tax	\$600,000
Federal grants	\$574,516
State payroll tax	\$138,141
State grants	\$128,718
Fares	\$90,000
Intra-city agency loan repayments	\$80,129
Partnership with other agencies	\$67,200
Interest	\$25,500
Miscellaneous	\$5,500
Total	\$3,477,054

FY 2019-2020 Operating Budget - Costs	
Operating cost	
Transfer to Capital Fund	\$838,846
Fixed route transit operations (contracted)	\$534,200
Dial-a-ride/paratransit operations (contracted)	\$247,239
City of Sandy Transit staff salaries	\$202,000
Bus fuel	\$175,000
Bus maintenance and equipment	\$100,200
Payments for City admin. and maint. services	\$69,904
Staff retirement (PERS)	\$48,500
Liability and other organizational insurance	\$47,500
Staff health insurance	\$39,000
Office supplies and services	\$37,300
Major project management (contracted)	\$25,000
Rent for administrative building and yard	\$23,375
Staff payroll taxes (Social Security, transit)	\$16,750
Bus shelter maintenance	\$13,600
Staff training	\$9,000
Transit marketing	\$7,500
Utilities	\$5,500
Staff other benefits	\$750
Total	\$2,441,164

FY 2019-2020 Capital Fund tables (from page 10)

FY 2019-2020 Capital Fund - Anticipated Revenues	
Revenue source	
Beginning balance	-\$46,387
Transfer from transit operations fund	\$838,846
Federal grants	\$1,018,542
State grants	\$53,000
Total	\$1,864,000

FY 2019-2020 Capital Fund - Planned Expenditures	
Operating cost	
Improvements to the bus wash	\$300,000
Construction of two bus storage barns	\$810,000
Planning, design and construction of operator break & training room (multi-year project)	\$53,000
Purchase of 7 vehicles and on-board equipment (one half of total funding; two-year project)	\$701,000
	\$1,864,000

"Bloom" Financial Scenario tables (from page 58)

"Bloom" financial scenario operating revenues			
Revenue source	2021-2022	2022-2023	2023-2024
Beginning balance/reserves	\$1,143,277	\$1,168,030	\$1,150,073
Sandy payroll tax	\$618,000	\$636,540	\$655,636
Federal grants	\$591,751	\$609,504	\$627,789
State payroll tax	\$142,285	\$146,554	\$150,950
State grants	\$132,580	\$136,557	\$140,654
Fares	\$90,000	\$90,000	\$90,000
Intra-city agency loan repayments	\$80,129	\$80,129	\$80,129
Partner agencies	\$69,216	\$71,292	\$73,431
Interest	\$25,515	\$25,530	\$25,546
Miscellaneous	\$5,665	\$5,835	\$6,010
Total	\$2,898,418	\$2,969,972	\$3,000,219

"Bloom" forecast capital revenues			
Capital revenues	2021-2022	2022-2023	2023-2024
Federal grants	\$885,564	\$912,131	\$939,495
State grants	\$54,590	\$56,228	\$57,915
Transfer from transit operations fund	\$50,000	\$50,000	\$75,000
	\$990,154	\$1,018,359	\$1,072,410

"Bloom" financial scenario operating costs			
Operating cost	2021-2022	2022-2023	2023-2024
Fixed route transit operations (contracted)	\$550,226	\$566,733	\$583,735
Add'l fixed route transit operations (contracted)	\$21,000	\$49,000	\$56,000
Dial-a-ride/paratransit operations (contracted)	\$254,656	\$262,296	\$270,165
Add'l dial-a-ride/paratransit operations (contracted)	\$9,000	\$21,000	\$24,000
Staff salaries	\$208,060	\$214,302	\$220,731
Bus fuel	\$180,250	\$185,658	\$191,227
Bus maintenance and equipment	\$103,206	\$106,302	\$109,491
Transfer to other city funds	\$72,001	\$74,161	\$76,386
Transfer to Capital Fund	\$50,000	\$50,000	\$50,000
Staff retirement (PERS)	\$49,955	\$51,454	\$52,997
Insurance	\$48,925	\$50,393	\$51,905
Staff health insurance	\$40,170	\$41,375	\$42,616
Office supplies and services	\$38,419	\$39,572	\$40,759
Major project management (contracted)	\$25,750	\$26,523	\$27,318
Rent for administrative building and yard	\$24,076	\$24,799	\$25,542
Staff payroll taxes (SS, transit)	\$17,253	\$17,770	\$18,303
Bus shelter maintenance	\$14,008	\$14,428	\$14,861
Staff training	\$9,270	\$9,548	\$9,835
Transit marketing	\$7,725	\$7,957	\$8,195
Utilities	\$5,665	\$5,835	\$6,010
Staff other benefits	\$773	\$796	\$820
Total operating costs	\$1,730,388	\$1,819,899	\$1,880,896
Forecast reserve (revenues minus costs)	\$1,168,030	\$1,150,073	\$1,119,323

"Gloom" Financial Scenario tables (from page 60)

"Gloom" financial scenario operating revenues			
Revenue source	2021-2022	2022-2023	2023-2024
Beginning balance/reserves	\$1,143,277	\$981,222	\$765,062
Sandy payroll tax	\$600,000	\$600,000	\$600,000
Federal grants	\$574,516	\$574,516	\$574,516
State payroll tax	\$138,141	\$138,141	\$138,141
State grants	\$128,718	\$128,718	\$128,718
Fares	\$90,000	\$90,000	\$90,000
Intra-city agency loan repayments	\$80,129	\$80,129	\$80,129
Partner agencies	\$67,566	\$67,943	\$68,331
Interest	\$25,515	\$25,530	\$25,546
Miscellaneous	\$5,665	\$5,835	\$6,010
	\$2,853,527	\$2,692,035	\$2,476,453

"Gloom" forecast capital revenues			
Capital revenues	2021-2022	2022-2023	2023-2024
Federal grants	\$730,805	\$730,805	\$730,805
State grants	\$53,000	\$53,000	\$53,000
Transfer from transit operations fund	\$50,000	\$50,000	\$50,000
	\$833,805	\$833,805	\$833,805

"Gloom" financial scenario operating costs			
Operating cost	2021-2022	2022-2023	2023-2024
Fixed route transit operations (contracted)	\$667,750	\$687,783	\$708,416
Dial-a-ride/paratransit operations (contracted)	\$309,049	\$318,320	\$327,870
Staff salaries	\$208,060	\$214,302	\$220,731
Bus fuel	\$180,250	\$185,658	\$191,227
Bus maintenance and equipment	\$103,206	\$106,302	\$109,491
Transfer to other city funds	\$72,001	\$74,161	\$76,386
Transfer to Capital Fund	\$50,000	\$50,000	\$50,000
Staff retirement (PERS)	\$49,955	\$51,454	\$52,997
Insurance	\$48,925	\$50,393	\$51,905
Staff health insurance	\$40,170	\$41,375	\$42,616
Office supplies and services	\$38,419	\$39,572	\$40,759
Major project management (contracted)	\$25,750	\$26,523	\$27,318
Rent for administrative building and yard	\$24,076	\$24,799	\$25,542
Staff payroll taxes (SS, transit)	\$17,253	\$17,770	\$18,303
Bus shelter maintenance	\$14,008	\$14,428	\$14,861
Staff training	\$9,270	\$9,548	\$9,835
Transit marketing	\$7,725	\$7,957	\$8,195
Utilities	\$5,665	\$5,835	\$6,010
Staff other benefits	\$773	\$796	\$820
Add'l dial-a-ride/paratransit operations (contracted)	\$0	\$0	\$0
Add'l fixed route transit operations (contracted)	\$0	\$0	\$0
Total operating costs	\$1,872,304	\$1,926,973	\$1,983,282
Forecast reserve (revenues minus costs)	\$981,222	\$765,062	\$493,171

Oregon Highway Design Manual Guidance

The Oregon Highway Design Manual provides guidance for many aspects of street design that affect transit:

- The design of intersections to accommodate bus turning radii.
- Bus “pads” to protect a roadway surface from breaking under repeated, heavy passenger loads.
- Curb extensions and other pedestrian access tools.
- Pull-outs that remove buses from general travel lanes when they are serving stops.
- Choosing bus stop locations.
- Designing for bicycles and buses.
- The design of small and large bus stops, including:
 - ▶ Placement of amenities such as shelters, trash cans and lights.
 - ▶ Walking and mobility-device access to bus stops and to transit vehicles.
 - ▶ Landscaping and shade.
 - ▶ Bicycle and car parking.
 - ▶ Real-time arrival information.

This Manual will be particularly important as the City of Sandy locates and improves bus stops on State Highways 26 and 211.

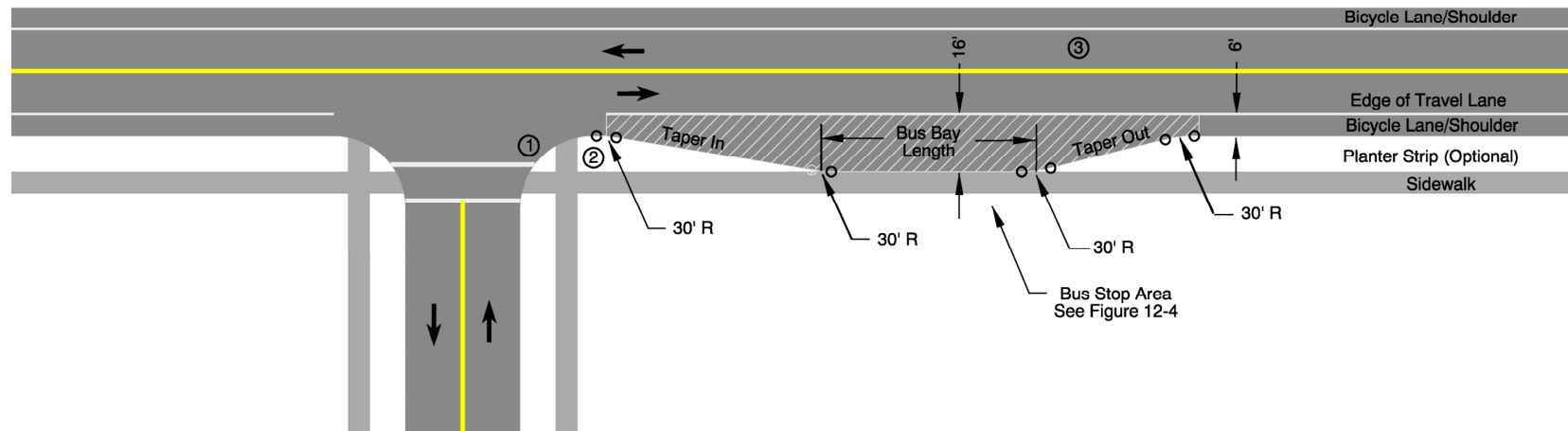
Some Sandy bus stops, in particular those along Highway 26, require buses to cross over a bike lane to reach the stop. About the design for this bus-bike interaction, the Manual states:

Final design of separating bus and bicyclist can take many forms and should be considered on a case by case basis. One method is an adjacent bike lane to delineate the areas. Another method is a completely separated bike path or cycle track behind the bus stop. There may also be other appropriate ways to accomplish bicycle and bus separation specific to a site.

The diagrams on the following pages are taken from the Manual. Chapter 12 includes narrative description of where and why certain treatments or design choices would be made in certain situations.

See the full text of [Chapter 12](#), and the other transit resources listed starting on page 62, for complete guidance.

BUS PULLOUT DETAILS



- ① Intersection should be designed for the appropriate design vehicle. When appropriate, use two-centered curve to minimize intersection area.
- ② A short tangent section (+/- 30') may be added between the curb return and the entrance taper at intersections with right-turning buses.
- ③ May be reduced to 14' if bicycle lane/shoulder is less than 6'.

NOTE: Bus stops with pullouts should be located on the far-side of the intersection or at mid-block locations. In areas of special need, they may be placed on the near-side of a signalized intersection in conjunction with a queue jump signal phase.

DATA TABLE

Design Speed (mph)	Taper In	Taper Out	Bus Bay Length*	
			40-ft Bus	60-ft Bus
< 45	6:1	4:1	60'	80'
≥ 45	8:1	6:1	60'	80'

* Based on one bus.
 For each additional single unit (40') bus, add 50'.
 For each additional articulated (60') bus, add 70'.

STATE OF OREGON
 DEPARTMENT OF TRANSPORTATION
 ROADWAY ENGINEERING UNIT

BUS PULLOUT DETAILS

HIGHWAY DESIGN MANUAL

Figure 12-1: Minimum Bus Pullout Details

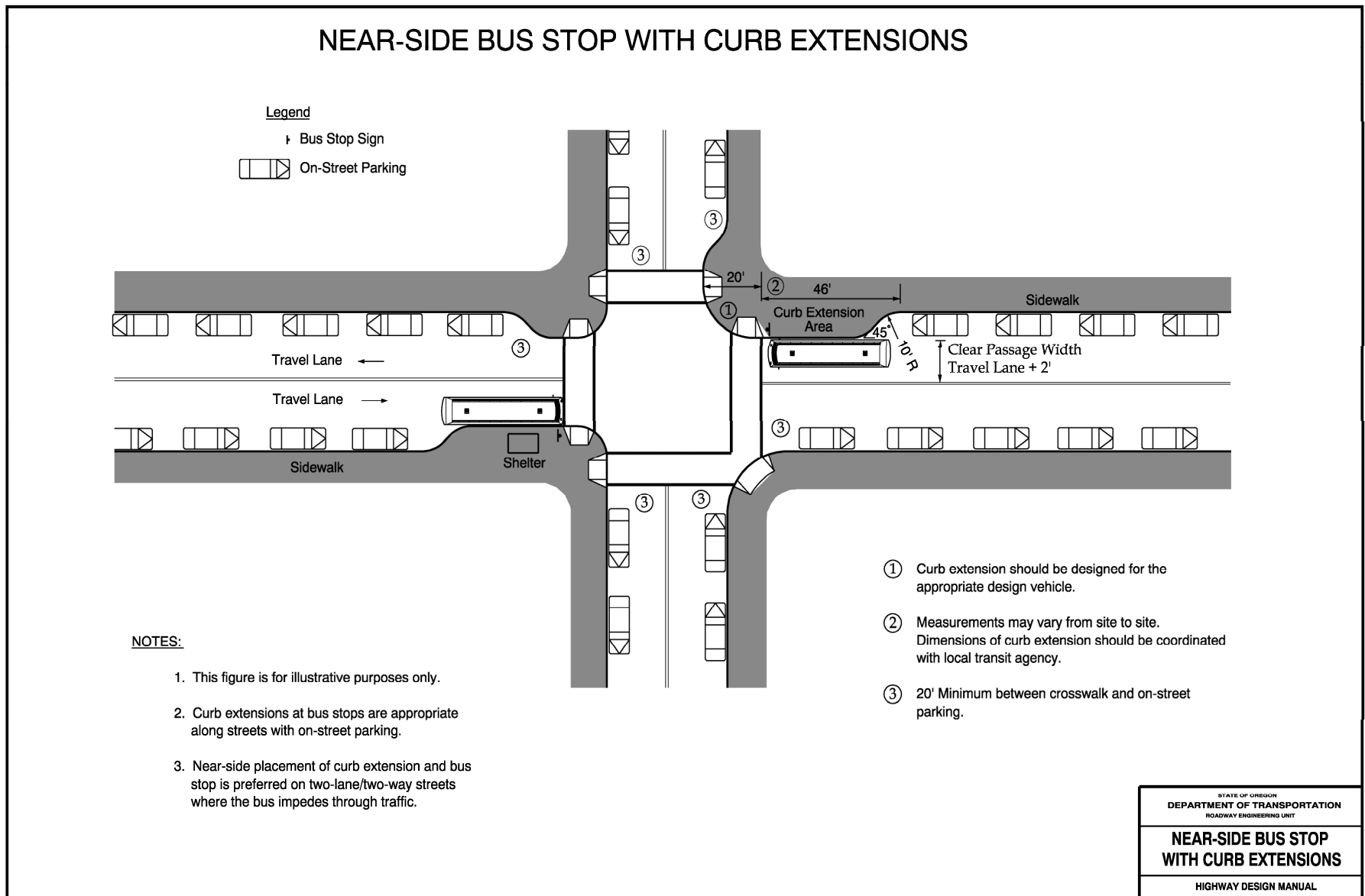


Figure 12-2: Near-Side Bus Stop with Curb

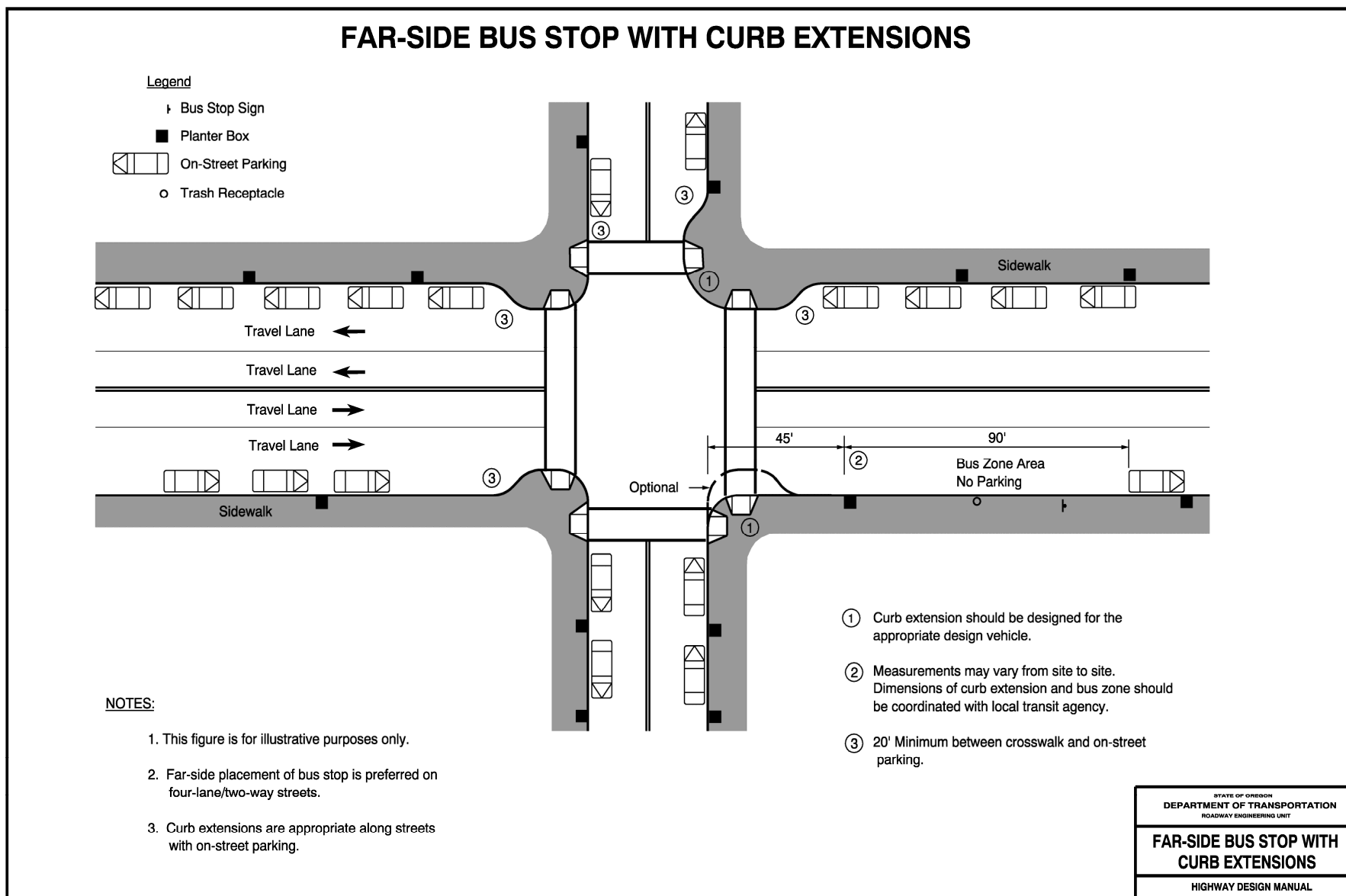
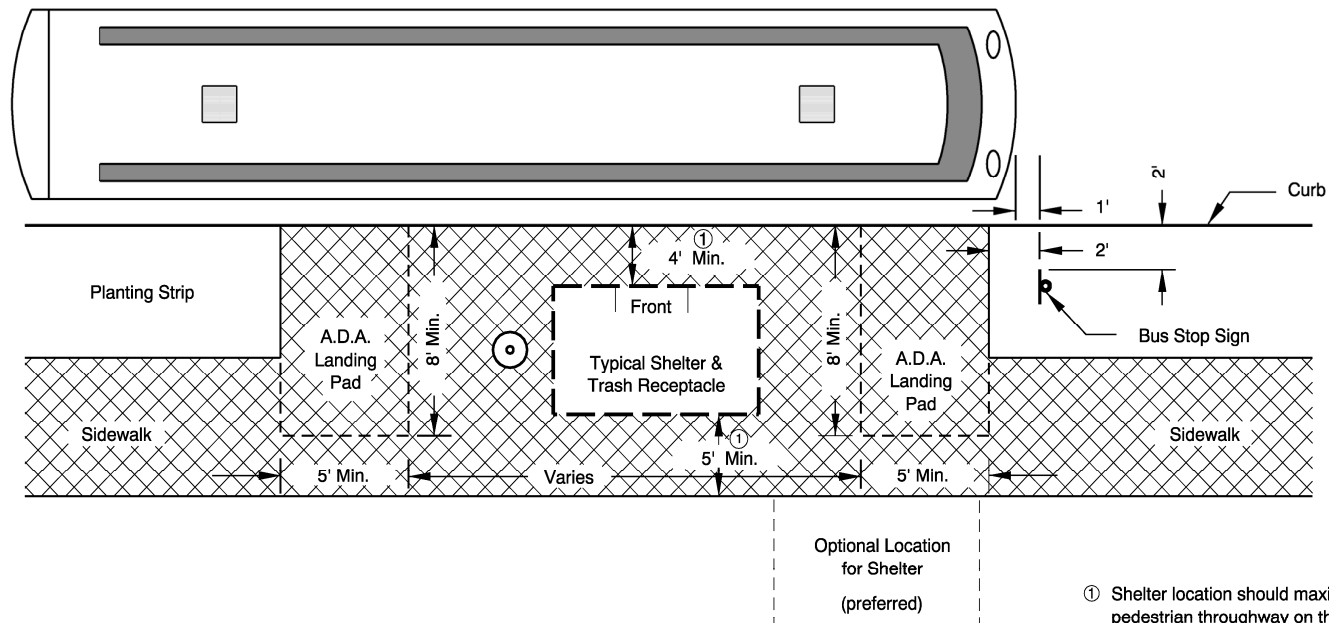


Figure 12-3:-Far-Side Bus Stop with Curb

FULLY DEVELOPED BUS STOP



Note:

The shelter should be faced toward the road when possible. Factors to consider include:

- prevailing winds
- visibility of arriving buses.

Every effort must be made to provide a fully accessible bus stop in accordance with ADA regulations. Other amenities such as a bench, shelter, and trash receptacle are desirable but not required.

The ADA landing pad dimensions are minimum. The appropriate spacing between landing pads depends upon bus door locations. Placement of a 10 foot pad on each side of a 10 foot landscaped area (planter strip or shelter) accommodates most bus types and a modicum of error.

- ① Shelter location should maximize pedestrian thoroughway on the sidewalk. The shelter offset from the back of curb may be reduced to 3' in highly constrained areas.

All dimensions shown from back of curb.

STATE OF OREGON DEPARTMENT OF TRANSPORTATION ROADWAY ENGINEERING UNIT
FULLY DEVELOPED BUS STOP
HIGHWAY DESIGN MANUAL

Figure 12-4: Fully Developed Bus Stop

Transit investments and related City or State goals

All of the transit investments described in this plan support one or more City goals, and many of the goals of the State.

The following tables suggest which goals are served by different types of investments.

Every action named in *Chapter 6: Goals, Policies and Actions*, starting on page 50, is not listed individually in this table. Rather, some actions are grouped together in terms of their major transit outcomes.

The sources of City and State goals suggested in this table were:

- The [City of Sandy Comprehensive Plan](#) ("Comp Plan") which was adopted in 1997 and amended most recently in 2012.
- The [City of Sandy Transportation System Plan](#) ("TSP") which was adopted in 2011.
- The [State of Oregon Public Transportation Plan](#) ("OPTP") which was adopted in 2018.

The two City plans will soon be updated. Some transit investments that speak to modern values but are only lightly-supported by goals from the 1997 Comp Plan may be better-supported by City policy once these two older plans are updated.

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Any services or projects that attract high ridership relative to cost	Both			<p>Sandy Transit investments that increase transit ridership support a number of high-level city goals (from the 1997 Comprehensive Plan) by reducing the use cars. These City goals include:</p> <p>Goal 7.4 and 7.7, which promote “development regulations to preserve and protect open space and environmentally sensitive lands, integrate the natural environment of Sandy into project designs, minimize the creation of impervious surface, and discourage the unnecessary clearing of trees and other natural vegetation.” Goals 6.1 and 6.3 echo the same theme.</p> <p>Goal 6.5, which aspires to “reduce air pollution by decreasing the need for vehicle trips...”</p> <p>Goal 2.8, which “encourages land developments which are designed to take advantage of innovative design and technology, energy conservation, and the protection and conservation of cultural and natural resources.”</p> <p>Goals 9, 10 and 14, which require that the city maintain an “adequate” 20-year supply of buildable land, and encourage dense and mixed-use development downtown. Goal 10 also aims to “reduce automobile travel by locating higher density housing near village centers, schools, and potential transit routes.”</p>	1, 2, 3, 4, 5, 7, 8

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Any services or projects that attract high ridership relative to cost (continued)	Both			<p>Goal 13, "to conserve energy."</p> <p>One of the goals of the Sandy Transportation System Plan (TSP) is to "ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy." High transit ridership allows for greater movement of people within the constraints of existing roads and land. The TSP's goal to "minimize street cross sections" is also served by high-ridership transit.</p>	1, 2, 3, 4, 5, 7, 8
Any services or projects that increase transit coverage (regardless of ridership), especially coverage of vulnerable populations and important places	Both			<p>Sandy Transit investments that increase coverage (but do not necessarily increase ridership) support a number of city goals by increasing the number of people, and particularly vulnerable people, who can use transit if they need it:</p> <p>Goal 8.2, which aspires that "parks, open space, and recreational facilities...are accessible to all members of the community."</p> <p>Goal 10, which calls on the city to "locat[e] higher density housing near village centers, schools, and potential transit routes," a goal that becomes more achievable as Sandy spreads its service out into more routes on more streets.</p> <p>The Sandy TSP sets goals to "improve mobility for the transportation disadvantaged."</p>	1, 2, 3, 4, 5

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Saturday local service	Operating	Near-term	Does not require an additional vehicle. May add to City's paratransit obligation.	Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled." Goal 14.17, "Promote local transit service for Sandy." TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy." TSP: "Develop a transportation system that supports balanced growth of population and employment and the internalization of trips."	1, 2, 3, 4, 5, 7, 8
Longer hours of local service	Operating	Near- or medium-term	Does not require an additional vehicle. May add to City's paratransit obligation.	Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area." Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled." Goal 14.17, "Promote local transit service for Sandy." TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy." TSP: "Develop a transportation system that supports balanced growth of population and employment and the internalization of trips."	1, 2, 3, 4, 5, 7, 8

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Extension of local routes to serve new areas	Both	Medium term	Requires an additional vehicle, or a reduction in frequency on existing local routes. Signal and curb improvements may be required. Would add to City's paratransit obligation.	Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area." Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled." Goal 14.17, "Promote local transit service for Sandy." Goal 8.2, "parks, open space, and recreational facilities...are accessible to all members of the community." TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy." TSP: "Develop a transportation system that supports balanced growth of population and employment and the internalization of trips."	1, 2, 3, 4, 5, 7, 8
Addition of capacity for dial-a-ride and ADA paratransit	Both	Near- or Medium term	Additional driver(s) and vehicle(s) may be needed to handle growing demand. Improved dispatching and communication technology may also be needed.	The 2011 Sandy TSP sets goals to "improve mobility for the transportation disadvantaged."	1, 2, 3, 4, 5

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Addition of electric buses and charging facilities for local or regional service	Mostly capital	Near- or Medium-term	The siting and construction of charging facilities is complex. Fuel savings are likely but increases in tooling and maintenance (operating) costs are possible.	<p>Goal 6.5, which aspires to "reduce air pollution by decreasing the need for vehicle trips..."</p> <p>Goals 9, 10 and 14, which require that the city maintain an "adequate" 20-year supply of buildable land, and encourage dense and mixed-use development downtown. Goal 10 also aims to "reduce automobile travel by locating higher density housing near village centers, schools, and potential transit routes."</p> <p>Goal 13, "to conserve energy."</p> <p>TSP: "Support energy conservation through... improvements in City fleet operations..."</p>	1, 2, 3, 4, 5, 7
Improved weekend frequency and span on the Gresham Express	Operating	Near- or Medium-term		<p>Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area."</p> <p>Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled."</p> <p>TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy."</p>	1, 2, 3, 4, 5, 7, 8

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Earlier-morning and later-night Gresham Express service	Operating	Near- or Medium-term	Would not require a larger fleet, as long as daytime frequencies and operating speeds remain unchanged.	Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area." Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled." TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy."	1, 2, 3, 4, 5, 7, 8
Addition of regional service to Clackamas TC area	Both	Medium- or Long-Term	Service to Clackamas would require coordination with TriMet and other partners.	Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area." Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled." Goal 6.5, which aspires to "reduce air pollution by decreasing the need for vehicle trips..." TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy."	1, 2, 3, 4, 5, 7, 8

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Additions of and improvements to bus stops and the Transit Center	Capital	Near- or Medium-term	Improvements at the Gresham Transit Center require partnership with TriMet and the City of Gresham.	<p>Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area."</p> <p>Goal 14.17, "Promote local transit service for Sandy."</p> <p>TSP: "Develop a transportation system that supports balanced growth of population and employment and the internalization of trips."</p>	1, 2, 3, 4, 5, 6, 7, 8
Addition of weekend service to Estacada Express	Operating	Near- or Medium-term		<p>Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area."</p> <p>Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled."</p> <p>TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy."</p>	1, 2, 3, 4, 5

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Additional of weekday service to Estacada Express	Both	Near- or Medium-term	Addition of weekday service may require an additional vehicle in the fleet, which adds a capital cost to the operating cost of the added service.	<p>Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area."</p> <p>Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled."</p> <p>TSP: "Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy."</p>	1, 2, 3, 4, 5

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Improved connections for regional and intra-state travel	Both	Near- or Medium-term	Timed connections with the Mt. Hood Express, or other changes that improve connections among transit providers, require coordination among partners. Timed connections might increase operating costs. Different service arrangements could also trigger capital costs for a larger fleet or new stops or layover facilities.	<p>"Goal 13.2, ""Encourage the use of mass transit as a commuter service connection to the metropolitan area.""</p> <p>Goal 13.3, ""Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled.""</p> <p>Goal 8.2, which aspires that ""parks, open space, and recreational facilities...are accessible to all members of the community.""</p> <p>TSP: ""Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy.""</p>	1, 2, 3, 4, 5, 7, 8, 9

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Three-bike racks	Capital	Near-term	Can be timed to coincide with the purchase of new vehicles or the overhaul of existing vehicles.	<p>Goal 13.2, "Encourage the use of mass transit as a commuter service connection to the metropolitan area."</p> <p>Goal 13.3, "Promote high-density housing near major transportation corridors, village commercial centers, the downtown, and other areas accessible by transit in an effort to reduce vehicle miles traveled."</p> <p>Goal 14.17, "Promote local transit service for Sandy."</p> <p>TSP: "Develop a transportation system to encourage all travel modes (transit, bicycle, pedestrian)."</p> <p>TSP: "Support energy conservation through the provision of...a multi-modal transportation system..."</p>	1, 2, 3, 4, 5, 7
Improved flexible service dispatching technology	Capital	Near-term		<p>TSP: "Improve mobility for the transportation disadvantaged."</p> <p>TSP: "Maximize the cost effectiveness of transportation improvements." (Dispatch improvements make existing investments in vehicles and service more productive.)</p>	1, 2, 3, 4, 5, 7, 9, 10

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Operator break room, training room and restroom	Capital	Near-term	Any increase in service will increase the number of operators employed, further straining existing facilities. Service that serves the goals at right needs to be supported by capital investments in the facilities.	Any of the Comp Plan and TSP goals quoted above are served by an improvement in the facility, because the ability to deliver service that serves the City's goals depends on a suitable facility.	1, 2, 3, 4, 5, 7, 9, 10
Emergency planning and equipment	Both	Near- or Medium term			1, 2, 3, 4, 5, 6, 10
Administrative space for City staff, contractors or partner agencies	Capital	Medium term	Increases in service beyond a certain point will require increases in administrative staff, whether they are City employees or others.	Any of the Comp Plan and TSP goals quoted above are served by an improvement in the facility, because the ability to deliver service that serves the City's goals depends on a suitable facility.	1, 2, 3, 4, 5, 7, 9, 10

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Automated Passenger Counters (APCs)	Capital	Near-term		APCs allow transit agencies to understand their own boardings and alightings patterns. Any of the service investments described above would be more effectively managed and measured with APCs, and so APCs can serve any of the City goals that are served by those service investments. In addition, the TSP specifically sets a goal to "maximize the cost effectiveness of transportation improvements."	1, 2, 3, 4, 5, 7, 9, 10
Real-time information	Capital	Near-term		Real-time information has been shown to increase ridership, especially on more frequent services. It also improves customer satisfaction. It would therefore support all of the goals cited for "Any ridership-increasing services or projects" at the top of this table.	1, 2, 3, 4, 5, 7, 9, 10
GTFS-flex and GTFS-ride	Both	Medium term	Timing may relate to the timing of APC purchase.	TSP: "Maximize the cost effectiveness of transportation improvements."	1, 2, 3, 4, 5, 9, 10
Cameras in vehicles	Capital	Medium term		TSP: "Improve the safety and accessibility of transit facilities."	1, 2, 3, 4, 5, 6
Upgraded fareboxes that handle tap cards and mobile phone payment	Capital	Medium term		More ways to pay fares tend to increase ridership. This investment can therefore support all of the goals cited for "Any ridership-increasing services or projects" at the top of this table.	1, 2, 3, 4, 5, 7, 9

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Regional collaboration	Operating	Near- or medium-term	Timing depends on the ability of neighboring transit providers to collaborate.	<p>Goal 6.5, which aspires to “reduce air pollution by decreasing the need for vehicle trips...”</p> <p>Goal 2.8, which “encourages land developments which are designed to take advantage of innovative design and technology, energy conservation, and the protection and conservation of cultural and natural resources.”</p> <p>Goals 9, 10 and 14, which require that the city maintain an “adequate” 20-year supply of buildable land, and encourage dense and mixed-use development downtown. Goal 10 also aims to “reduce automobile travel by locating higher density housing near village centers, schools, and potential transit routes.”</p> <p>Goal 13, “to conserve energy.”</p> <p>TSP: “Ensure sufficient capacity to accommodate future travel demand...to, within and through the City of Sandy.”</p> <p>TSP: “Minimize street cross sections” (by shifting auto travel demand to transit, requiring less road width).</p> <p>TSP: “Improve mobility for the transportation disadvantaged.”</p>	1, 2, 3, 4, 5, 7, 8, 10

Investment	Operating, Capital or both?	Potential timing	Complexities and timing considerations	Relevant City of Sandy goals	Relevant State public transportation goals
Update branding, marketing and/or website	Both	Medium term		TSP: "Maximize the cost effectiveness of transportation improvements."	1, 2, 3, 4, 5, 9, 10
Surveying	Operating	Near-term	Should be performed at least bi-annually	TSP: "Maximize the cost effectiveness of transportation improvements." (Information gathered through surveying helps staff to improve service and spend limited dollars in more effective ways.)	1, 2, 3, 4, 5, 9
Spanish-language operations	Operating	Near-term		TSP: "Improve mobility for the transportation disadvantaged."	1, 2, 3, 4, 5