



Attachment A

# transportation system plan

may 2023

# acknowledgments

## project team



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## community advisory committee

*The Community Advisory Committee (CAC) guided the development and recommendations of the Transportation System Plan, and included the following members:*

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Carl Exner	City Councilor	City of Sandy
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Heather Michet	Transit Board Chair	Resident
Don Robertson	Parks Board Chair	Resident in Zion Meadows
Lea Pfau	Resident	Resident in Salmon Creek Estates
Khrys Jones	Executive Director	Sandy Chamber of Commerce
Jerry Crosby	Planning Commissioner Chair	City of Sandy
Hollis MacLean-Wenzel	Planning Commissioner	City of Sandy
Ron Lesowski	Planning Commissioner	City of Sandy
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Chris Mayton	Planning Commissioner	City of Sandy
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Carl Exner	City Councilor	City of Sandy
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Don Hokanson	City Councilor	City of Sandy

A special acknowledgment goes out to the Sandy residents, property owners, and visitors who attended community meetings or submitted comments. This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Fixing America’s Surface Transportation Act (“FAST Act”), local government, and the State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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# introduction

The City of Sandy is located between Mt. Hood and the Portland metro area. Since the last Transportation System Plan in 2011, the population has grown from 9,500 to 12,911 residents.<sup>1</sup> This equates to annual population growth of approximately 300 people or 3% per year. That growth outpaces Clackamas County, at 1.2 percent per year, and the State of Oregon, at 1.1 percent per year.<sup>2</sup>

This transportation system plan looks ahead to 2040 and will guide the City of Sandy in facilitating a safer and more vibrant transportation system and city. The challenge ahead for city leaders is to address existing system needs identified through this process and to make strategic investments with partner transportation agencies to prepare for additional growth in the decades to come.

<sup>2</sup>Portland State University Population Research Center, July 1, 2022

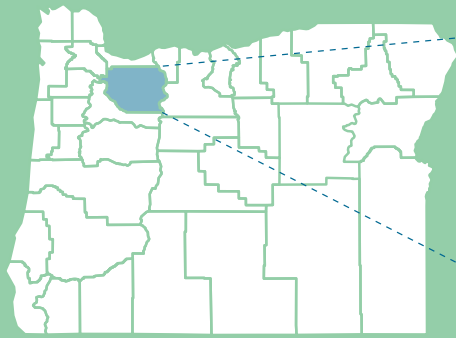
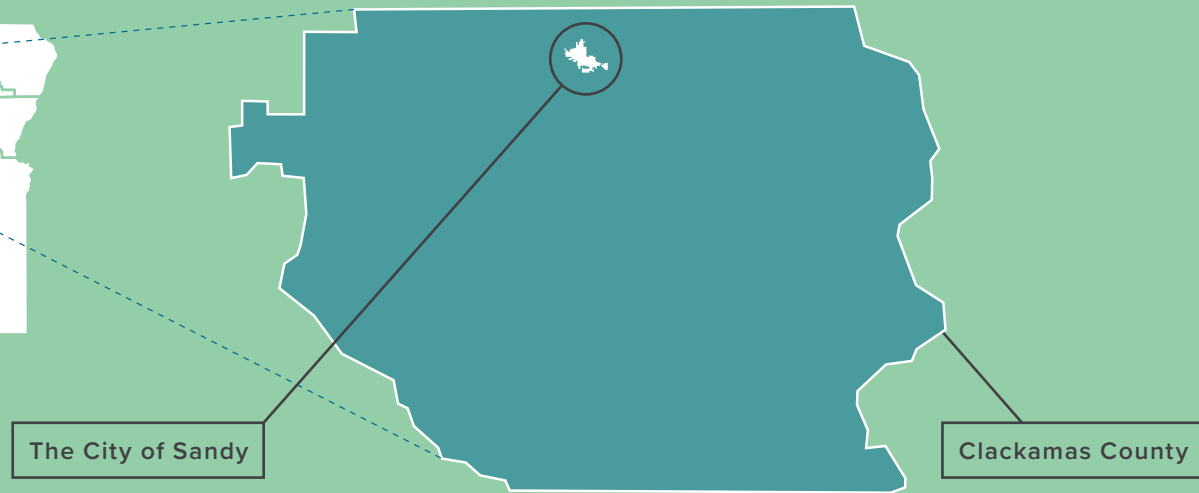


figure 1

Location of Sandy in  
Clackamas County, Oregon



## the challenge

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Sandy, similar to many other communities throughout Oregon, faces the challenge of addressing new transportation infrastructure needs without sufficient funding and with escalating maintenance costs. The transportation system serves a variety of users with different and sometimes competing objectives. For example, US 26 accommodates both highway through traffic and local residents, with significant seasonal recreation travel demand in the summer and winter. The future system should provide safe and efficient local connections to allow residents to meet their daily transportation needs. The City must balance its future investments to ensure it can develop and maintain the transportation system adequately to serve the city and everyone who travels in it. To address this challenge, the City has developed this Transportation System Plan (TSP).

# the need for planning

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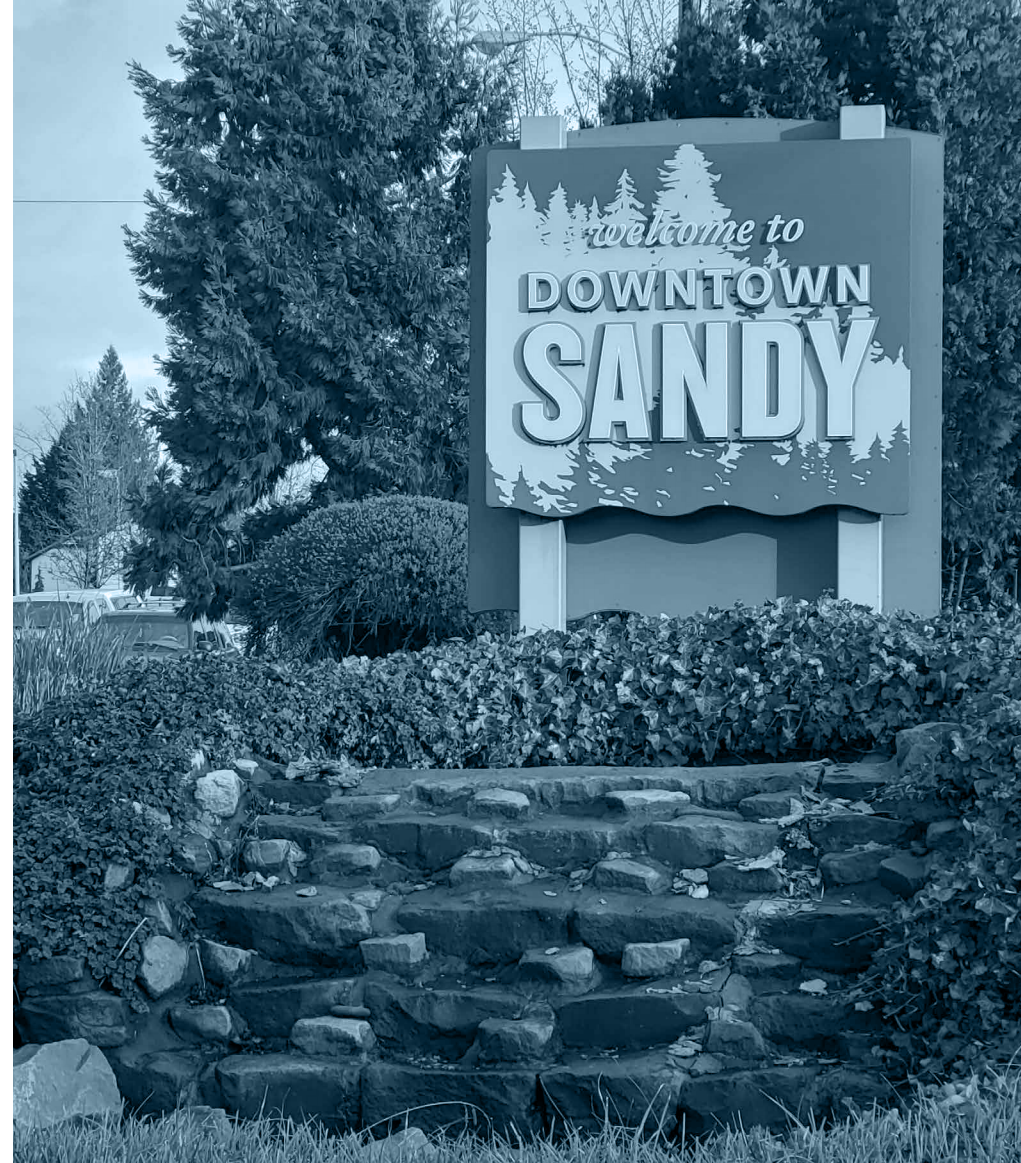
The TSP prepares Sandy for accommodating transportation needs within the planning area in the best manner possible through 2040. The TSP's all encompassing approach allows it to guide the City in developing and maintaining acceptable transportation network performance more holistically and incorporates other more focused plans.

As the transportation element of the city's Comprehensive Plan, the TSP embodies the community's vision for an efficient, safe, and diverse transportation system. The TSP attempts to balance the needs of walking, bicycling, driving, transit, and freight with strategies and projects that are important for protecting and enhancing the quality of life in Sandy through the next 20 years. The TSP is a collection of current inventory, future forecasts, past and current project ideas, decisions, and standards housed in a single document. The City, Clackamas County, private developers, and state (e.g., Oregon Department of Transportation) or federal agencies all have a role in implementing elements of the TSP.

By setting priorities for available and anticipated funds in the 20-year planning period, the TSP provides a foundation for budgeting, grant writing, and requiring public improvements of private development. It also identifies and advocates for the projects and services that the City would like to implement but cannot reasonably expect to fund during the next 20 years.

This plan is intended to serve areas within the Sandy urban growth boundary. Areas outside of the urban growth boundary are served by the Clackamas County TSP.

The State of Oregon requires a TSP to integrate the County's transportation investment plans (including projects along State highways) into the statewide transportation system. The Oregon Department of



Transportation (ODOT) looks to local agencies to help identify needed investments along State highways within their planning area. This plan identifies needed investments along US 26 in the TSP planning area.

# tsp outreach

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The TSP project team, which included City staff members and the consultant team, worked closely with a Community Advisory Committee (CAC) comprised of local partners to develop and review interim work products and address major issues collaboratively. The CAC roster included representatives from Sandy City Council and Planning Commission, Oregon Department of Transportation (ODOT), Clackamas County, Sandy Area Metro, Sandy Fire District, Sandy Chamber of Commerce and neighborhoods. The CAC met three times to review how the system works today, expected changes with growth to 2040, and proposed transportation improvements recommended within Sandy. During each meeting, initial technical findings were presented and discussed with CAC members to collect feedback on draft concepts and to align long-range plans among the various partner agencies.

In addition, two online and one in-person public open house events were conducted during the development of the TSP.

- **Event #1** was an online survey conducted in September and October 2021 to obtain feedback on community concerns and needs related to walking, biking, riding transit, and driving in Sandy.
- **Event #2** was the Future Fest open house in September 2022 to solicit community input to support the Sandy Comprehensive Plan update and transportation goals.
- **Event #3** was an online survey that presented the draft TSP project list to obtain feedback on the community's priorities for future investments.

## engaging a diverse community

Participation from community members and organizations in the TSP process was important for the success of the TSP update.

The Sandy TSP is the result of a collaboration among various public agencies, key stakeholders, the community, and the project team of City staff, ODOT, and consultants. Throughout this process, the project team took time to understand multiple points of view, obtain fresh ideas, and encourage broad participation, as it collected and analyzed data and possible solutions. The engagement efforts reached out to potentially affected and/or interested individuals, neighborhoods, businesses, and organizations. The project process is illustrated in **Figure 2**.

The planning process was implemented through a series of technical memoranda that discussed specific topics ranging from goals to existing conditions to funding assumptions to transportation solutions. Public hearings with the Planning Commission and City Council on the Draft TSP led to the adoption of the 2023 Sandy Transportation System Plan.

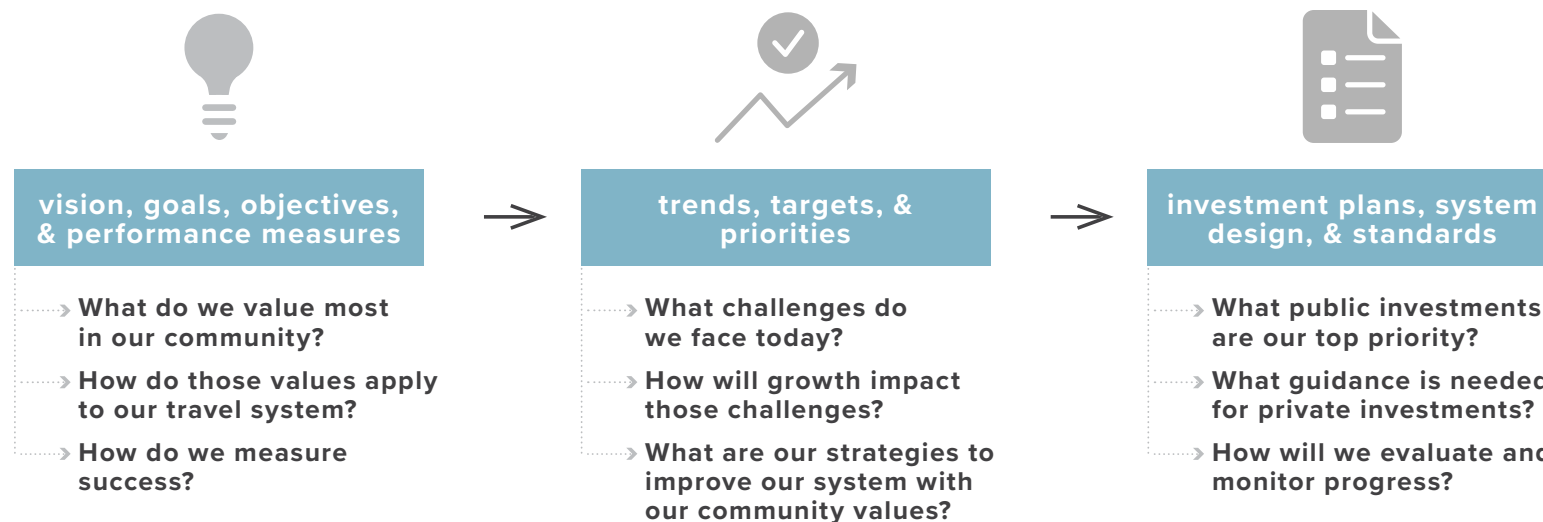
The project website ([www.sandy-speaks.org](http://www.sandy-speaks.org)) is linked to each memorandum, giving the community opportunity to provide feedback. The project website is also linked to all project news, documents, and meeting notices. It allowed residents to comment on the transportation system and identify locations with problems and opportunities for improvement.

The transportation goals developed for the City of Sandy TSP reflect the community-vision for a balanced transportation system. They were used to provide direction for the planning process and evaluation criteria for the selection and prioritization of recommended improvements.



# performance based planning elements

The Sandy TSP applied a performance-based approach. As described below, that begins with the community's vision for its transportation system, which is distilled into goals and supporting policies. These goals and policies are then used to develop performance measures that are used to identify gaps and challenges in the system today, to evaluate potential projects, and to measure long-term alignment between Sandy's transportation system and the community's vision of this system. The plan process is illustrated in Figure 2, along with the key questions that are considered at each stage of the planning work. The advantage of a performance-based planning process is that it demonstrates how strategic investments directly benefit and address essential community goals regarding multimodal transportation services for all of the community's residents, workers, and visitors.



**figure 2**  
Performance Based Planning Process

# goals for the transportation system

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The nine transportation goals set priorities for transportation solutions and plan implementation.



# goals for the transportation system

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## 1. mobility & connectivity

**Goal 1:** Provide a transportation system that prioritizes mobility & connectivity for all users.

- 1.1 Maintain the livability of Sandy through well-connected transportation facilities
- 1.2 Improve the safety and accessibility of transit facilities
- 1.3 Improve vehicular/pedestrian interface along all arterial and collector streets
- 1.4 Ensure sufficient capacity to accommodate future travel demand (transit, bicycle, pedestrian, etc.) to, within, and through the City of Sandy
- 1.5 Emphasize local street connections, in an effort to reduce reliance on US 26 and Hwy 211 for local trips
- 1.6 Minimize access along the City's arterials and consolidate or relocate access points when possible



## 2. capital investments & funding

**Goal 2:** Promote cost effective investments to the transportation system.

- 2.1 Optimize the use, performance, and value of existing facilities while planning for future infrastructure
- 2.2 Seek opportunities to combine transportation, other infrastructure, and environmental mitigation projects
- 2.3 Maximize the use of state and federal funds for transportation capital, operating, service, and demand improvements
- 2.4 Maintain a capital improvement plan that identifies construction priorities and funding



## 3. community needs

**Goal 3:** Provide a transportation system that supports specific community needs.

- 3.1 Protect the scenic resources in Sandy
- 3.2 Preserve the historic character of Sandy
- 3.3 Identify gateway and beautification treatments for Hwy 211
- 3.4 Support Mt. Hood Scenic Byway Enhancements
- 3.5 Incorporate the street network and transportation improvements contained within the Bornstedt Village Plan
- 3.6 Identify walking and biking needs in the urban growth boundary expansion area

# goals for the transportation system

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## 4. system management

**Goal 4:** Promote traffic management to achieve the efficient use of transportation infrastructure.

- 4.1 Balance local access to US 26 with the need to serve regional and statewide traffic, while supporting adjacent land uses
- 4.2 Plan for a transportation system that supports projected population and employment growth and maximize travel options by providing efficient routes for all modes of transportation
- 4.3 Support Oregon Transportation Commission adoption of an alternate mobility target for US 26 that allows for increased congestion on the highway corridor, especially during peak seasonal and continued planned



## 5. environmental

**Goal 5:** Minimize environmental impacts on natural resources and encourage carbon-neutral or efficient transportation alternatives.

- 5.1 Avoid or mitigate transportation project impacts to environmental resources including creeks and wetlands, cultural resources, and wildlife corridors
- 5.2 Support energy conservation by supporting public transit, transportation demand management, transportation system management and a multi-modal transportation system
- 5.3 Encourage transportation facility construction methods that reduce environmental impacts
- 5.4 Minimize street cross-sections to protect and preserve open space and reduce impervious surface



## 6. transit

**Goal 6:** Provide safe, efficient, high-quality transit service that gives Sandy residents, employees, employers, and visitors more freedom to meet their needs within the city, region and state. Create a transit system that offers an alternative to private automobile use, supports efficient use of roadways and reduces air pollution and energy use.

- 6.1 Provide service that is safe, comfortable, and useful to many different kinds of people
- 6.2 Collaborate with other transportation agencies and support user-friendly connections between transit system
- 6.3 Improve accessibility to transit services for people arriving by foot, by bicycle or with a mobility device
- 6.4 Increase public awareness of Sandy Transit (SAM) and its connectivity to other transit systems and transportation modes

# goals for the transportation system

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## 7. safety

**Goal 7:** Promote a safe transportation system for all users.

- 7.1 Encourage traffic safety through education, enforcement, and engineering
- 7.2 Identify high accident locations and implement specific counter measures to reduce their occurrence
- 7.3 Provide safe pedestrian and bicycle routes between residential areas, schools, and public facilities
- 7.4 Provide transportation design standards that encourage appropriate traffic volumes, speeds, and pedestrian safety
- 7.5 Provide enhanced pedestrians and bicyclists crossings where needed
- 7.6 Improve emergency service response time and evacuation routes through connectivity
- 7.7 Develop street design standards that support emergency service vehicle needs



## 8. equity

**Goal 8:** Support an equitable transportation system and provide transportation choices to all users.

- 8.1 Ensure the transportation system provides equitable access to underserved, disadvantaged, and vulnerable populations and is easy to use and accommodating to travelers of all ages
- 8.2 Ensure the pedestrian and bike facilities are designed clear of obstacles and obstructions (e.g., utility poles, grates) and meet ADA requirements
- 8.3 Provide multi-faceted and inclusive public engagement process that provides all community members an opportunity to provide input on transportation system decisions



## 9. health

**Goal 9:** Support options for exercise and healthy lifestyles to enhance the quality of life.

- 9.1 Develop recreational walking and biking routes to access employment, schools, shopping, and transit routes
- 9.2 Provide walking facilities that are physically separated from auto traffic on all arterials and collectors
- 9.3 Apply traffic calming measures to support neighborhood livability

# today & tomorrow

Most residents of Sandy today commute to jobs in the Portland metro region with only 12 percent of residents working in Sandy. This commuting trend, coupled with the heavy recreational traffic through Sandy to access the Mt. Hood recreation area, means that US 26 plays an important role in the transportation system that is expected to continue in the future. However, the proportion of residents working in Sandy is increasing, up 3 percent from 2011, and serving those local work trips, along with non-work trips such as shopping and school trips creates an opportunity to increase the walking and biking options within the city.



# today & tomorrow

To determine needed investments for the City's transportation system, the project team reviewed current travel conditions and forecasted future growth and travel trends through 2040 (see Appendix Section E). Initial analysis of future travel conditions assumed future travel occurs on the transportation system that exists today. The analysis of current and future travel conditions identified deficiencies that might be addressed by investments in the transportation system.

## sandy in 2040

Sandy is home to about 13,000 permanent residents. By 2040 the population of Sandy is expected to increase to 18,800<sup>1</sup> (based on adopted 2.1% AAGR) with additional employment growth as well. With more people and jobs in Sandy and more recreational travel demand to Mt. Hood and Central Oregon, the transportation network will face increasing pressure through 2040.

## demographics

The population of Sandy is young with an average age of 34, less than the statewide average of 40. Most residents come from a European ancestry and speak English at home. Spanish is the second most widely spoken language but is only spoken in 5 percent of households.

The average household income in Sandy of \$88,775 is higher than the state average of \$71,562 and similarly the proportion of the population below the poverty line is lower than the statewide average with approximately 8 percent of households in Sandy below the poverty line compared to 12 percent statewide.

<sup>1</sup><https://www.pdx.edu/population-research/>

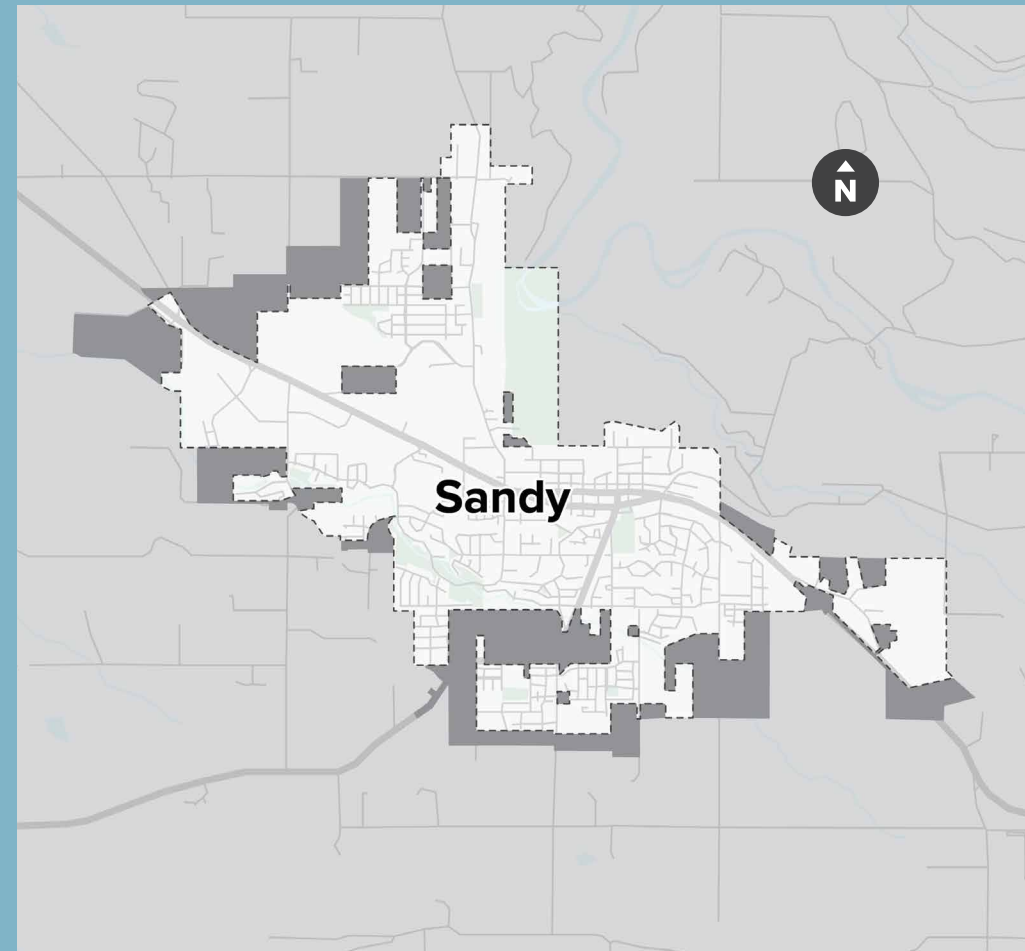


figure 3

Sandy City Limits

# demographics

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## populations & people

Total Population: 12,991<sup>1</sup>



## income & poverty

Medium Household Income: \$88,775<sup>4</sup>



## education

Bachelor's Degree or Higher: 22.8%<sup>7</sup>



## employment

Employment Rate: 64.5%<sup>2</sup>



## housing

Total Housing Units: 4,697<sup>5</sup>



## health

Without Health Care Coverage: 5.7%<sup>8</sup>



## families & living arrangements

Employment Rate: 64.5%<sup>3</sup>



## race & ethnicity

Hispanic or Latino (of any race): 1,226<sup>6</sup>

<sup>1</sup> PORTLAND STATE UNIVERSITY POPULATION RESEARCH CENTER, JULY 2022

<sup>2</sup> DP03 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

<sup>3</sup> DP02 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

<sup>4</sup> S1901 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

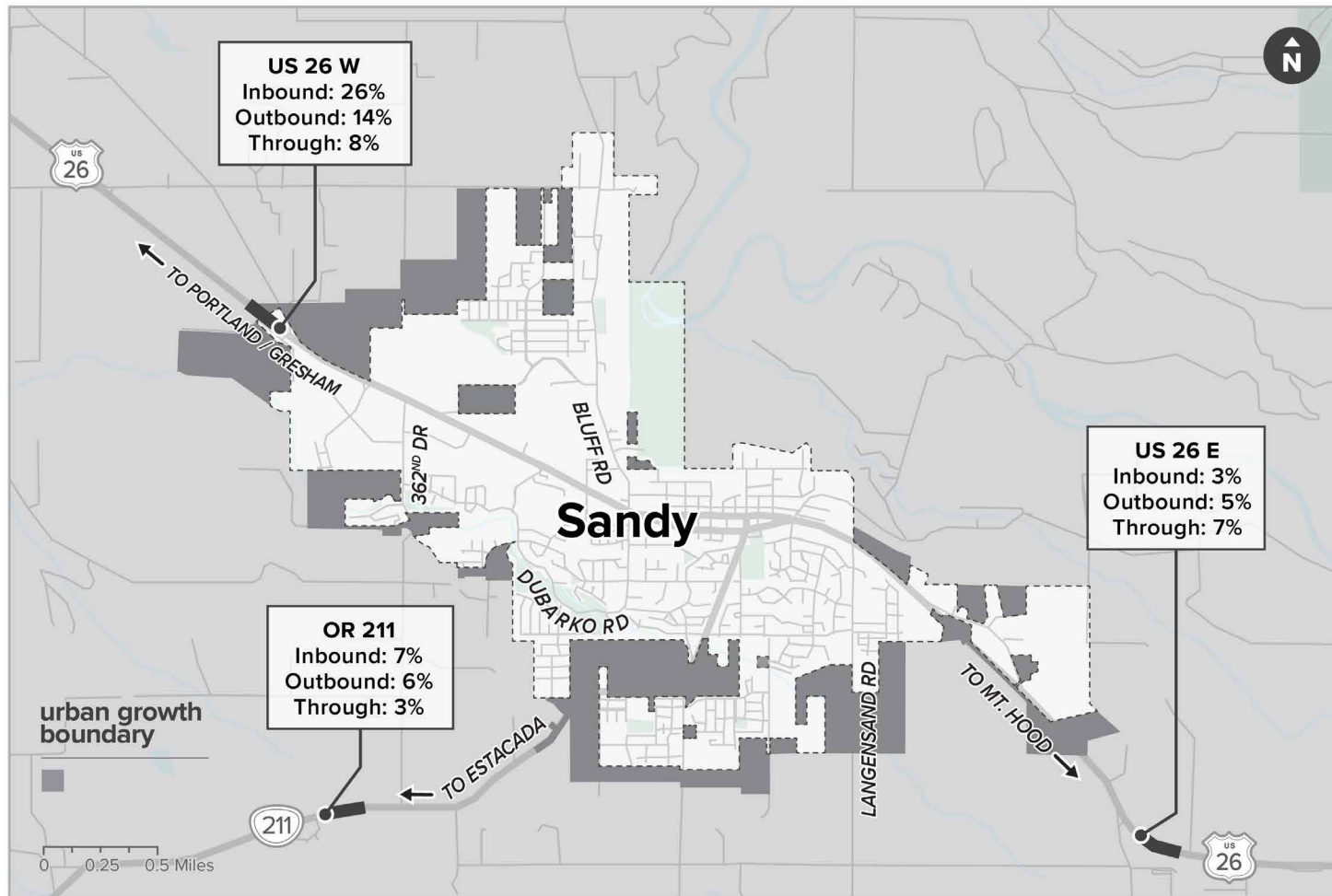
<sup>5</sup> H1 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

<sup>6</sup> P2 2020 DECENNIAL CENSUS

<sup>7</sup> S1501 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

<sup>8</sup> S2701 2021 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES





external gateways      city limits

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy

# travel patterns

Inbound trips start outside of Sandy and enter through the labeled gateway. Outbound trips start in Sandy and exit through the labeled gateway. Through trips do not start or stop within Sandy.

Trip Distribution

**23%**  
internal trips

**18%**  
external trips

**59%**  
trips entering or exiting Sandy

figure 4  
Sandy Trip Distribution

# local transit system

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Sandy Area Metro (SAM) provides transit service in Sandy via four fixed bus routes including two local shopper routes and two regional routes connecting the City with downtown Gresham and Estacada. Clackamas County operates an additional fixed route service to Mount Hood.

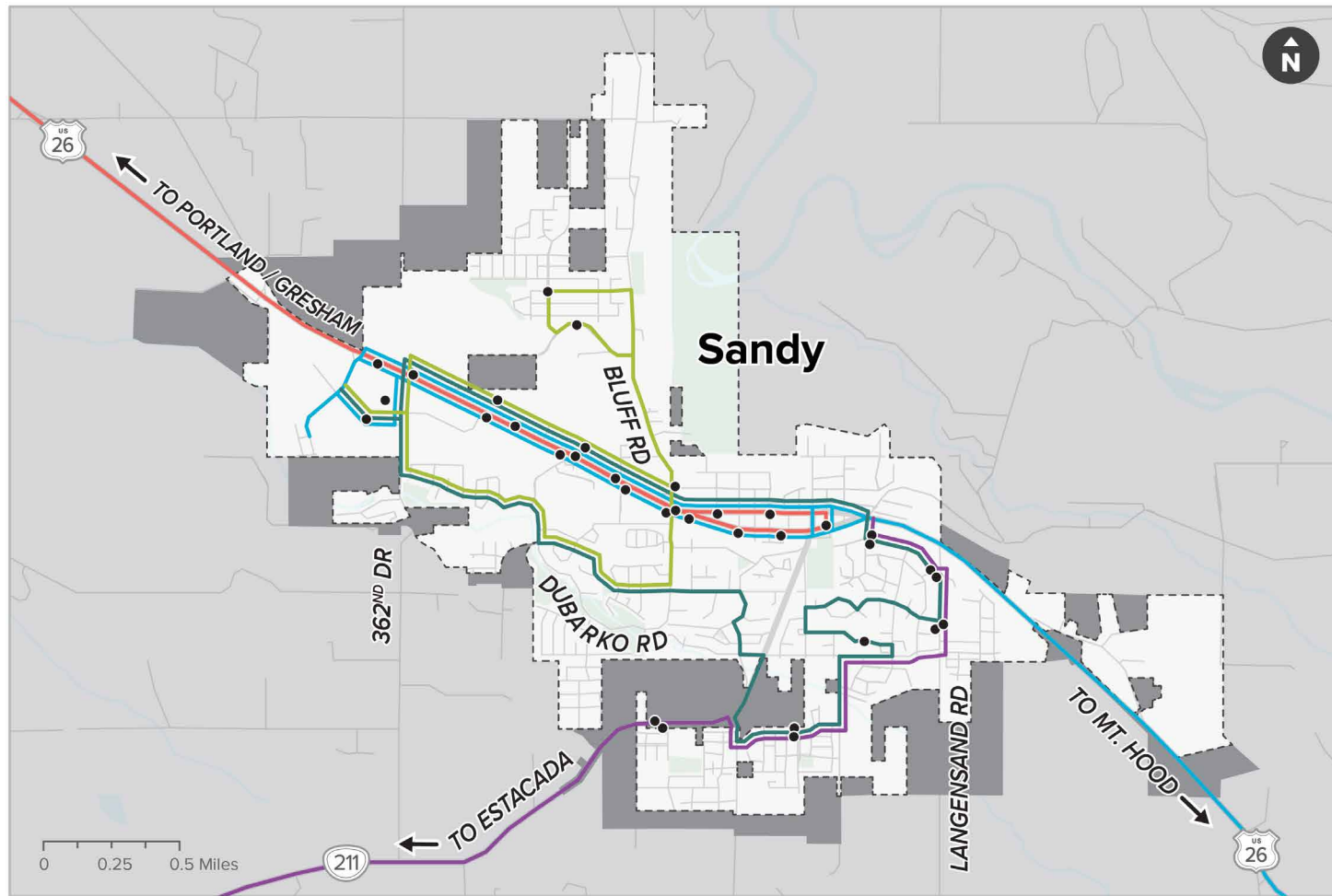
## system characteristics

- Transit riders can transfer to TriMet routes at the Gresham Transit Center for access to transit service in the Portland Metro area.
- Bus stops with more than 10 boardings per day should have a shelter and a bench per Sandy Transit's standard. The bus stops in Sandy are currently meeting that standard.
- The SAM stop at Gresham Transit Center is the highest ridership stop in Sandy Transit's system.
- There is poor connectivity between the regional fixed routes and the local shopper routes. Pedestrian improvements and a new shopper shuttle stop at Proctor Boulevard and Hoffman Avenue are proposed in the Transit Master Plan to remedy this issue.

## dial-a-ride & paratransit service

Sandy Transit's dial-a-ride and paratransit service provides public transportation to persons with disabilities who are unable to use regular fixed route buses and members of the general public. While federal guidelines require that service be provided within 3/4 mile of fixed route service, service is provided for any trip that starts and ends within the City of Sandy. Current ridership of dial-a-ride/paratransit service is approaching capacity. The Transit Master Plan recommends reviewing the operating practices of the service rather than immediately adding another bus and driver to meet future increases in demand.





# transit service



**sandy shoppers (a & b)**  
 Every 60 minutes, afternoons and evenings, Monday through Friday



**sandy / gresham express**  
 Every 30 minutes, Monday through Friday; 60 minutes Saturday & Sunday



**sandy / estacada express**  
 Five trips daily, Monday through Saturday



**mt. hood express**  
 Mount Hood Express – Six trips daily (seven in winter), Monday through Sunday

## transit routes

- sandy - estacada** —
- sandy - gresham** —
- shopper b** —
- shopper a** —
- mt. hood express** —
- transit stops** ●

figure 5

Sandy Transit

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy

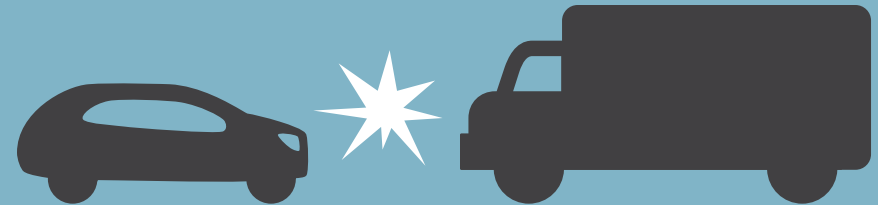
# transportation system challenges

## more travel & recreation seasonal demand

More jobs, residents, and recreational through traffic on US 26 means that the street network in 2040 must accommodate additional motor vehicle trips during the seasonal weekend peak hour. Even today, two intersections along US 26 exceed an acceptable level of congestion during typical peak traffic conditions. By 2040, total traffic is expected to increase by over 30% resulting in further traffic operation deficiencies. The expected increase in seasonal, recreational traffic on US 26 will add to the strain on the transportation system.

## more congestion

With the forecasted increase in motor vehicle trips through 2040, more study intersections are expected to exceed the mobility targets. The study intersections along US 26 from Orient Drive to Bluff Road, the two Industrial Way intersections with 362nd Drive, and the intersection of Highway 211 and Bornstedt Road will all exceed mobility targets in 2040 without additional capacity improvements or regulatory changes (see alternative mobility targets). These intersections along US 26 are all signalized but with high peak hour traffic volumes are unable to adequately serve all the critical movements, typically including the eastbound through traffic. The remaining intersections off of US 26 are unsignalized but will serve high turning movement volumes with significant conflicting traffic. See Appendix Section E for details about the highway performance analysis.



## safety concerns

The SPIS system is a methodology used by the Oregon Department of Transportation (ODOT) to evaluate safety issues statewide and identify locations to prioritize for improvements. Intersections along US 26 on the west side of Sandy have significant safety issues. The US 26 intersections with 362nd Drive, Ruben Lane, and Orient Drive are all top 15 percentile Safety Priority Index System (SPIS) locations. Most collisions at these locations are rear end collisions and turning collisions. The higher speed limit, relatively long distance between intersections, and high traffic related to the commercial district likely contribute to the safety issues at these intersections.

The intersection of Hwy 211 and Dubarko Road is also a location with safety concerns. Most of the collisions at this intersection are turning movements. This intersection is currently unsignalized and two-way stop controlled for movements from Dubarko Road. The City has identified a proportional share fee which is assessed for new development based on the number it's trips using this intersection. TSP project D9 will address the multimodal safety concerns. More information can be found in Appendix Section L.

# transportation system challenges

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## pedestrian network needs

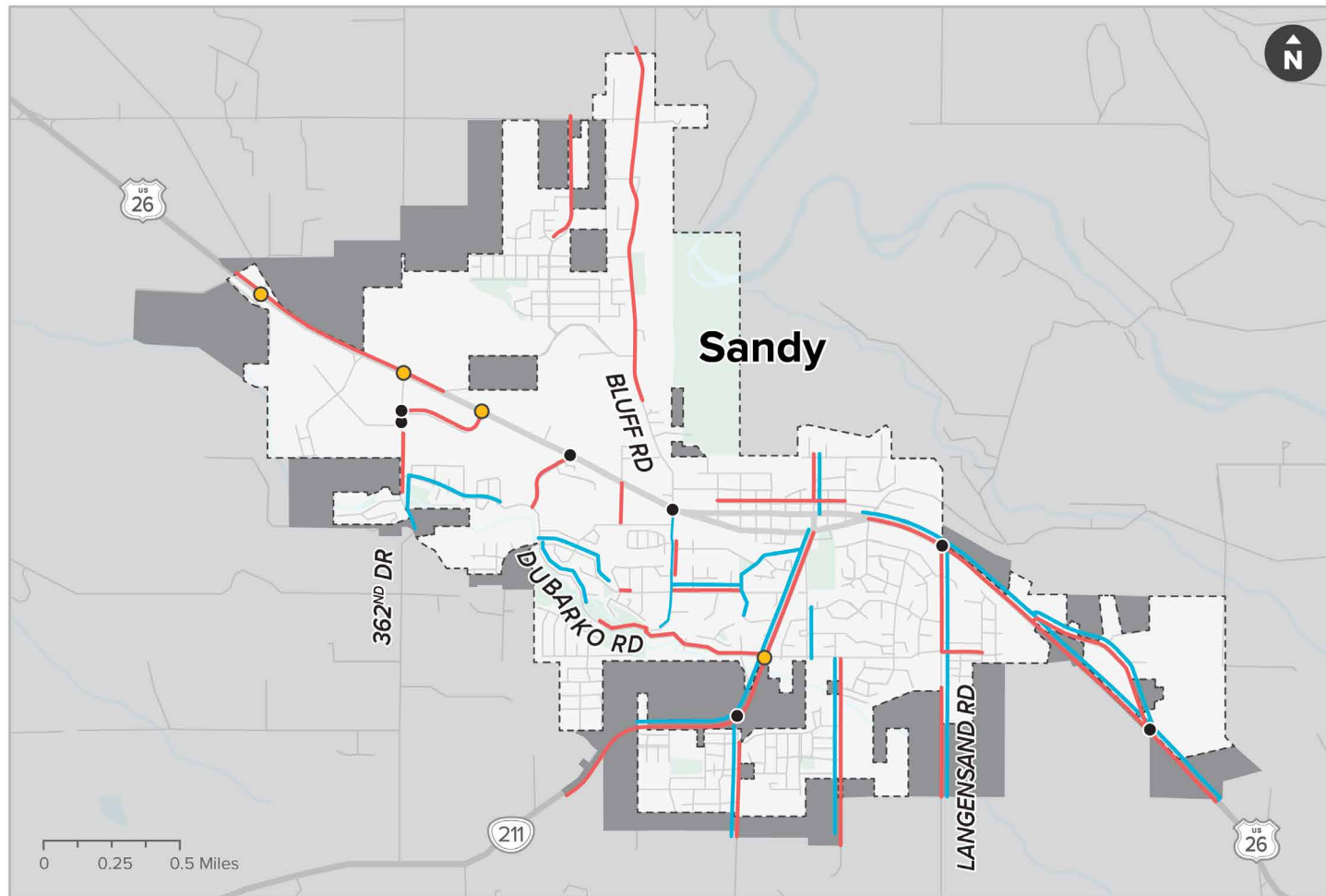
The quality of the pedestrian network depends on the presence of a sidewalk or path, a buffer zone (such as a shoulder, landscape strip, or on-street parking), street lighting, traffic volumes, number of travel lanes and travel speeds along the adjacent roadway. **Figure 9** summarizes the pedestrian network needs in Sandy. Most neighborhoods have adequate pedestrian facilities along some or all the higher volume roadways. This is especially true in the newer neighborhoods to the northwest and south of downtown. However, many roads have significant gaps on one or both sides of the street. The longest segments are along US 26, Hwy 211, and Bluff Road. The Downtown Walkability Assessment (DWA) includes a focused reviewed of the pedestrian system in downtown Sandy. The recommendations included in the DWA informed the projects included in the TSP and is included in **Appendix J**.



## bicycle network needs

The bicycle network is evaluated on the presence and width of bike facilities (such as a bike lane, shoulder, path, shared roadway), the number of travel lanes, motor vehicle volumes, and travel speeds along the adjacent roadway. **Figure 10** summarizes the bicycle network conditions in Sandy. This analysis shows that the arterial and collector streets in Sandy have relatively few needs on the west side of the City with significant needs on the central and east sides of the City. The longest need segments are along US 26, Hwy 211, and Langensand Road.

# sandy system deficiencies



As shown in Figure 6 there are deficiencies for various travel modes across the City of Sandy. Deficiencies were only evaluated along roads classified as collector and higher. Additional evaluation along local roads may be found in focused plans, like the Downtown Walkability Assessment. Motor vehicle related deficiencies are generally limited to US 26 and Hwy 211. Bicycle and pedestrian infrastructure gaps are present throughout the city with the exception of the northern neighborhood off of Bluff Road where there are no existing bicycle gaps.

**pedestrian system needs**  
sidewalk gaps



**bicycle system needs**  
bicycle gaps



**type**  
intersection & safety



intersection operational



figure 6

Sandy System Deficiencies

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy




# improvements


Sandy must make investment decisions to implement a set of transportation improvements that meet identified needs through 2040. Transportation funding is limited, so a fiscally responsible approach to enhancing and maintaining the transportation system is imperative.

Sandy's approach to developing the TSP investments emphasized adding capacity to existing facilities, upgrades to cross section standards, and filling important system gaps. This process allowed the city to maximize use of available funds, minimize impacts to the natural and built environments, and balance investments across all modes of travel. See **Appendix Section H** for more information about project priorities.

# prioritization

 **high priority**

Add vehicle capacity by widening, constructing major improvements to existing roadways, or extending existing roadways to create parallel routes to congested corridors. Improve existing facilities with minor enhancements, such as upgrading roads to cross section standards, filling in important system gaps, and safety improvements to intersections and to corridors.

 **medium priority**

Add cost-effective improvements such as better traffic signal operations, encouraging walking, biking and transit, and applying new policies and standards.

 **low priority**

Add capacity to the system by constructing new facilities.

figure 7

Transportation Solutions Identification Process

## prioritizing investments

Unless the City expands its funding options, most of the desired transportation system projects are not likely to happen before 2040. For this reason, the TSP splits transportation solutions into improvement packages.

The Constrained Projects, or those projects that the City believes are reasonably likely to be funded during the 20-year planning horizon are included in Package 1 “is financially constrained”, meaning it totals the \$10.2 million is expected to be available through existing City funding and revenue from various state and/or federal sources.

Package 2 is comprised of the aspirational projects, those remaining projects that exceed the likely level of funding available in the next 20 years.

Sandy supports and would like to implement all of the projects identified in both of the packages. The full list includes over 100 projects, totaling an estimated \$710 million worth of investments (in 2021 Dollars). See Appendix Section H for more information on the development of the TSP project list.



# prioritization

The TSP compared all proposed projects using the TSP goals (detailed in the TSP Introduction). Based on a project’s contribution to achieving the transportation goals of Sandy, the process assigned each transportation solution a priority. The process considered cost, particularly those projects with extremely high cost, in the prioritization process but did not necessarily rank a project lower due to high cost. Projects that would have more immediate impacts and spread investment benefits citywide were selected to form the financially constrained list.

The City has discretion to implement the projects in a different order than is reflected in Table 1. Future circumstances could allow or require the City to fund projects not on the financially constrained project list to address an unanticipated transportation need or take advantage of an unexpected opportunity. The projects listed in Table 1 are shown by category, such as driving or biking.

The project identification numbers in the first column indicate which travel mode they are primarily intended to benefit; however, some projects can benefit more than one mode of travel and many projects are expected to also improve safety. The Project IDs are coded as follows:

- P** pedestrian project
- C** crossing project
- B** bicycle project
- T** trail project
- S** safety project
- D** pedestrian project

The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change and will ultimately be determined through a preliminary and final design process and are subject to City and/or ODOT approval.



# motor vehicle

Motor vehicle projects improve safety and mobility throughout the City for motorists. Sandy identified 39 projects to improve roadway segments and intersections that, as originally proposed, would cost an estimated \$640 million to complete. Motor vehicle projects are shown in **Figure 8**.

Along US 26, the Sandy TSP calls for various intersection improvements to improve capacity at the signalized intersections. Other road extension projects off US 26 also contribute to improving the highway by creating more route options for local traffic. Ultimately, the proposed Sandy Bypass results least congestion along the current highway by rerouting US 26 to the west and south of the current UGB and providing an alternative route for through traffic that does not pass through the city center.

For most intersections to meet current Oregon Highway Plan (OHP) mobility targets, all of the included US 26 intersection improvements are necessary along with the construction of the Sandy Bypass. Even with all these projects completed the intersection of US 26 and Orient Drive would still fail to meet mobility targets. Additional highway widening beyond these projects would have significant community, environmental, and right-of-way impacts and would require further environmental and technical analysis. Widening US 26 is not recommended in this TSP.

In addition, highway widening projects are not financially feasible based on the current financial constraint threshold. The cost of the US 26 projects mentioned above is estimated to be \$180 million with the bypass adding an additional \$390 million. These costs are well above

the \$10 million expected for the financially constrained project list. No potential highway widening projects could be implemented in small enough segments to fit within the 20-year budget. The full analysis of US 26 improvement options considered during the TSP analysis process are described in the appendix.

Without the improvements to US 26 capacity included in this TSP, traffic demand for the 30th highest volume hour peak period at all signalized highway intersections along US 26 from Bluff Road to Orient Drive likely will exceed capacity by 2040 due to high volumes on multiple turning movements. Three other unsignalized intersections, along minor arterials, will exceed the City's level of service standard due to high delay for turning movements.

With the projected amount of funding available and the significant shortfall relative to the cost of the proposed improvements to improve operations along US 26, the City will need to work with ODOT to establish alternative mobility targets for US 26. The full analysis of US 26 alternative mobility targets is described in the **Appendix Section I**.



**TABLE 1. FINANCIALLY CONSTRAINED & ASPIRATIONAL PROJECT LIST<sup>A</sup>**

PROJECT ID	DRIVING PROJECTS	DESCRIPTION	\$2021 DOLLARS	LEAD AGENCY <sup>B</sup>	FUNDING
D1	362nd Drive & Industrial Way (south) Intersection Improvement	Reduce eastbound congestion. Project may include restriping to include an exclusive eastbound left turn lane and exclusive right turn lane.	\$140,000	City	2
D2	362nd Drive & Dubarko Road Intersection Improvement	Reduce intersection congestion. Project may construct a traffic signal or roundabout.	\$1,425,000	City	2
D3	US 26 & 362nd Drive Intersection Improvement	Reduce congestion for the westbound left turn and accommodate the 362nd Drive Extension 1. Project may minor widening to accommodate a northbound through lane, construction of a three-lane southbound approach with a right turn lane, through lane, and left turn lane, and an eastbound left turn lane.	Funded	ODOT	1
D4	US 26 & Industrial Way Intersection Improvement	Improve egress from commercial area and reduce northbound congestion. Project may include minor widening to accommodate a northbound left turn lane and restriping on the southbound approach to dual left turn lanes and a shared through/right turn lane.	\$950,000	ODOT	2
D5	US 26 & Ruben Lane Intersection Improvement	Improve egress from commercial area and reduce northbound congestion. Project may include restriping southbound approach to dual left turns and a shared through/right lane and restriping the northbound approach to a left turn lane and shared through/right lane.	\$950,000	ODOT	2
D6	Highway 211 & Proctor Boulevard Intersection Improvement	Reduce northbound congestion. Project may include restriping northbound approach to include an exclusive left turn lane and through/right lane.	\$15,000	ODOT	1
D8	US 26 & Ten Eyck Road/Wolf Drive Intersection Improvement	Improve northbound and southbound approaches. Project may include striping left turn lanes on both minor street approaches.	\$1,500,000	ODOT	2
D9	Highway 211 & Dubarko Road Multimodal Improvement	Reduce intersection congestion and improve safety. Project includes multimodal improvements such as improved pedestrian crossings. Coordinate with C2, C23, D20, D27.	\$500,000	City	1

PROJECT ID	DRIVING PROJECTS	DESCRIPTION	\$2021 DOLLARS	LEAD AGENCY <sup>B</sup>	FUNDING
D11	Highway 211 & Arletha Court Intersection Improvement	Reduce northbound congestion and improve pedestrian crossing. Project may include signage and approach modifications to prohibit left turns from the minor street approach. Traffic calming such as curb extensions may be used to reduce crossing distance for pedestrians. Proctor Road may be gated for emergency vehicle only access.	\$125,000	City	2
D12	Industrial Way Extension 1	Extend Industrial Way to Jarl Road/US 26 at Collector standards.	\$13,175,000	City	2
D13	Dubarko Road Extension	Extend Dubarko Road to Champion Way at Collector standards.	\$7,450,100	City	2
D14A	Bell Street Extension 1	Extend Bell Street to 362nd Drive Extension 1 at Minor Arterial standards.	Funded	City	1
D14B	Bell Street Extension 2	Extend Bell Street from 362nd Drive Extension 1 to Orient Drive at Minor Arterial standards.	\$9,900,000	City	2
D15A	362nd Drive Extension 1	Extend 362nd Drive to Bell Street Extension 1 at Minor Arterial standards.	Funded	City	1
D15B	362nd Drive Extension 2	Extend 362nd Drive from Bell Street Extension 1 to Kelso Road at Minor Arterial standards.	\$14,000,000	City	2
D16	Kate Schmidt Street Extension	Extend Kate Schmidt Street to Bell Street Extension 1 at Collector standards.	\$9,000,000	City	2
D17	Industrial Way Extension 2	Extend Industrial Way to Bell Street Extension 1 at Collector standards.	\$4,675,000	City	2
D18	Olson Street Extension	Extend Olson Street to 362nd Drive Extension 2 at Collector standards.	\$5,250,000	City	2
D19	Agnes Street Extension	Extend Agnes Street to Bluff Road at Collector standards.	\$5,950,000	City	2

PROJECT ID	DRIVING PROJECTS	DESCRIPTION	\$2021 DOLLARS	LEAD AGENCY <sup>B</sup>	FUNDING
D20	Dubarko Road Extension	Extend Dubarko Road to US 26/Vista Loop Road (west) at Minor Arterial standards, coordinate with D9, C2, C17, and D27.	\$3,900,000	City	1
D21A	Sandy Heights Street/ 370th Avenue Extension	Extend Sandy Heights Street/370th Avenue to Highway 211 at Collector standards.	\$24,350,000	City	2
D21B	Gunderson Road Extension	Extend Gunderson Road from existing terminus near Highway 211 to 362nd Drive at Collector standards.	\$13,750,000	City	2
D21C	Cascadia Village Extension 1	Extend Cascadia Village from Highway 211 to Arletha Court at Collector standards.	\$2,025,000	City	2
D21D	Cascadia Village Extension 2	Extend Cascadia Village Drive from Village Boulevard to Pine Street at Collector standards.	\$2,175,000	City	2
D21E	New southern collector	Construct new a new road at Collector standards from Highway 211 at the intersection with the Sandy Heights Street/370th Avenue Extension to Langensand Road.	\$33,550,000	City	2
D21F	Village Boulevard Extension 1	Connect Village Boulevard at Collector standards between Cascadia Village Drive and Juniper Street.	\$875,000	City	1
D21G	Village Boulevard Extension 2	Extend Village Boulevard at Collector standards from existing terminus south of Juniper Street to Bornstedt Road.	\$4,000,000	City	2
D22	New eastern collector	Construct new a new road at Collector standards from Dubarko Road at the intersection with the Dubarko Road Extension to US 26/ Vista Loop Road (east).	\$20,000,000	City	2
D23	US 26 Bypass	Construct bypass from east of Orient Drive to Shorty's Corner (Firwood Road).	\$390,000,000	City	2
D24	Highway 211 & Gunderson Road Intersection Improvement	Intersection improvement project may include turn lanes from Highway 211 to Gunderson Road, a traffic signal or roundabout.	\$1,000,000	City	1

PROJECT ID	DRIVING PROJECTS	DESCRIPTION	\$2021 DOLLARS	LEAD AGENCY <sup>B</sup>	FUNDING
D25	Highway 211	Upgrade Highway 211 to Minor Arterial standards from UGB to US 26, coordinate with P23.	\$22,000,000	City	2
D26	Alt Avenue	Reconstruct Alt Avenue from Proctor Blvd to Pleasant St to improve walkability and access to the Sandy Library.	\$11,000,000	City	2
D27	Highway 211 & Dubarko Road Intersection Control Evaluation	Study intersection control and other options to improve safety and capacity. Coordinate with D9, D20, and C2.	\$50,000	City	1
D28	Industrial Way Realignment	Realign Industrial Way (east of 362nd Drive) to connect with the intersection of Industrial Way (west of 362nd).	\$4,150,000	City	2
D29	Ruben Lane Realignment to Kate Schmitz	Realign Ruben Lane to the west to connect with Kate Schmitz Avenue and US 26.	\$3,700,000	City	2
D30	Langensand Road Truck Traffic Calming	Traffic calming measures along Langensand Road, potential treatments include bollards at the intersection of Langensand Road and US 26 and curb extensions along Langesand Road.	\$175,000	City	2
D31	Sandy Bypass Planning	Planning to support the proposed US 26 Sandy Bypass.	\$1,000,000	City	1
D32	Cascadia Village Drive Extension 3	Extend Cascadia Village Drive from Bornstedt Road to New Eastern Collector (D22) at Collector standards.	\$19,100,000	City	2
D33	Olson Street Extension 2	Extend Olson Street from 362nd Drive extension to SE Crescent Road.	\$8,500,000	City	2
<b>Estimated Cost for all Driving Projects</b>			<b>\$640,305,000</b>		

A Project descriptions and cost estimates are at a high level for planning purposes. Specific details of a particular project may be modified with additional analysis or when funding is identified with major changes requiring TSP amendment. Some projects initially included were later removed. As a result the project numbers are not consecutive.

B Expected, funding will likely come from multiple sources.

# motor vehicle projects

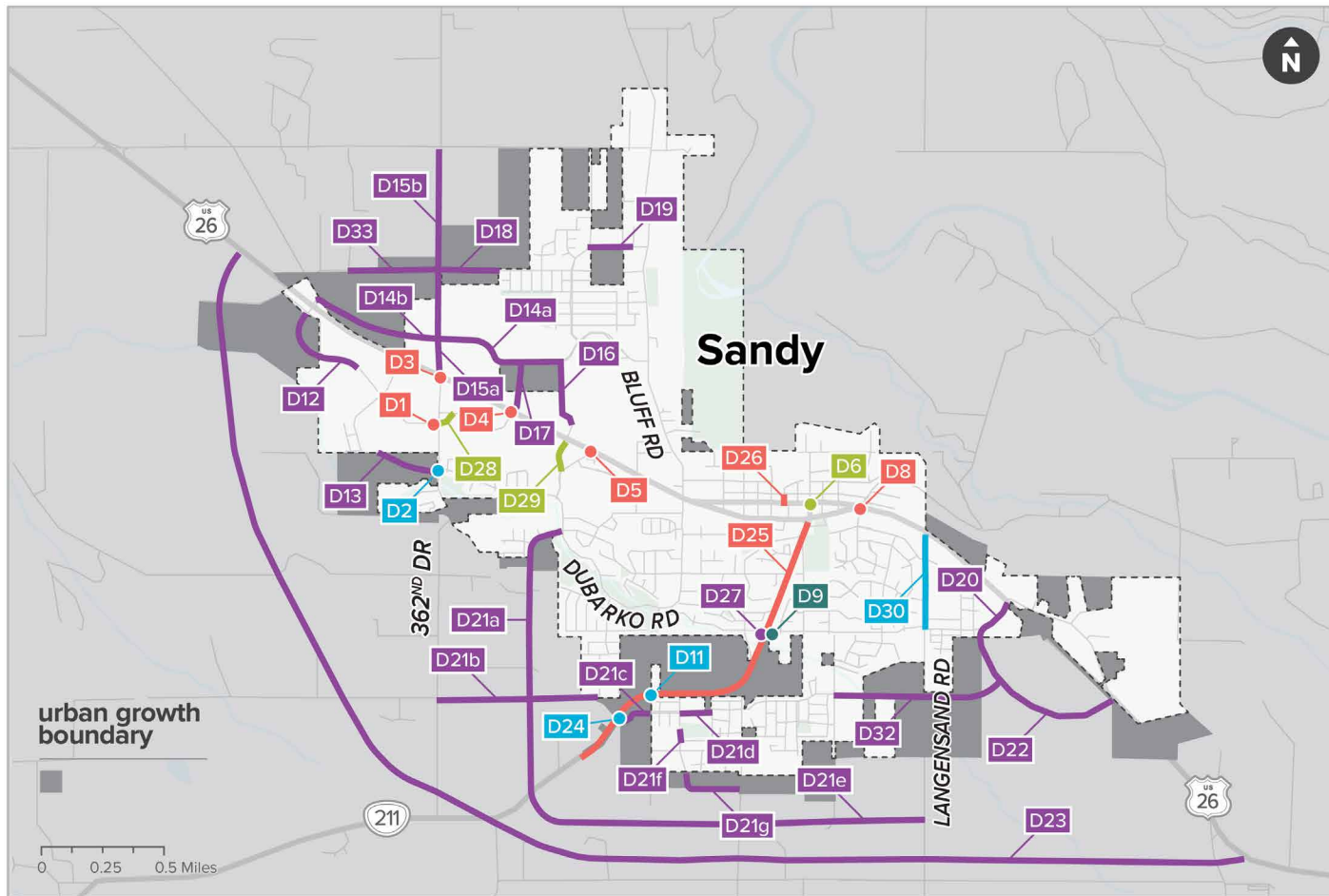


figure 8

Motor Vehicle Projects

## street improvements

realignment

extension

traffic calming

improvement

## driving improvements

restriping

traffic control modification

multimodal

intersection control evaluation

project ID

xx xx xx xx

intersection widening

## base map

city limits

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Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy

# pedestrian & bicycle

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Pedestrian and bicycle projects include sidewalk, path and roadway crossing improvements, and an integrated network of bicycle lanes, marked on-street routes and shared-use paths to facilitate safe and convenient travel citywide. Sandy identified 90 pedestrian and bicycle projects that, as originally proposed, would cost an estimated \$53 million to complete.

Most pedestrian and bicycle projects are standalone projects and not included with other driving capacity projects. However, all roadway extension projects are expected to be constructed at cross section standards which include bike lanes and sidewalks. There are some advantages of separating out bicycle and pedestrian improvements from driving capacity projects, including:

- 1** Walking and biking projects are generally less expensive and have less impact than roadway widening projects, and most can be accomplished within the existing right-of-way.
- 2** Construction of walking and biking projects can be done in smaller phases or combined with a related maintenance activity like a pavement rehabilitation job.
- 3** Walking and biking projects are generally non-controversial in nature and provide clear safety benefits to the more vulnerable users of the transportation system.

Sandy identified **90 pedestrian and bicycle projects** that, as originally proposed, would cost an estimated **\$53 million to complete.**





**TABLE 2. FINANCIALLY CONSTRAINED & ASPIRATIONAL PROJECT LIST BICYCLE & PEDESTRIAN<sup>A</sup>**

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
<b>PEDESTRIAN PROJECTS</b>					
P1	362nd Drive – West sidewalk of Chinook Street to Industrial Way	Infill sidewalk gaps.	\$1,000,000	City	1
P2	Bluff Rd. - East and west side of Green Mountain St. to Northern UGB	Infill sidewalk gaps.	\$900,000	City	2
P3	Bluff Rd - West sidewalk gap infill from Bell Street to 15931 SE Bluff Road	Infill sidewalk gaps.	\$875,000	City	1
P4	Bluff Rd - West sidewalk gap infill from Strawbridge Pkwy to Nettie Connett Dr.	Infill sidewalk gaps.	\$650,000	City	2
P5	Bornstedt Rd. - East and west sidewalk gap infill from Cascadia Village Dr. to UGB	Infill sidewalk gaps.	\$1,750,000	City	2
P6	Dubarko Rd. - South sidewalk gap infill 300 feet east of Melissa Ave. to 200 feet east Highway 211	Infill sidewalk gaps.	\$3,950,000	City	2
P7	Dubarko Rd. - North sidewalk gap infill from Langensand Rd. to Antler Ave.	Infill sidewalk gaps.	\$50,000	City	2
P8	Industrial Way - North and south sidewalk gap infill from 362nd Dr. to US 26	Infill sidewalk gaps.	\$2,200,000	City	2
P9	Jewelberry Rd. - East and west sidewalk infill from Penny Ave. to Kelso Rd.	Infill sidewalk gaps.	\$250,000	City	2
P10	Jacoby Rd. - East and west sidewalk gap infill from Dubarko Rd. to southern UGB	Infill sidewalk gaps.	Included in B14	City	2
P11	Langensand Rd - East and west sidewalk gap infill from Dubarko Rd. to US 26	Infill sidewalk gaps.	\$100,000	City	2

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
P12	Langensand Rd. - East and west sidewalk gap infill from Dubarko Rd. to UGB	Infill sidewalk gaps.	\$1,150,000	City	2
P13	Meinig Avenue - East and west sidewalk gap infill from Scenic St. to US 26	Infill sidewalk gaps.	\$150,000	City	2
P14	Pleasant St - East and west sidewalk infill from Beers Ave. to Revenue Ave.	Infill sidewalk gaps.	\$250,000	City	2
P15	Ruben Ln. - West sidewalk gap infill from US 26 to Dubarko Rd.	Infill sidewalk gaps.	\$75,000	City	2
P16	Sandy Heights St - North and south sidewalk infill from Bluff Rd. to Tupper Rd.	Infill sidewalk gaps.	\$225,000	City	2
P17	Downtown Core Pedestrian Improvements - Sidewalk infill side streets perpendicular to US 26	Infill sidewalk gaps.	\$350,000	City	2
P19	US 26 - North sidewalk infill from Royal Ln to 362nd Dr.	Infill sidewalk gaps.	\$550,000	ODOT	2
P20	US 26 - North sidewalk infill from 362nd Dr. to West UGB	Infill sidewalk gaps.	\$1,200,000	ODOT	2
P22	US 26 - South sidewalk infill from Ten Eyck Rd. to East UGB (a project filling this gap on the north side of the highway is under construction)	Infill sidewalk gaps.	Included in B12	ODOT	2
P23	Highway 211 - Construct sidewalk from south UGB to US 26 – coordinate with D25	Construct sidewalk.	Included in D25	City	2

A Project descriptions are at a high level for planning purposes. Specific details of a particular project may be modified with additional analysis or when funding is identified.

B Expected, funding will likely come from multiple sources.

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
P24	Sandy Heights St. - North sidewalk infill from Nettie Connett Drive to Balken Ave	Construct sidewalk.	\$125,000	City	2
P25	Vista Loop - Full extent	Construct sidewalk.	Included in B15	City	2
P26	362nd Drive	East sidewalk infill from Chinook Street to Industrial Way.	\$625,000	City	2
P27	Bluff Road	East sidewalk infill from 200 feet north of Marcella Court to Green Mountain Street.	\$2,225,000	City	2
<b>Estimated Cost for all Pedestrian Projects</b>			<b>\$18,650,000</b>		
<b>CROSSING PROJECTS</b>					
C1	Sandy Shopper Crossing - Evans	Evans Street Senior Apartments, traffic calming, and other crossing improvements are needed. Project may include pedestrian crossing advisory signage, curb extensions, and marked crosswalks.	\$25,000	City	2
C2	Highway 211 Dubarko Crossing	Project may include pedestrian crossing advisory signage, curb extensions, marked crosswalks, and installation of RRFB. Coordinate with D9, D20, and D27.	\$125,000	City	2
C3	Sandy Transit Center - Pioneer	Project may include pedestrian crossing advisory signage, curb extensions, and marked crosswalks.	\$125,000	ODOT	2
C4	Sandy Transit Center - Proctor	Project may include pedestrian crossing advisory signage, curb extensions, and marked crosswalks.	\$125,000	ODOT	2
C5	CRMS - Bluff Road at Marcy	Install Rectangular Rapid Flashing Beacon (RRFB) with School Crossing Assembly (S1-1 and W16-7P), and high visibility crosswalks across the north and east sides of the intersection.	\$125,000	City	1
C6	CRMS - Bluff Road at Hood	Install a curb extension including perpendicular curb ramps and tactile domes at northeast corner of Hood St. Install a curb extension to provide clearance from existing pole, including perpendicular curb ramps and tactile domes, at southeast corner. Mark crosswalk and stop bar across the east leg of intersection.	\$125,000	City	1

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
C7	CRMS - Bluff Road at US 26	Increase pedestrian signal crossing time. Reconfigure crossing to provide perpendicular curb ramps with tactile domes and reduce curb radius at all corners. Add pedestrian-scale lighting. Reallocate existing roadway space to provide buffered bike lanes along Highway 26 and consider the use of green pavement markings near Bluff Rd. Consider installing vertical delineators with buffered bike lanes contingent on city maintenance agreement or construct a fully grade-separated bicycle facility.	\$125,000	ODOT	1
C8	CRMS - Hood Street at Beers	At Beers Ave, repaint stop bars on west and east sides of intersection. Consider installation of a 4 way stop at Beers Ave.	\$25,000	City	1
C9	CRMS - Hood Street at Scales	Install perpendicular curb ramps with tactile domes at northwest and southwest corners of the intersection of Hood St and Scales Ave. Install tactile domes at the northeast and southeast corners. Repaint stop bars.	\$25,000	City	1
C10	CRMS - Hood Street at Bruns	Install tactile dome at southwest corner of Bruns Ave and Hood St.	\$25,000	City	1
C11	SGS - Hood/Strauss	Relocate southbound school advance crossing assembly (S1-1 & W16-9P) and school speed limit assembly (S4-3P & R2-1) along Strauss Ave to approximately 100 ft and 175 ft north of intersection, respectively. Repair approximately 150 LF of degraded sidewalk along the east side of Strauss Ave at the intersection with Hood St and widen sidewalk at encroaching utility pole. Install a curb ramp on the east side of the south leg of the intersection of Strauss Ave at Hood St. Add tactile domes and a stop bar associated with the crosswalk across the west leg of the intersection.	\$350,000	City	1
C12	SGS - Pleasant/Strauss	Mark stop bars in advance of crosswalks. Consider revising the intersection of Pleasant St and Strauss Ave to be a four-way stop (currently STOP control north- and southbound only).	\$25,000	City	1

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
C13	SGS - Pleasant/Alt	Mark stop bars in advance of crosswalks. Replace existing diagonal curb ramps at all four corners with perpendicular curb ramps with tactile domes. Construct a raised intersection at Pleasant St at Alt Ave.	\$350,000	City	1
C14	SGS - Smith/Pleasant	Mark stop bars in advance of crosswalks. Relocate southbound school advance crossing assembly (S1-1 & W16-9P) and school speed limit assembly (S4-3P & R2-1) along Smith Ave to approximately 100 ft and 175 ft north of intersection, respectively.	\$25,000	City	1
C15	SGS - Alt/US 26	Increase pedestrian signal crossing time. Upgrade pedestrian pushbuttons to meet current standards with audible indications. Consolidate the two existing crosswalks across Highway 26 at Alt Ave with one high visibility continental crosswalk on the east side of the intersection including advance stop bar, bulb outs, curb ramps, and pedestrian scale lighting.	\$125,000	ODOT	1
C16	Bluff/Sandy Heights	Install marked crosswalks on all four legs with tactile domes on the ramps.	\$25,000	City	2
C17	Dubarko/US26	Install marked crosswalks on all four legs with tactile domes on the ramps, coordinate with D20, this project is not needed until the Dubarko Extension is complete.	\$25,000	ODOT	2
C18	Scales/Proctor	Install marked crosswalks on all four legs with tactile domes on the ramps.	\$25,000	ODOT	2
C19	Scales/Pioneer	Install marked crosswalks on all four legs with tactile domes on the ramps.	\$25,000	ODOT	2
C20	Bruns/Proctor	Install marked crosswalks on all four legs with tactile domes on the ramps.	\$25,000	ODOT	2
C21	Bruns/Pioneer	Install marked crosswalks on all four legs with tactile domes on the ramps.	\$25,000	ODOT	2

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
C22	Highway 211	Pedestrian Overcrossing for Sandy Heights Street.	\$6,000,000	City	2
C23	Highway 211 Pedestrian Improvements	ADA Improvements along Highway 211.	Funded	City	1
C24	Green Mountain and Bluff Pedestrian Crossing	Construct curb extensions and mark crossing to Jonsrud Viewpoint.	\$75,000	City	2
<b>Estimated Cost for all Crossing Projects</b>			<b>\$8,450,000</b>		
<b>BIKE PROJECTS</b>					
B1	362nd Dr. - Dubarko Rd. to UGB	Widen shoulder to 6 feet minimum for bike access.	\$1,500,000	City	2
B2	Bluff Rd. - US 26 to Miller Rd.	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$50,000	City	2
B3	Bornstedt Rd - Highway 211 to UGB	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$2,550,000	City	2
B4	Dubarko Rd. - 362nd Dr. to Eldridge Dr.	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$50,000	City	2
B5	Dubarko Rd. - Sandy Heights St. to Melissa Ave.	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$50,000	City	2
B6	Langensand Rd. - US 26 to UGB	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$75,000	City	2
B7	Meinig Ave - Scenic St. to US 26	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$75,000	City	2
B8	Meinig Ave - Barker Ct. to Dubarko Rd.	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$25,000	City	2
B9	Sandy Heights St - Bluff Rd. to Tupper Rd.	Re-stripe roadway to provide bike lanes, cost assumes that the roadway is not widened and parking is removed.	\$50,000	City	2
B10	Tupper Rd. - Long Circle to Highway 211	Widen roadway to provide bike lanes.	\$3,000,000	City	2

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
B12	US 26 - Ten Eyck Road to UGB	Widen to provide a six foot bike lane and sidewalk.	\$7,725,000	ODOT	2
B13	Sandy Heights St - Dubarko Rd to Nettie Connett Dr	Re-stripe/widen Roadway to provide bike lanes.	\$2,275,000	City	2
B14	Jacoby Rd - Dubarko Rd to southern UGB	Re-stripe/widen Roadway to provide bike lanes and construct sidewalk.	\$3,925,000	City	2
B15	Vista Loop - Full extent	Re-stripe/widen Roadway to provide bike lanes and construct sidewalk.	\$2,075,000	City	2
<b>Estimated Cost for all Bike Projects</b>			<b>\$23,425,000</b>		
<b>TRAIL PROJECTS</b>		<b>These projects will be funded through the Parks System Development Charge for new development</b>			
T03	362nd	6' - 8' wide gravel trail	\$125,000	City	2
T04	Kelso to Powerline	6' - 8' wide gravel trail	\$200,000	City	2
T05	Powerline	5' concrete path	\$50,000	City	2
T06	Olson to Powerline	5' concrete path	\$100,000	City	2
T08	Sandy Bluff Park to 362nd 3	6' - 8' wide gravel trail	\$150,000	City	2
T09	Sandy Bluff Park Pond Loop Trail 3	6' - 8' wide gravel trail	\$50,000	City	2
T10	Bell Street to Sandy Bluff Park 3	6' - 8' wide gravel trail	\$75,000	City	2
T11	Kate Schmidt to Bell Street 3	3' wide natural surface trail	\$50,000	City	2
T12	SHS Trail Easement 13	3' wide natural surface trail	\$100,000	City	2
T13	Meeker to MH Athletic Club	5' concrete path	\$50,000	City	2
T17	Community Campus to Sandy River Trail	3' wide natural surface trail	\$25,000	City	2

PROJECT ID	LOCATION	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY <sup>B</sup>	PACKAGE
T19	Park Street to Community Campus	3' wide natural surface trail	\$5,000	City	2
T21	Vista Loop to Hood Street	6' - 8' wide gravel trail	\$50,000	City	2
T28	Tickle Creek Reroutes 3	6' - 8' wide gravel trail	\$75,000	City	2
T30	Sunset Street to Tickle Creek	3' wide natural surface trail	\$15,000	City	2
T31	Sunset Street to Nettie Connett Drive	5' wide concrete path	100,000	City	2
T32	Bluff Road to Sandy Heights	3' wide natural surface trail	\$15,000	City	2
T33	Tupper Park to Gerilyn Court	5' concrete path	\$50,000	City	2
T35	Tickle Creek Extension East to Dubarko Underpass	6' - 8' wide gravel trail	\$75,000	City	2
T38	Tickle Creek to Deer Point Park	5' concrete path	\$450,000	City	2
T39	Dubarko Extension Road	8' wide asphalt trail	\$125,000	City	2
T40	Tickle Creek Extension Dubarko East to Jacoby	3 6' - 8' wide gravel trail	\$100,000	City	2
T41	Alleyway to Tickle Creek Trail Connector	5' concrete path	\$50,000	City	2
T42	Jacoby Road to Tickle Creek Connector	5' concrete path	\$50,000	City	2
T44	Bornstedt Park	5' concrete path	\$75,000	City	2
T50	Highway 211 Parkway	-	\$400,000	City	2
T54	Cascadia to Tickle Creek	6' - 8' wide gravel trail	\$30,000	City	2
<b>Estimated Cost for all Trail Projects</b>			<b>\$2,640,000</b>		

<sup>B</sup> Expected, funding will likely come from multiple sources.



# pedestrian

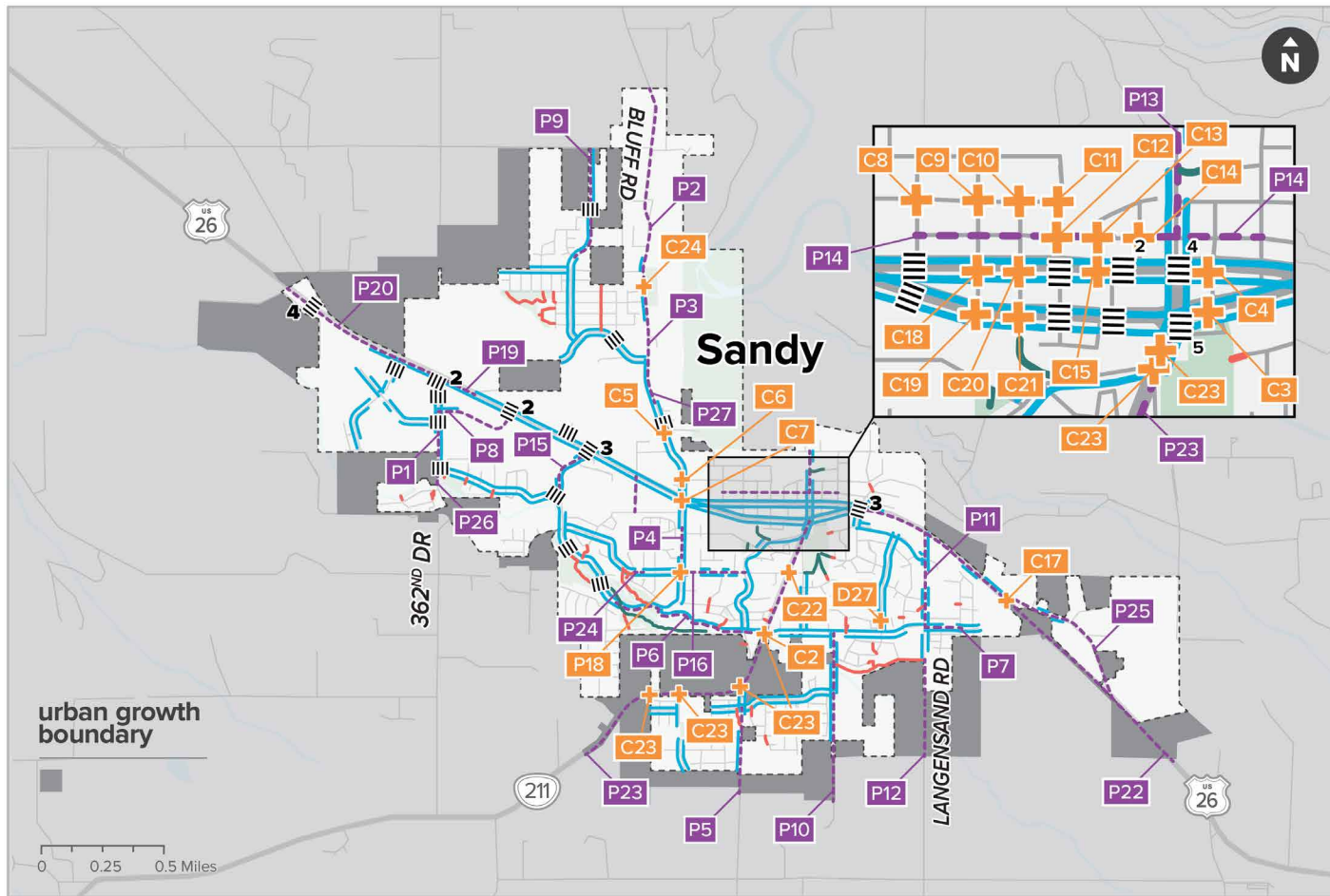


figure 9

Pedestrian Improvements & Facilities

## pedestrian improvements

sidewalks



crossings



## existing pedestrian facilities

sidewalks



paved path



unpaved trail



project id



crosswalks



# of crosswalks at this location



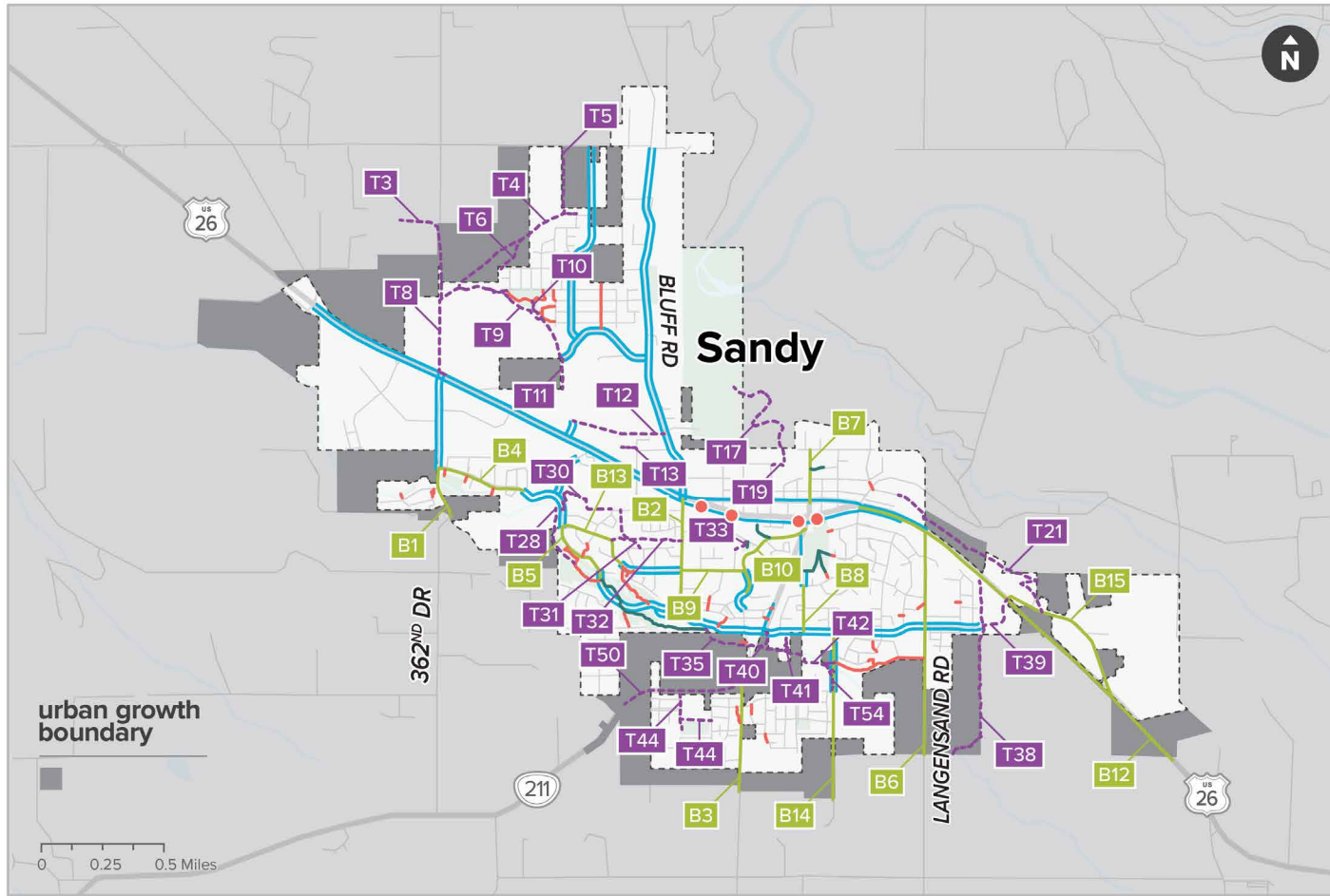
## base map

city limits



Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy

# bicycle



### bicycle improvement type

- bicycle lanes:
- trails:

### existing bicycle facilities

- bicycle lanes:
- paved path:
- unpaved trail:
- narrow parking:

### project ID

- 

### base map

- city limits:

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy

figure 10

Bicycle Improvements & Facilities

# transit projects

**Transit projects** would enhance the quality and convenience for passengers. Eight transit projects were identified. Most of these projects will be led by Sandy Area Metro and can be implemented with different funding sources than the driving, walking, biking, and safety projects and so were not considered for the financially constrained list. Some pedestrian crossing projects were included based on needs identified in the Sandy Transit Master Plan and will serve pedestrians in the downtown area as well as transit riders.

TRANSIT PROJECTS	
<b>LOCAL SERVICE IMPROVEMENTS – FIXED ROUTES</b>	Add Saturday service, lengthening the service hours, adding an additional shuttle route that reaches the Vista Apartments.
<b>LOCAL SERVICE IMPROVEMENTS – FLEXIBLE SERVICES</b>	Add a bus and driver.
<b>LOCAL SERVICE IMPROVEMENTS – ELECTRIC BUSES</b>	Purchase one or more electric buses, a charging station, and the required maintenance equipment.
<b>ADDITIONS TO REGIONAL SERVICE – GRESHAM EXPRESS</b>	Higher frequencies on Saturdays or Sundays, more night and morning service on Saturdays or Sundays, Occasional additional trips that go directly to important destinations.
<b>ADDITIONS TO REGIONAL SERVICE – NEW CLACKAMAS EXPRESS</b>	Coordinate with Clackamas County, the City of Boring and TriMet to plan and fund a route connecting these communities.
<b>ADDITIONS TO REGIONAL SERVICE – IMPROVED BUS STOPS</b>	Coordinate with the City of Gresham and TriMet to invest in better stop amenities at the Gresham Transit Center.
<b>PEDESTRIAN IMPROVEMENTS – TRANSIT CENTER</b>	Improve access to the transit center by providing crossing treatments from every direction specifically at Proctor and Pioneer Blvd at Hoffman Ave. TSP projects include C3 & C4 – Hoffman Ave at Proctor and at Pioneer Crossing Improvement, these projects require coordination with ODOT.
<b>PEDESTRIAN IMPROVEMENTS – EVANS ST CROSSING</b>	Construct a crosswalk or traffic calming treatment on Evans St. TSP projects include C1 – Van Fleet Ave/Evans St Crossing Improvement, this project would be lead by SAM.

# safety

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Safety projects primarily reduce the risk of collisions. Many bicycle, pedestrian, and driving projects also improve safety along with improving capacity for their respective travel modes. There are three safety projects at a cost of \$325,000.

PROJECT ID	NAME	PROJECT ELEMENTS	ESTIMATED COST (2021 DOLLARS)	LEAD AGENCY	PACKAGE
S1	US 26 Adaptive Signal System	Install an adaptive signal control system on US 26 between Orient Drive and Bluff Road.	\$200,000	ODOT	1
S2	US 26 at Ten Eyck Road Study	Study improvements to business access at Ten Eyck Road and US 26.	\$50,000	ODOT	1
S3	US 26 Speed Zone Study	Study speeds east of Ten Eyck Road/Wolf Drive along US 26. Coordinate with C17 and D20 to consider the impact of the Dubarko extension (D20) and if an intersection control modification is necessary.	\$75,000	ODOT	1

# funding

The total cost of the transportation system projects is far greater than the City's ability to raise funds. Unless Sandy develops additional revenue streams, the City can expect to have no more than \$10.8 million of local street funds to spend on locally-funded improvements over the next 20 years.

## city funding gap:

Sandy has just \$10.8 million to fund the total cost of the locally funded transportation system projects.

## transportation system maintenance:

Nearly 76% of Sandy's current revenue streams for transportation fund maintenance of the existing system.

The City uses six general funding sources for transportation, including funds from:

**Infrastructure Investment Jobs Act (IIJA).** Federal transportation funds allocated from the IIJA flow to the states that use them primarily for safety, highway, and bridge projects. Sandy receives a portion of these funds based partially upon population.

**The State Highway Trust Fund.** The State Highway Trust Fund makes distributions from the state motor vehicle fuel tax, vehicle registration and title fees, driver license fees, and truck weight-mile taxes. Cities and counties receive a share of State Highway Trust Fund monies based on registered vehicles, and by statute may use the money for any road-related purpose, including walking, biking, bridge, street, signal, and safety improvements.

The state gas tax funds previously have failed to keep up with cost increases and inflation. With increased fuel efficiency of vehicles and the State's emphasis on reducing vehicle miles traveled, the real revenue collected gradually has eroded over time. To offset the relative decline in contribution to state funds these fees are periodically increased to generate higher revenue for the state. Vehicle registration fees in Oregon recently increased from \$86 to \$112 per vehicle per year for passenger cars, with similar increases for other vehicle types. The gas tax in Oregon is currently 36 cents per gallon.

**Local Gas Tax.** Sandy collects a local tax from fuel distributors within the city limits. These funds have historically been used for roadway maintenance of streets under City jurisdiction. The gas tax was approved in 2002 at one cent per gallon. The gas tax was increased to two cents per gallon in 2009.

**Clackamas County Vehicle Registration Fee.** Clackamas County commissioners approved a \$30 per year vehicle registration fee to fund road maintenance and construction projects. Sandy will receive an estimated \$200,000 annually which will be used to construct various transportation projects.

## revenues vs. expenditures:

\$42 million in revenue is expected through 2040 compared with \$32 million in expenditures for maintenance or other committed costs such as the Bell Street extension.



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**System Development Charges.** Street System Development Charges (SDC) are collected from new development applications within the City of Sandy based on the proposed land use. The SDC fees are determined based on each land use’s potential to generate new vehicle trips. SDC’s are a funding source for all capacity adding projects. The funds collected can pay for constructing or improving portions of roadways impacted by applicable development and include roadway improvements, bikeways, and pedestrian facilities. The City of Sandy currently applies an SDC of \$4,826.00 per single family dwelling unit or \$304.10 per adjusted average daily person trip for non-residential land uses.

**Grants.** Sandy was awarded a Transportation Growth and Management grant to fund the current update to the Transportation System Plan. Future funding of projects from grants are not guaranteed and are awarded through a competitive application and review process. Grants typically provide an opportunity for securing funding for important capital projects that do not have sufficient City funds to complete.

Based on the above sources, Sandy is expected to have \$42 million in revenue for the transportation system through 2040. The current expenditures total approximately \$32 million, or nearly 76 percent of Sandy’s current revenue streams, allocated for transportation fund maintenance of the existing system. Rising maintenance costs through 2040 will diminish the share of funds available for improvements to the transportation system. The remaining balance of \$10.2 million is expected to be available to fund other expenditures such as the projects in the TSP.

For more information on the funding assumptions utilized for the TSP, see **Appendix Section C**.

# 4 financially constrained plan

The TSP sets priorities for spending anticipated funds and identifies projects that would be possible with additional funding.

The financially constrained plan identifies the transportation solutions that the city prioritizes for funding and implementation by 2040. These projects reflect the highest priority projects identified by the CAC and public that are likely to be funded in the next 20 years. The City currently receives funding from a variety of sources including the Highway Trust Fund, a 2 cent local gas tax, the Clackamas County Vehicle Registration Fee, System Development Charges, federal funding, and grants. The City has also instituted a proportional share fee for Highway 211 and Dubarko Road. The fee is charged for new development per trip that travels through the intersection. The proportional share calculation can be found in **Appendix L**. ODOT has projected that the City could receive up to \$1 million from various state and/or federal sources over the next 20 years. Based on current needs, **Table 3** and **Figure 11** show how the City could use the state funds. The projects listed are illustrative only and ODOT does not give them higher priority than any other US 26 project in the City's list. The City may modify and adapt the list to advance any supported project along US 26 in response to any opportunity or issue that may arise during the planning horizon.



# financially constrained projects

The following pages include the financially constrained projects in chart form and on the accompanying map. Improvement Package 1, Financially Constrained Plan totals the \$10.8 million likely to be available through existing City funding sources. It also suggests how the City would use a likely amount of revenue from state and/or federal sources.

**TABLE 3. CONSTRAINED STREET DESIGN OPTIONS**

PROJECT ID	LOCATION	PROJECT ELEMENTS <sup>A</sup>	FUNDING PLAN
<b>PEDESTRIAN IMPROVEMENTS (2 PROJECTS)</b>			
P1	362nd Drive	This project constructs sidewalk to fill in existing gaps along the west side of 362nd Drive from Chinook Street to Industrial Way. By filling in sidewalk gaps along 362nd Drive this project improves the low-stress pedestrian network and access to the shopping center at 362nd Drive and US 26.	The \$1,000,000 cost is expected to be primarily funded by developers as undeveloped parcels adjacent to 362nd Drive are developed, any remaining funds would come from System Development Charges (SDC).
P3	Bluff Rd	This project constructs sidewalk to fill in existing gaps along the west side of Bluff Road from Bell Street to the parcel at 15931 SE Bluff Road. This project improves the low-stress pedestrian network in the vicinity of Sandy High School, Jonsrud Viewpoint, and the residential area to the west of Bluff Road.	The \$875,000 cost is expected to be primarily funded through the road fund and System Development Charges (SDC).
<b>CROSSING IMPROVEMENTS (12 PROJECTS)</b>			
C5	CRMS - Bluff Road at Marcy	This project improves the intersection crossing by constructing a Rectangular Rapid Flashing Beacon (RRFB) with School Crossing Assembly, and high visibility crosswalks across the north and east sides of the intersection.	The \$125,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C6	CRMS - Bluff Road at Hood	This project improves the intersection by modernizing the crossing, particularly with curb extensions.	The \$125,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.



PROJECT ID	LOCATION	PROJECT ELEMENTS <sup>A</sup>	FUNDING PLAN
C7	CRMS – Bluff Road at US 26	This project improves the intersection modernizing the crossing by reducing the curb radius at all corners, adding pedestrian-scale lighting and improvement of the bicycle network by providing buffered or separated bicycle facilities at the intersection crossing. Pending coordination with ODOT, the pedestrian signal crossing time may be increased, based on a slower walking speed.	The \$125,000 cost, which does not assume a fully separated bike facility, is expected to be primarily funded by ODOT with additional funding expected from a Safe Routes to School grant and local funding from the road fund and urban renewal fund.
C8	CRMS – Hood Street at Beers	This project improves the intersection by repainting stop bars on Beers Avenue and improving the intersection control by installing stop signs for the Hood Street approaches, creating a 4-way stop intersection.	The \$25,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C9	CRMS – Hood Street at Scales	This project improves the intersection by installing perpendicular curb ramps with tactile domes at the intersection of Hood St and Scales Ave and repainting stop bars.	The \$25,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C10	CRMS – Hood Street at Bruns	This project improves the intersection by installing a tactile dome at the southwest corner of Bruns Ave and Hood St.	The \$25,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C11	SGS – Hood/Strauss	This project improves the intersection by: <ul style="list-style-type: none"> <li>Relocating the southbound school advance crossing sign and school speed limit sign north of intersection.</li> <li>Repairing sidewalk along the east side of Strauss Avenue and mitigating the narrowing caused by a utility pole.</li> <li>Installing a curb ramp at the southeast corner of the intersection and adding tactile domes and a stop bar on the west leg of the intersection.</li> </ul>	The \$350,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C12	SGS – Pleasant/Strauss	Pleasant Street at Strauss Avenue: This project improves the intersection by marking stop bars in advance of crosswalks and potentially revising the control of the intersection to be all-way stop control.	The \$25,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.

PROJECT ID	LOCATION	PROJECT ELEMENTS <sup>A</sup>	FUNDING PLAN
C13	SGS – Pleasant/Alt	This project improves the intersection by marking stop bars in advance of crosswalks, replace existing diagonal curb ramps with perpendicular curb ramps and tactile domes, and constructing a raised intersection.	The \$350,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C14	SGS – Smith/Pleasant	This project improves the intersection by marking stop bars in advance of crosswalks, relocating the southbound school advance crossing sign and school speed limit sign north of the intersection.	The \$25,000 cost is expected to be primarily funded through the road fund and urban renewal funds. Additional funding is expected to be available through a Safe Routes to School grant.
C15	SGS – Alt/US 26	This project improves the intersection by increasing the pedestrian crossing time based on a walking rate of 3.0 feet per second, upgrading the pedestrian pushbuttons to meet current standards with audible indications, and consolidating the two existing crosswalks with one high visibility continental crosswalk on the east side of the intersection including an advance stop bar, bulb outs, curb ramps, and pedestrian scale lighting.	The \$125,000 cost is expected to be primarily funded through an ODOT grant. Additional funding is expected from the road fund, urban renewal fund, and potential grant funding.
C23	Hwy 211 Pedestrian Improvements	These American with Disabilities Act related ramp improvements along Highway 211 are currently funded by \$500,000 received from ODOT as part of the jurisdictional transfer of Highway 211 from ODOT to the City of Sandy.	Funded
<b>SAFETY IMPROVEMENTS (3 PROJECTS)</b>			
S1	US 26 Adaptive Signal System	This project extends the adaptive signal system from Orient Drive to Ruben Lane. An adaptive signal system improves performance and monitoring of traffic signals by providing real-time adjustments and improved data collection.	The \$200,000 cost is expected to be funded by ODOT.
S2	US 26 at Ten Eyck Road Study	This project studies improvements or mitigations related to traffic impacts from access for business adjacent to the Ten Eyck Road and US 26 intersection.	The \$50,000 cost is expected to be funded by ODOT and the road fund.
S3	US 26 Speed Zone Study	This project studies speeds east of Ten Eyck Road/Wolf Drive along US 26 for consideration of a potential reduction. It should be coordinated with C17 (Dubarko pedestrian crossing improvements) and D20 (Dubarko Road extension) to consider if an intersection control modification is necessary.	The \$75,000 cost is expected to be primarily funded by ODOT.

PROJECT ID	LOCATION	PROJECT ELEMENTS <sup>A</sup>	FUNDING PLAN
<b>DRIVING IMPROVEMENTS (10 PROJECTS)</b>			
<b>D3</b>	US 26 & 362nd Drive Intersection Improvement	This project is expected to reduce congestion for the westbound left turn and accommodate the 362nd Drive Extension 1 (D15a). The project includes minor widening on the south leg to accommodate a northbound through lane, construction of a three-lane southbound approach with a right turn lane, through lane, and left turn lane, and an eastbound left turn lane.	This project is currently funded with local funds without an additional westbound left turning movement. The additional westbound left turn lane is dependent on the 362nd Drive and Industrial Way improvements (D1) that would extend the second southbound lane from the Fred Meyer driveway to the Industrial Way intersection. The second westbound left turn lane should be coordinated with project D1.
<b>D6</b>	Highway 211 & Proctor Boulevard Northbound Approach Modification	This project restripes the northbound approach to clearly indicate the set back stop bar and associated keep clear distance.	The \$15,000 cost is expected to be funded through the road fund.
<b>D9</b>	Highway 211 & Dubarko Road Multimodal Intersection Improvement	This project improves safety and multimodal connectivity and should be coordinated with the recommendations in project D27 Highway 211 & Dubarko Road Intersection Control Evaluation and C23 ADA improvements along Highway 211.	The \$270,000 cost is expected to be funded through the road fund and system development charges.
<b>D14A</b>	Bell Street Extension to 362nd Drive Extension	This project extends Bell Street to 362nd Drive extension (D15a) at Minor Arterial cross section standards. It improves connectivity by providing a parallel route to US 26 from 362nd Drive to Bluff Road.	This project is currently funded with local funds.
<b>D15A</b>	362nd Drive Extension to Bell Street Extension	This project extends 362nd Drive to Bell Street extension (D14a) at Minor Arterial cross section standards. It improves connectivity by providing a parallel route to US 26 from 362nd Drive to Bluff Road.	This project is currently funded with local funds.
<b>D20</b>	Dubarko Road to US 26 Opposite Vista Loop Drive (West)	This project extends Dubarko Road to US 26/Vista Loop Road (west) at Minor Arterial cross section standards. It should be coordinated with D9 (US 26 Dubarko Road intersection improvement) and C17 (US 26 Dubarko Road pedestrian crossing improvement).	This project is expected to be constructed by development, with partial SDC credits, with an expected cost of \$3,900,000.
<b>D21F</b>	Village Blvd Extension 1	This project connects Village Boulevard between Cascadia Village Drive and Juniper Street at Collector standards providing additional north-south connectivity for the neighborhood south of Highway 211.	The \$875,000 cost is expected to be funded by the City through system development charges and partially by development.

PROJECT ID	LOCATION	PROJECT ELEMENTS <sup>A</sup>	FUNDING PLAN
D24	Highway 211 Roundabout at Gunderson	This project improves the intersection of Highway 211 at Gunderson Road by constructing a roundabout.	The \$1,000,000 cost is partially funded by development with the remaining amount provided by the road fund and system development charges.
D27	Highway 211 & Dubarko Road Intersection Control Evaluation	This project studies the intersection control options for Highway 211 and Dubarko road given the strain of high traffic volumes and difficult topography. The resulting solutions should improve safety and capacity.	The \$50,000 cost is expected to be funded through the road fund and system development charges.
D31	US 26 Sandy Bypass Planning	This project includes preparation of planning documents to evaluate alternatives and the environmental impact of a potential US 26 bypass. This project consists of planning work only, not directly resulting in any capital improvement, and is not included in the map.	The \$1,000,000 is expected to be funded by the City.

# financially constrained plan

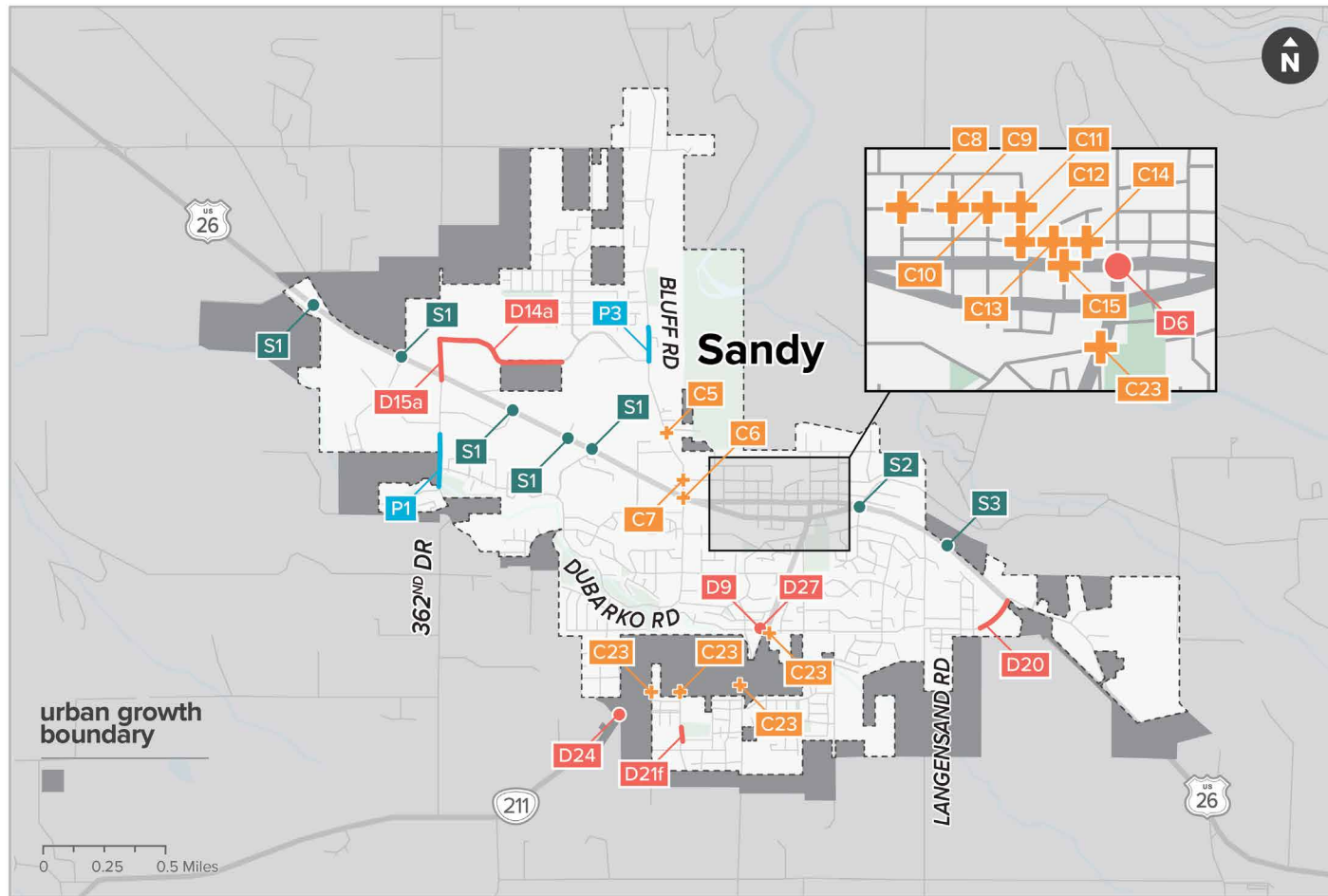


figure 11

Financially Constrained system

- crossings**      **safety**      **intersection**      **sidewalks**      **segment**      **project ID**      **city limits**
- +     
 ●     
 ●     
 —     
 —     
 xx xx xx xx     
 - - - -

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy



## the standards

The TSP sets standards and regulations to ensure future development or redevelopment of property is consistent with the City's transportation vision and goals (see Volume 2, Sections D and H for more information).

A road's functional classification (shown in Figure 13) determines the level of mobility for all travel modes for anticipated level of access and usage. The functional classification system recognizes that individual streets do not act independently of one another, but instead form a network that serves travel needs on a local and regional level. From highest to lowest intended traffic volume, the functional classifications are: principal arterial, minor arterial, collector, and local streets. Roadways with higher classification generally limit access to adjacent property in favor of more efficient motor vehicle traffic movement (i.e., mobility). Local roadways with lower classification have more driveway access and intersections, and generally accommodate shorter trips to nearby destinations.

# functional classifications

## principal arterials

Principal Arterials serve the highest volume of motor vehicle traffic and are primarily used for longer distance regional trips. The only roadway in the city classified as a principal arterial is US 26, which is under ODOT jurisdiction.

## minor arterials

Minor Arterials are high-volume, intra-city streets providing connectivity and parallel features, and should generally be spaced approximately one mile apart. These roads have a typical capacity between 8,000 and 16,000 ADT. Minor arterials are generally the most important classification for circulation within Sandy and are intended to serve longer local trips. Private driveway access is discouraged where access to facilities of lower classification is available, and traffic calming measures and on-street parking should be avoided. The provision of bike lanes is required.

## collectors

Collector streets provide both access and circulation within and between residential and commercial areas. These roads have a typical capacity between 2,000 and 6,000 ADT. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access (compared to arterials), and penetrate residential neighborhoods, distributing trips from the local street system to minor and major arterials. Collectors may provide on-street parking, may incorporate traffic calming measures, and should be spaced approximately one-half mile apart. The provision of bike lanes is required.

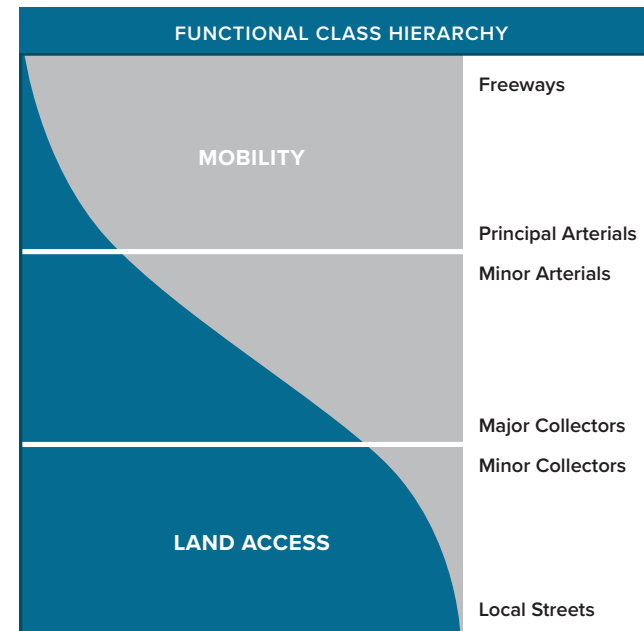


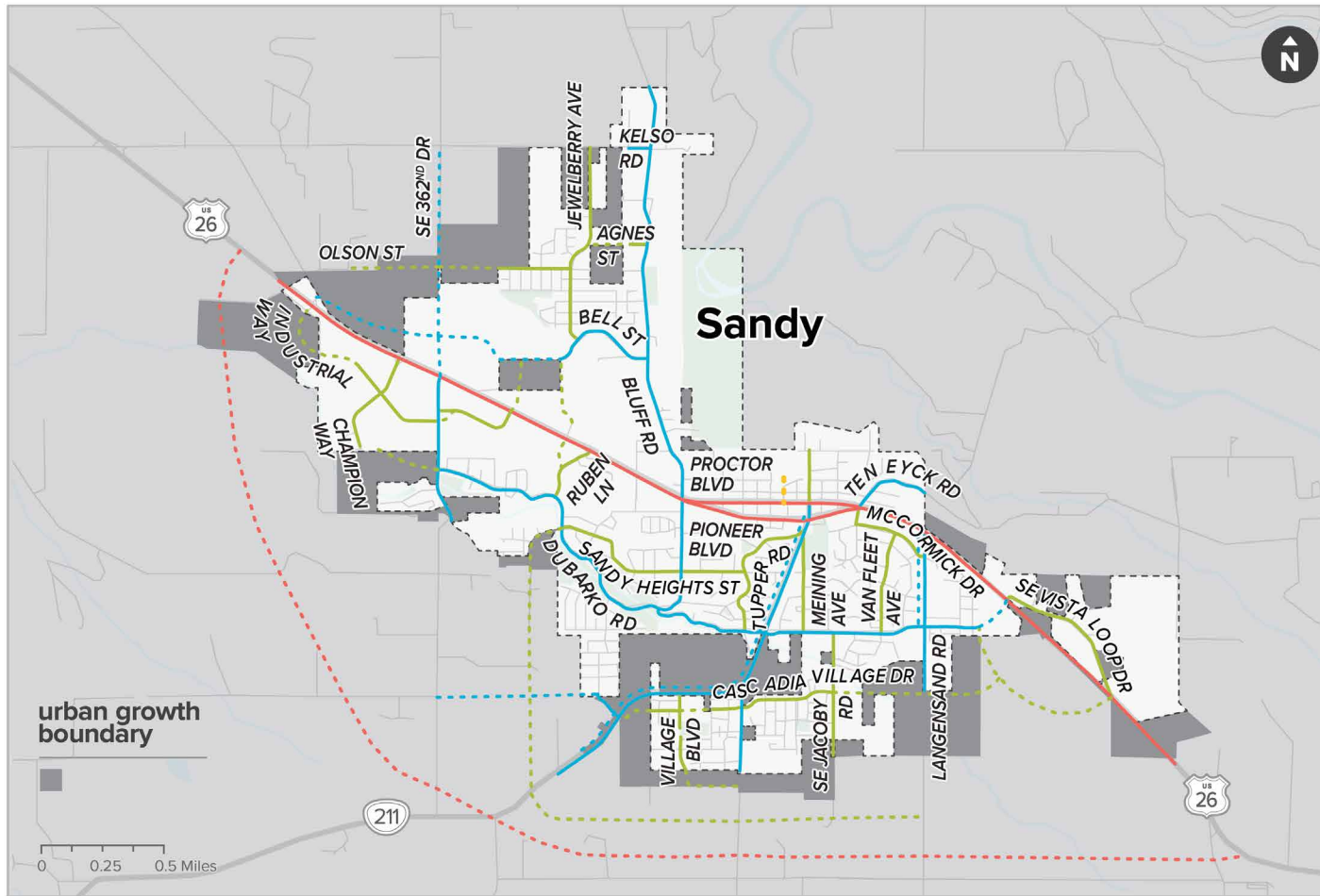
figure 12

Functional Class Hierarchy

## local streets

Local Streets provide more direct access to residences without serving through travel. These roadways are often lined with homes and are designed to serve lower volumes of traffic. Streets in Sandy that are not classified as Major Arterials, Minor Arterials, or Collectors are classified as Local Streets.

# the standards



**figure 13**  
Functional Classification

## future projects

*tsp projects classification*

**principal** **minor** **collector** **local**

--- (dashed blue) --- (dashed red) --- (dashed green) --- (dashed yellow)

*existing street classification*

**principal** **minor** **collector** **local**

— (solid red) — (solid blue) — (solid green) — (solid grey)

## base map

**city limits**

--- (dotted black)

Source: Oregon Department of Transportation, Data Resource Center (Oregon Metro), City of Sandy



# typical street cross section standards

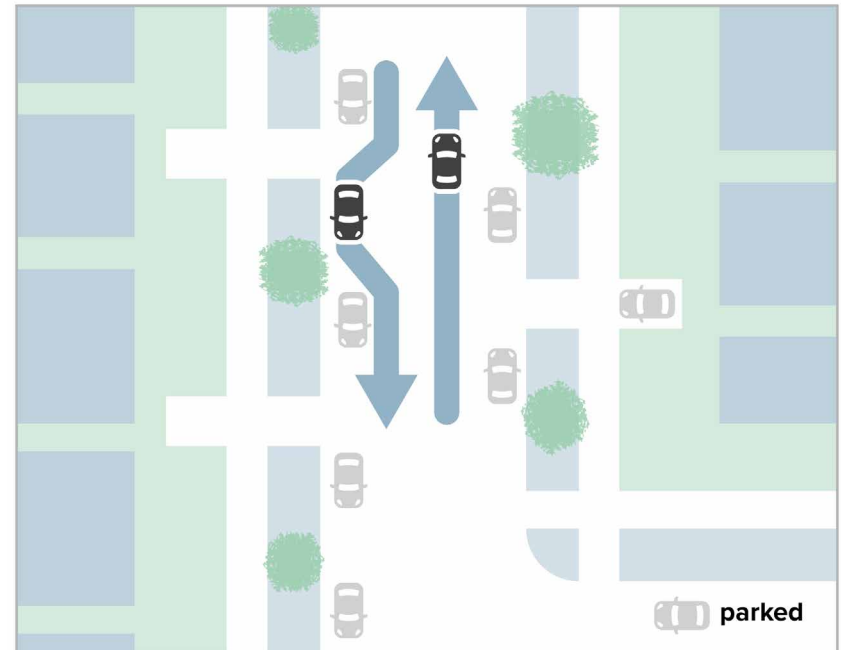
Figures 15 to 18 and Table 4 include standard cross-section types for city roadways, with guidelines for constrained areas where design elements may need to be reduced shown.

Figure 14 shows the cross-section options for local streets. Local streets should be designed so that moving cars must occasionally yield between parked cars before moving forward, as shown in the sidebar images, allowing for the development of narrow streets, encouraging vehicles to move slower, and allowing for periodic areas where a 20-foot-wide clear area is available for parking of fire apparatus. Local streets require placement of no-parking locations (i.e., driveways, fire hydrants, mailboxes) at appropriate intervals to provide the needed gaps for queuing opportunities. Also, parking near intersections on narrow streets should not be permitted because it can interfere with the turning movements of large vehicles. The Junker Street Circulation Plan (2021) identifies specific cross section standards for Junker Street. A separate cross section is included in Figure 18.

Design standards for Principal Arterials in Sandy (US 26) are controlled by the Blueprint for Urban Design in the Oregon Highway Design Manual and are not completely duplicated in the TSP.

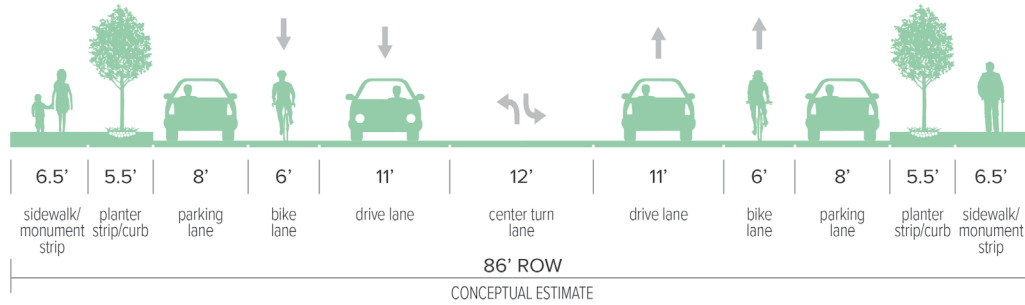
figure 14

Local Street – Yielding Traffic Behavior



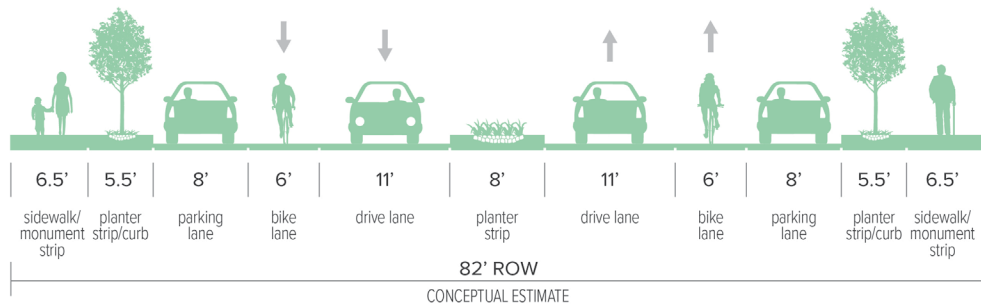
**figure 15**

Minor Arterial Cross Section



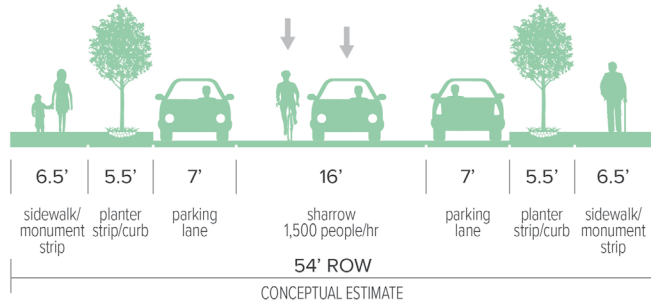
**figure 16**

Cross-section of Collector



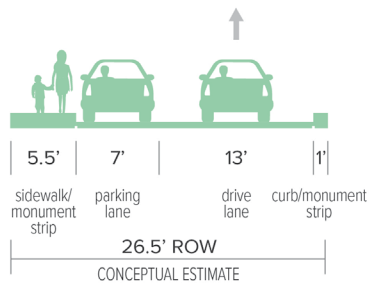
**figure 17**

Cross-section of Local Street



**figure 18**

Cross-section of Junker Street



# city facility

TABLE 4. CROSS-SECTION STANDARDS

CROSS-SECTION	TOTAL ROW	SIDEWALK	PLANTER STRIP	PARKING	BIKE LANE	TRAVEL LANE	CENTER LANE
MINOR ARTERIAL – STANDARD	86	6.5 <sup>C</sup>	5.5 <sup>D</sup>	8 <sup>G</sup>	6	11	12
MINOR ARTERIAL – MINIMUM <sup>B</sup>	66	6.5 <sup>C</sup>	5.5 <sup>D</sup>	-	6	11	8
COLLECTOR – STANDARD	82	6.5 <sup>C</sup>	5.5 <sup>D</sup>	8	6	11	8
COLLECTOR – MINIMUM <sup>B</sup>	58	6.5 <sup>C</sup>	5.5 <sup>D</sup>	-	6	11	-
LOCAL	54	6.5 <sup>C</sup>	5.5 <sup>D</sup>	7	-	16 <sup>A</sup>	-
JUNKER STREET	26.5	5.5 <sup>AC</sup>	1 <sup>ACD</sup>	7 <sup>A</sup>	-	13 <sup>A</sup>	5

- A Not directional, this element only appears once in the cross section
- B Minimum cross section designs can be applied per Section 17.66.00 SMC
- C Includes 0.5' monument strip
- D Includes 0.5' curb
- E All dimensions in feet
- F As shared use path
- G Parking is optional



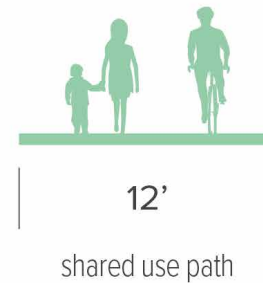
# shared-use paths

Shared-use paths provide off-roadway facilities for walking and biking travel. Depending on their location, they can serve both recreational and commuter needs. Shared-use path designs vary in surface types and widths. Hard surfaces are generally better for bicycle travel. Widths need to provide ample space for both walking and biking and should be able to accommodate maintenance vehicles.

Sandy requires that shared-use paths are paved and are 12 feet wide (see Figure 19). This design standard applies to newly constructed or improved facilities and does not apply to existing shared-use paths.

figure 19

Shared-Use Path Street



# roadway & access spacing standards

Access management is a broad set of techniques that balance the need to provide for efficient, safe, and timely travel with the ability to allow access to individual destinations. Appropriate access management standards and techniques can reduce congestion and accident rates and may reduce the need for construction of additional roadway capacity.

Table 5 identifies minimum public roadway intersection and minimum private access spacing standards for streets in Sandy. New roadways or redeveloping properties must comply with these standards to the extent practical, as determined by the City. As the opportunity arises through redevelopment, streets not complying with these standards could improve with strategies such as shared access points, access restrictions (through the use of a median or channelization islands), or closure of unnecessary access points, as feasible.

Like street design and mobility targets, access spacing standards for US 26 are determined by ODOT. ODOT spacing standards are defined in the Oregon Highway Plan (OHP), OAR 734-051, and ODOT’s Highway Design Manual.

## city facility

TABLE 5. STREET AND ACCESS SPACING STANDARDS

CROSS-SECTION	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	LOCAL STREET
DISTANCE BETWEEN PUBLIC STREETS	5,280 feet	5,280 feet	2,640 feet	400-600 feet
MINIMUM DRIVEWAY SPACING (PUBLIC STREET TO DRIVEWAY AND DRIVEWAY TO DRIVEWAY)	See Table 6	400 feet or 200 with restricted right-in/right-out access	300 feet or 150 with restricted right-in/right-out access	Covered by the Sandy Development Code

*Note: All distances measured from center to center of adjacent approaches.*

TABLE 6. OHP ACCESS MANAGEMENT SPACING STANDARDS FOR STATEWIDE HIGHWAYS

SPEED	RURAL EXPY <sup>A</sup>	RURAL	URBAN EXPY <sup>AB</sup>	URBAN <sup>C</sup>
≥ 55	5280 feet	1320 feet	2640 feet	1320 feet
50	5280 feet	1100 feet	2640 feet	1100 feet
40 & 45	5280 feet	990 feet	2640 feet	800 feet
30 & 35	n/a	770 feet	n/a	500 feet
≤ 25	n/a	550 feet	n/a	350 feet

A Spacing for Expressway at-grade intersections only. See OHP Table 12 for interchange spacing.  
 B These standards also apply to Commercial Centers.  
 C The Urban standard applies in UBAs unless a management plan agreed to by ODOT and the local government(s) establishes a different standard. Spacing standards on access controlled facilities are also guided by those controls.

*Note: All distances measured from center to center of adjacent approaches.*

# mobility targets

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Mobility targets for streets and intersections in Sandy provide a metric for assessing the impacts of new development on the existing transportation system and for identifying where capacity improvements may be needed. They are the basis for requiring improvements needed to sustain the transportation system as growth and development occur. Two methods used to gauge operational conditions for motor vehicles include volume-to-capacity (v/c) ratios and level of service (LOS).

**Volume-to-capacity (v/c) ratio:** A v/c ratio is a decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. The ratio is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance.

**Level of service (LOS):** LOS is a “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay is excessive and demand exceeds capacity, typically resulting in long queues and delays.

Assuming Sandy grows in accordance with its current adopted land use plan and travelers continue to rely heavily on private autos for their trips, US 26 through the city will not be able to meet ODOT’s v/c ratio-based mobility targets. In this situation, adoption of alternative mobility targets is appropriate. Alternative mobility targets reflect realistic expectations for roadway performance at the end of the 20-year planning horizon, based on traffic projections. Adopting realistic alternative targets allows for planned development and does not put additional burdens on investments to comply with unachievable targets.

ODOT and Sandy are planning to adopt alternative mobility targets as part of a long-term strategy for this corridor that would reflect the growing local population and increased traffic on US 26. This approach recognizes that the existing mobility targets do not utilize the full capacity available at the intersections along US 26. The purpose of alternate mobility targets is not to allow more congestion along US 26 in the city but to acknowledge the growth that has occurred, and is expected to occur in the future, based on an adopted comprehensive plan land use, and to provide a helpful metric to track the impact of that growth on the transportation system.

## mobility targets for sandy:

The City of Sandy operating standards require that a level of service “D” or better be maintained for any signalized intersection and unsignalized intersections with stop control on the minor approach.

This transportation system plan introduces an operating standard for roundabouts. This standard requires a volume-to-capacity ratio of less than or equal to 0.90 on each intersection approach.

State-owned roadways are intended to comply with the mobility targets included in the Oregon Highway Plan. Current ODOT mobility targets require 5 hours of congestion or less to be maintained at intersections along US 26 through Sandy.

Funding constraints for capital projects means it is likely that mobility targets will not be met in 2040. The City is working with ODOT to establish an alternative mobility target for US 26 that reflects the performance that is forecast based on no significant capacity improvements over the planning horizon.



# transportation impact analysis (TIA) guidelines

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Sandy Transportation Impact Analysis (TIA) requirements implement Sections 660-012-0045(2)(b) and -0045(2)(e) of the State Transportation Planning Rule (TPR). These sections require the City to adopt mobility targets and a process to apply conditions to land use proposals in order to minimize impacts on and protect transportation facilities.

Appendix Section F includes the City's required content for a Transportation Impact Analysis (TIA). In general terms, the TIA applies to developments that are presumed to have a transportation impact.

A professional engineer licensed in Oregon must prepare the TIA and must use appropriate data, methods, and standards as documented in the Sandy Guidelines for Transportation Impact Analysis.



# the outcome

How will the constrained investment recommendations in the TSP improve the performance of the transportation network in Sandy? To answer this question, the TSP evaluated investment decisions and compared them to anticipated trends through 2040.



# the improved transportation system

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Sandy expects the following results from the TSP by 2040:



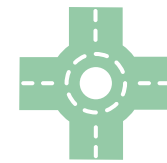
## safer streets

**Safer Streets:** Sidewalk infill and crossing improvements in downtown will improve safety for people walking and especially children accessing Sandy Grade School, Cedar Ridge Middle School, and the Sandy Public Library. The proposed Adaptive Signal Control Technology extension along US 26 should improve signal operations and reduce congestion, likely reducing some of the collisions associated with congestion traffic conditions.



## increased congestion on US 26

**Increased congestion on US 26:** While the funded Bell Street and 362nd Drive Extension projects will increase road network density and improve local street connections (off US 26) traffic volumes will be higher, and congestion will be worse than it is now.



## greater street connectivity

**Greater street connectivity:** As areas of the city develop, new streets will provide increased motor vehicle, pedestrian, and bicycle connectivity. Improved local street connectivity also reduces reliance on US 26 for local trips.

# to the horizon & beyond

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The 2023 Sandy TSP has not resolved all the of the city's transportation issues. The following require additional exploration.

## potential additional funding sources

Based on the identified funding gap, Sandy may wish to consider expanding its funding options in order to fund more of the desired improvements in a timely manner. Other cities and counties use one or more of the following sources to fund the capital and maintenance aspects of their transportation programs. A variety of factors affect use of these sources, including the willingness of local leadership and the electorate to collect taxes and fees from residents and business, the availability of local funds the City can dedicate or divert to transportation issues from other competing City programs, and the availability of state and federal funds. The City should consider opportunities for providing or enhancing funding for the transportation improvements included in the TSP.

**System Development Charges:** System development charges (SDC) are fees collected from new development and used as a funding source for all capacity adding projects for the transportation system. The fee is based on the proposed land use and size and is proportional to each land use's potential PM peak hour vehicle trip generation. The City of Sandy is currently updating their SDCs which are expected to increase the available revenue available for the City.

**Transportation Utility Fee:** A transportation utility fee is a recurring monthly charge that could be paid by all residences and businesses within the City. The City can base the fee on the estimated number of trips a particular land use generates or as a flat fee per residence or business. This fee is typically collected through regular utility billing; however, it could be collected as a separate stand-alone bill.

Existing law places no express restrictions on the use of transportation utility fee funds, other than the restrictions that normally apply to the use of government funds. Some local agencies utilize the revenue for any transportation related project, including construction, improvements, and repairs; however, many choose self-imposed restrictions or parameters on the use of the funds.

**Sandy Fuel Tax Increase:** A local fuel tax increase to 4 cents per gallon could generate an additional \$305,000 annually or \$6.1 million through 2040. Sandy citizens voted down a measure to increase the gas tax to 3 cents per gallon in 2016.

**Local Improvement District:** Local improvement districts (LIDs) can fund capital transportation projects that benefit a specific group of property owners. LIDs require owner/voter approval and a specifically defined project. Benefiting properties pay for the improvements through assessments. LID projects that benefit more than the adjacent properties can serve as match for other funds. Property owners pay fees through property tax bills over a specified number of years.

**Debt Financing:** While not a direct funding source, debt financing is another funding method. Through debt financing, available funds can be leveraged, and the cost can be spread over the project's useful life. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but it is also viewed as an equitable funding source for larger projects because it spreads the burden of repayment over existing and future customers who will benefit from the projects. One caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations.

# to the horizon & beyond

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## **ODOT Statewide Transportation Improvement Program (STIP)**

**Enhance Funding:** The Oregon Transportation Commission selects projects proposed by ODOT and local jurisdictions for STIP funding. Historically, only projects on the state highways were eligible for funding. ODOT has modified the selection process to allow funding for projects off the state system that enhance system connectivity and improve multi-modal travel options. The TSP prepares the City to apply for STIP funding.

**ODOT Highway Safety Improvement Program (HSIP) Funding:** With significantly more funding under the HSIP and direction from the Federal Highway Administration to address safety challenges on all public roads, ODOT will increase the amount of funding available for safety projects on local roads. ODOT will distribute safety funding to each ODOT region, which will collaborate with local governments through the All Roads Transportation Safety (ARTS) Program to select projects that can reduce fatalities and serious injuries, regardless of whether they lie on a local road or a state highway.

**Multimodal Active Transportation Fund:** In 2017, the Oregon Legislature passed Keep Oregon Moving (House Bill 2017), which includes changes to the existing Connect Oregon Grant Fund program that necessitates aligning the implementing rules with the new statutes. The legislation bifurcated the program into two new parts, with a separate allocation of 7% for multimodal active transportation projects.

In 2019, the Oregon Legislature passed House Bill 2592 to clarify and amend House Bill 2017. The legislation establishes the Multimodal Active Transportation (MAT) Fund for bicycle and pedestrian projects, consisting of 7% of the Connect Oregon Fund plus revenues from Oregon's bicycle excise tax. The MAT is a separate grant program



from Connect Oregon and requires a new set of administrative rules. The legislation also clarifies roles and responsibilities between ODOT and the Oregon Department of Parks and Recreation to provide funding to bicycle and pedestrian projects with up to \$4 million of lottery revenues annually.

**Safe Routes to School Programs:** Safe Routes to School refers to efforts that improve, educate, or encourage children safely walking (by foot or mobility device) or biking to school. ODOT has two main types of Safe Routes to School programs: infrastructure and non-infrastructure.

# to the horizon & beyond

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Infrastructure programs focus on making sure safe walking and biking routes exist through investments in crossings, sidewalks and bike lanes, flashing beacons, and the like. Non-infrastructure programs focus on education and outreach to assure awareness and safe use of walking and biking routes. ODOT manages funding competitions for both infrastructure and non-infrastructure programs at the annual levels of \$15 million and \$300,000 respectively.

## technology advancements

The TSP is a plan for conditions 20 years into the future; however, it cannot anticipate all advancements in technology or their impact on the way people travel to and within Sandy. Advancements may include alternative fuel sources that lower the cost of driving and operating transit service, connected vehicle technology that improves the safety and efficiency of roadways, proliferation of electric-assisted bicycles that take the effort out of traveling across hilly topography and expand the number of travelers who can make that choice of mode. The TSP recommends that the City continue to monitor opportunities arising from innovations in transportation technology and anticipate their impact on investment priorities.

## US 26 bypass

A US 26 bypass feasibility study was conducted in coordination with the TSP update. The study identified the available funding and timeline needed for planning, approving and constructing a bypass would be beyond the 20-year planning horizon. TSP project D31 allocates local funds towards preliminary planning efforts to advance the project. The 20-year cost estimate for the US 26 Bypass is approximately \$1 billion.

## detailed analysis of physical constraints

All proposed improvements in this plan are conceptual. The plan has not analyzed these improvements for hydrologic, topographic, or other geological constraints, which could require substantial modifications. Detailed surveys need to precede construction of these improvements.

## future street extensions

As property develops or redevelops in the future, several new streets that are not included as financially constrained projects in this TSP are needed to enhance local connectivity and reduce the reliance on US 26 for local trips. Conceptual local street connectivity needs are partially shown in **Figure 13** and the appendix.

## recreation congestion

Assuming Sandy grows in accordance with its existing adopted land use plan and travelers continue to rely primarily on private cars for transportation, US 26 in the city increasingly will become more heavily congested during the summer/winter peak tourist times. The construction of the US 26 Bypass project is expected to significantly reduce traffic volumes through Sandy, but the high cost of this project makes funding within the next 20 years unlikely. Alternatively, the state and Sandy can handle the congestion by managing travel demand, enhancing local street connectivity, maximizing the efficiency of the existing transportation system, increasing walking, biking, and transit ridership, and other techniques. A safe, convenient, and attractive transportation system is critical to a successful future for Sandy.

# appendix

- TM #1 Policy Framework and Code Review** ..... Section A
- TM #2 Goals Objectives and Evaluation Criteria** ..... Section B
- TM #3 TSP Financial Forecast** ..... Section C
- TM #4 Existing Conditions** ..... Section D
- TM #5 Needs Analysis** ..... Section E
- TM #6 Regulatory Solutions** ..... Section F
- TM #7 TSP Solutions** ..... Section G
- TM #8 Planned and Financially Constrained System** ..... Section H
- TM #9 Alternative Mobility Standards** ..... Section I
- Downtown Walkability Assessment** ..... Section J
- Junker Street Circulation Plan** ..... Section K
- Dubarko Road & Hwy 211 Proportional Share** ..... Section L

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The contents of the TSP Appendix represent an iterative process in the development of the TSP. Refinements to various plan elements occurred throughout the process as new information was obtained. The TSP supersedes any appendix materials.