SUNRISE GATEWAY CORRIDOR CONCEPT

DRAFT

SEPTEMBER 2021

CLACKAMAS COUNTY

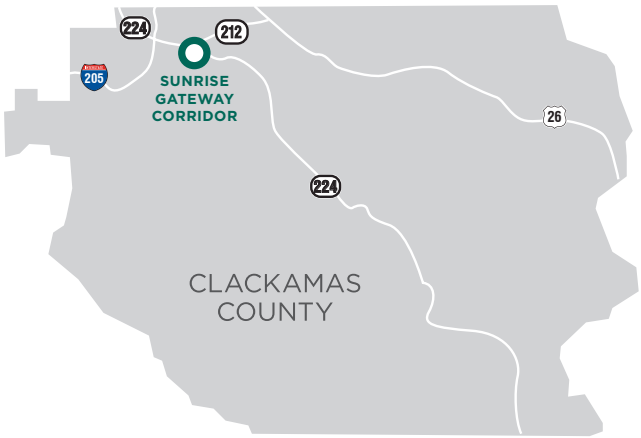
HAPPY VALLEY, OR EST. 1965

Oregon Department of Transportation

SUNRISE GATEWAY CORRIDOR CONCEPT

Essential Regional Connection

A vital route between Portland and Central Oregon, the Sunrise Gateway Corridor (OR 224 and OR 212) is already over capacity. Freight drivers, the Clackamas Industrial Area, the Rock Creek Employment Center, and people travelling to the beautiful Clackamas River and Mt. Hood National Forest all rely on a corridor unequipped to handle future growth.



If we fail to act, five key intersections will be over capacity and constraining economic development through and within the corridor.

48 serious injuries and fatalities between 2007-2017

32% of the corridor is an equity focus area

Peak Traffic Hours: 7-8 AM and 5-6 PM

Who relies on the Sunrise Gateway Corridor?

7,500 RESIDENTS

800 BUSINESSES

14,000 EMPLOYEES

Bold Strategies moving forward

Safety & Local Connections Project

Price tag: $117.4 M[1]
Good Through: Part A 2027; Part B: 2031

1 - Note Get Moving 2020 cost estimates included differing estimates for certain permitting and risk factors, due to the potential funding mechanism, and vary slightly from the estimates provided here.

Part A:

- Connect 135th Ave to 142nd Ave.
- Add sidewalks, bicycle facilities, and crossings to parts of OR 212.
- Construct elevated intersection and realign local connections.

Part B:

- Connect 152nd Ave to 142nd Ave
- Change 152nd Ave/OR 224 to right-in, right-out only

FIGURE 1. Sunrise Gateway Corridor Concept Phases

To address existing and future multimodal mobility and safety needs along OR 224/ OR 212 through the Clackamas Industrial Area east to the intersection with 172nd, this concept provides a roadmap to an equitable, safe, and multimodal Sunrise Gateway Corridor that will sustain future population and economic growth.

CLACKAMAS COUNTY

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The challenge:

- Identify costs and construction efficiencies from the original 2010 project
- Ensure recommended improvements are compatible with future growth
- Align features with Get Moving 2020 criteria
- Maximize return on investment
- Preserve the Sunrise Gateway Corridor right of way
- Identify phases to develop a four-lane corridor by 2040

The Concept:

- Provides east-west transportation improvements from I-205 at the Milwaukie Expressway to the Rock Creek Junction
- Supports the viability of the Clackamas area for industrial use and facilitates the development of the Rock Creek Employment Center
- Ensures community livability and protects the quality and integrity of the corridor's residential uses
- Minimizes and effectively mitigates adverse impacts to natural and cultural resources

CONNECTIVITY **CONTINUITY** **ACCESS** **CAPACITY** **EQUITY**

Regional Connector Project

Price tag: $295.6 M[1]

- Build 2-lane Sunrise Gateway Corridor from 122nd Ave to 172nd Ave with separate multiuse path
- Construct new pedestrian and bicycle bridge at former 135th connection
- Widen 2-lane Sunrise Gateway Corridor to 4 lanes

Rock Creek Employment Area Connections

Price: $20.0 M
Good Through: 2040

- Install roundabouts at Rock Creek Junction and Rock Creek Boulevard/162nd Ave
- Provide new local connections to Rock Creek and Verne Duncan Schools

CONTENTS

Prepared for: Clackamas County

Prepared by: Kittelson & Associates, Inc.

Date: September 18, 2021

Introduction

The Sunrise Gateway Corridor provides freight access between I-205 and U.S. 26 and is home to the Clackamas Industrial Area, which is one of the state's busiest and most critical freight distribution centers.

The corridor serves over 7,500 residents, 800 businesses and 14,000 employees. It is also the gateway to the Rock Creek Employment Center, which is expected to be the site of thousands of new jobs in coming years.

THROUGH TRIPS AND LOCAL TRIPS EXPECTED TO INCREASE

Beyond serving as an economically critical link, the Sunrise Gateway Corridor is a portal between the vibrant Portland Metropolitan Area and the premier recreational resources available in Clackamas County, including the Clackamas River and Mt. Hood National Forest.

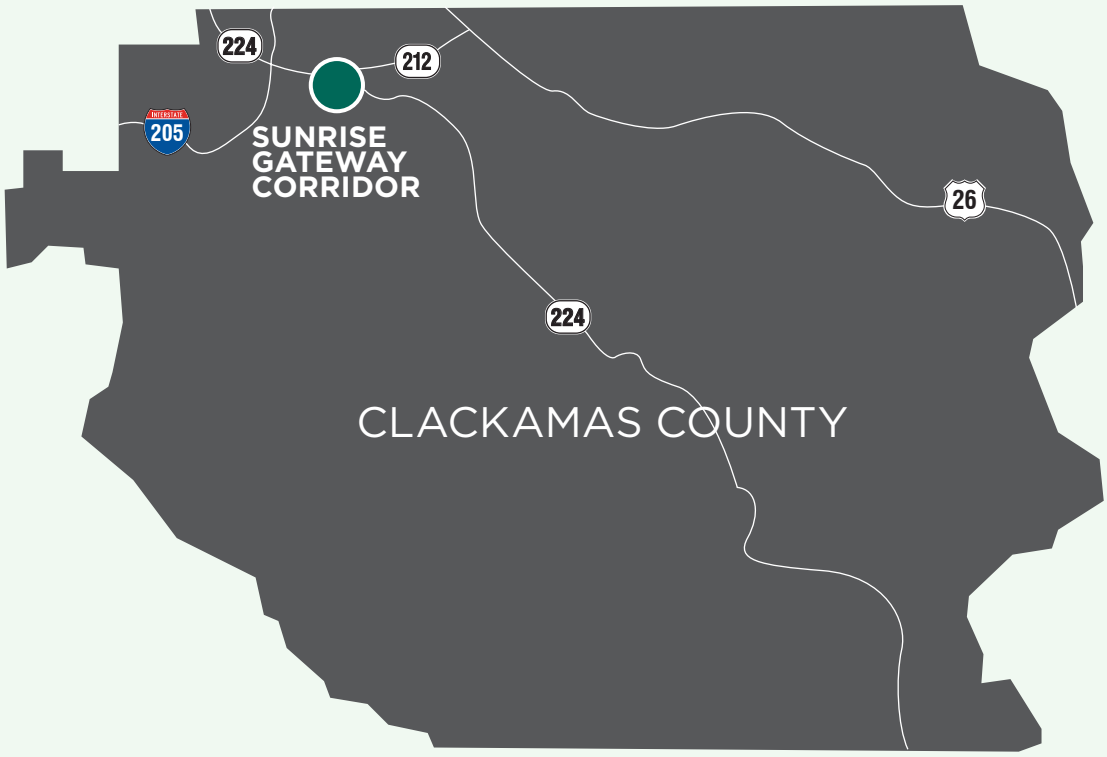
The main route through the Sunrise Gateway Corridor is OR 212 and OR 224. These highways serve trips moving through the area to reach the Cascades and Central Oregon, and trips originating from homes and businesses within the corridor. This combination of through trips and trips to and from destinations in the corridor creates congestion and safety issues at peak traffic hours.

Forecasts show that increased development in the corridor and in surrounding areas of Clackamas County and Happy Valley will exacerbate these existing problems. Previous studies have shown OR 212/224 is not able to handle the current demand nor the increased traffic significant housing and employment growth in the corridor will bring.

A NEW, LIMITED-ACCESS ROAD

Clackamas County, the City of Happy Valley, and Oregon Department of Transportation (ODOT) recognized a limited-access road was needed to separate through trips from trips that begin or end in the corridor.

These agencies conducted studies to develop plans for the Sunrise Gateway Corridor Concept. An environmental impact statement (EIS) was approved for the proposed project in 2010. The first phase was built and opened for use in 2016.



THE CONCEPT

The purpose of this study was to review, analyze, and enhance the plans for the Sunrise Phase 2 (122nd to 172nd) segment defined through the 2010 Sunrise EIS.

As the development of the Sunrise Gateway Corridor Concept was underway, agencies and organizations throughout the Portland Metropolitan Area identified the need for greater regional transportation investment.

In July 2020, the Metro Council referred the Get Moving 2020 transportation measure to voters for the November 2020 ballot. The Sunrise Gateway Corridor Concept was the foundation for the project included in the measure.

While Get Moving 2020 was not approved by voters, the Sunrise Gateway Corridor remains a priority for Clackamas County and the region. This document provides an overview of the process and refinements to the concept, and outlines considerations that will support implementation of an equitable, safe, multimodal roadway network in the corridor.

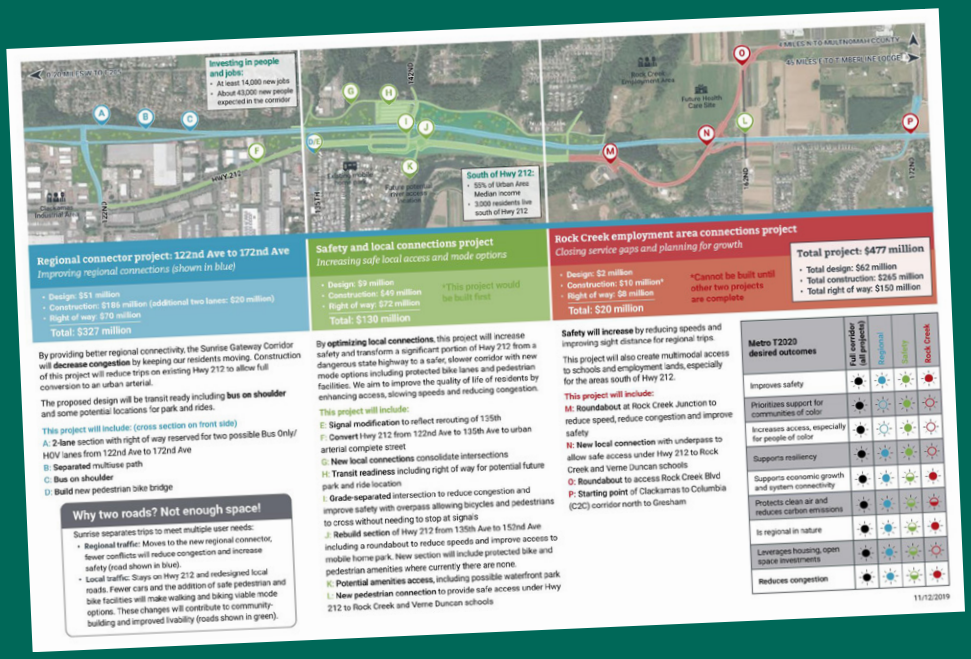
Clackamas County and its partners intend that future design and implementation work for the corridor be founded on equitable development through meaningful partnerships with the people living and working in the area, especially people of color and other vulnerable groups.

The future transportation system must also advance the recommendations of the Clackamas County Climate Action Plan and housing policies intended to serve the diverse communities that live in the corridor.

The Sunrise Gateway Corridor Concept, in combination with these initiatives and policies, forms a foundation for bold strategies and clear actions that will shape land use and transportation systems in this area for years to come.

THE CLACKAMAS COUNTY SUNRISE GATEWAY CORRIDOR CONCEPT BROCHURE HIGHLIGHTED THE KEY PROJECT ELEMENTS AND DESIRED OUTCOMES

(see full version, next page)



***There were 48 serious injuries and fatalities on this corridor between 2007 and 2017. Thirty-two percent of this corridor is in an* equity focus area.**

Continued on page 6

FIGURE 2. Clackamas County Sunrise Gateway Corridor Concept Brochure

Regional connector project: 122nd Ave to 172nd Ave

Improving regional connections (shown in blue)

- **Design: $51 million**
- **Construction: $186 million (additional two lanes: $20 million)**
- **Right of way: $70 million**

Total: $327 million

Safety and local connections proje

Increasing safe local access and mode op

- **Design: $9 million**
- **Construction: $49 million**
- **Right of way: $72 million**

Total: $130 million

*This proje be built firs

By providing better regional connectivity, the Sunrise Gateway Corridor will **decrease congestion** by keeping our residents moving. Construction of this project will reduce trips on existing Hwy 212 to allow full conversion to an urban arterial.

The proposed design will be transit ready including **bus on shoulder** and some potential locations for park and rides.

This project will include: (cross section on front side)

A: **2-lane** section with right of way reserved for two possible Bus Only/ HOV lanes from 122nd Ave to 172nd Ave

B: **Separated** multiuse path

C: **Bus on shoulder**

D: **Build** new pedestrian bike bridge

Why two roads? Not enough space!

Sunrise separates trips to meet multiple user needs:

- **Regional traffic:** Moves to the new regional connector, fewer conflicts will reduce congestion and increase safety (road shown in blue).
- **Local traffic:** Stays on Hwy 212 and redesigned local roads. Fewer cars and the addition of safe pedestrian and bike facilities will make walking and biking viable mode options. These changes will contribute to community-building and improved livability (roads shown in green).

By **optimizing local connections**, this project wi safety and transform a significant portion of Hw dangerous state highway to a safer, slower corr mode options including protected bike lanes ar facilities. We aim to improve the quality of life c enhancing access, slowing speeds and reducin

This project will include:

E: **Signal modification** to reflect rerouting of 13

F: **Convert** Hwy 212 from 122nd Ave to 135th A arterial complete street

G: **New local connections** consolidate intersect

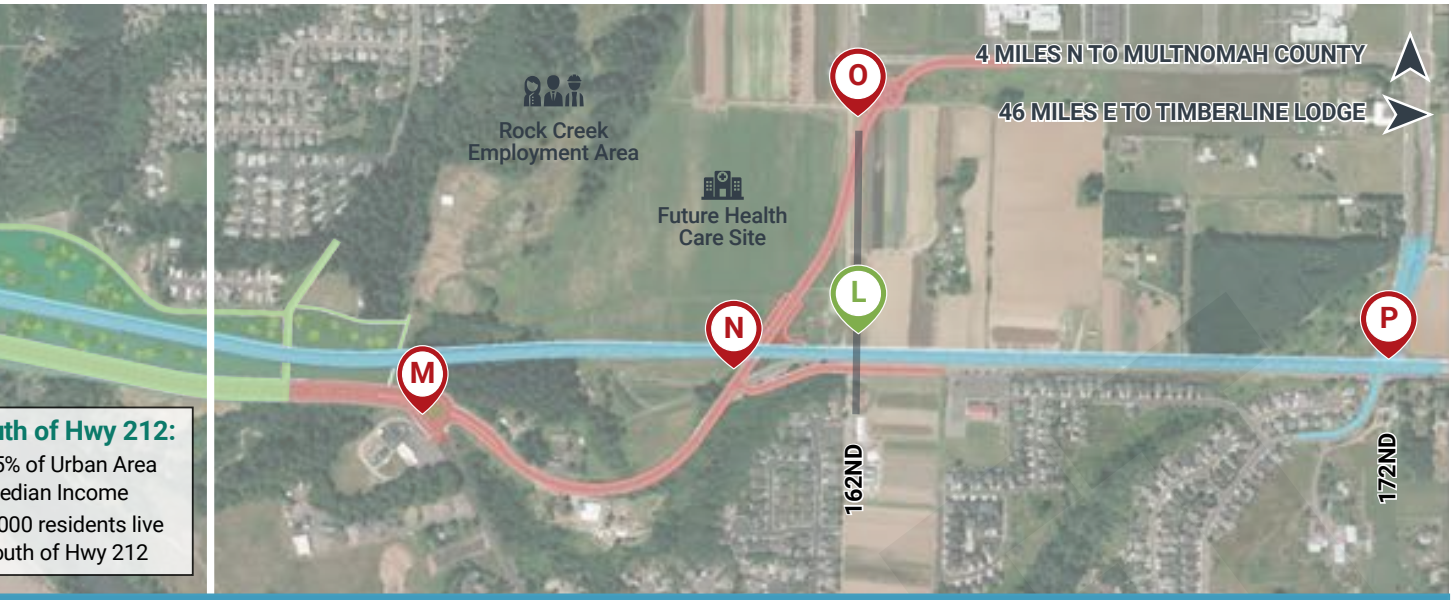
H: **Transit readiness** including right of way for p park and ride location

I: **Grade-separated** intersection to reduce conge improve safety with overpass allowing bicycles to cross without needing to stop at signals

J: **Rebuild section** of Hwy 212 from 135th Ave t including a roundabout to reduce speeds and in mobile home park. New section will include pro pedestrian amenities where currently there are

K: **Potential amenities access**, including possibl

L: **New pedestrian connection** to provide safe a 212 to Rock Creek and Verne Duncan schools



…th of Hwy 212:
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Rock Creek employment area connections project

Closing service gaps and planning for growth

- **Design: $2 million**
- **Construction: $10 million***
- **Right of way: $8 million**

Total: $20 million

***Cannot be built until other two projects are complete**

Total project: $477 million

- **Total design: $62 million**
- **Total construction: $265 million**
- **Total right of way: $150 million**

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…access under Hwy

Safety will increase by reducing speeds and improving sight distance for regional trips.

This project will also create multimodal access to schools and employment lands, especially for the areas south of Hwy 212.

This project will include:

M: **Roundabout** at Rock Creek Junction to reduce speed, reduce congestion and improve safety

N: **New local connection** with underpass to allow safe access under Hwy 212 to Rock Creek and Verne Duncan schools

O: **Roundabout** to access Rock Creek Blvd

P: **Starting point** of Clackamas to Columbia (C2C) corridor north to Gresham

Metro T2020 desired outcomes	Full corridor (all projects)	Regional	Safety	Rock Creek
Improves safety	☀	☀	☀	☀
Prioritizes support for communities of color	☀	☼	☀	☼
Increases access, especially for people of color	☀	☼	☀	☼
Supports resiliency	☀	☀	☀	☼
Supports economic growth and system connectivity	☀	☀	◑	☀
Protects clean air and reduces carbon emissions	☀	☀	◑	◑
Is regional in nature	☀	☀	◑	☀
Leverages housing, open space investments	☀	☀	◑	☼
Reduces congestion	☀	☀	◑	☀

11/12/2019

BACKGROUND

As previously noted, the Sunrise EIS was completed in December 2010. Sunrise Phase 1, including the I-205 interchange area and the extension from the interchange to 122nd Avenue, was completed in 2016.

The original Sunrise EIS concept provided local access interchanges at SE 122nd Avenue, Rock Creek Junction (the intersection of OR 212 and OR 224), and 172nd Avenue.

No access to the Sunrise was proposed at SE 135th Avenue, SE 142nd Avenue, and SE 152nd Avenue, and those roadways were all envisioned as passing underneath the elevated Sunrise Gateway Corridor.

In addition, the proposed Rock Creek Junction interchange included design features that were constrained by the surrounding built environment, and would have resulted in higher costs and impacts. The limitations of these previous efforts warranted further analysis and revisions to the original design to meet the concept objectives.

GOALS & OBJECTIVES

The development of the updated Sunrise Gateway Corridor Concept was guided by a set of goals and objectives from the 2010 FEIS to maintain consistency with the adopted vision for the project, and the goals and objectives established by the Metro Council for Get Moving 2020 corridors.

Goals

1 Provide east-west transportation improvements from I-205 at the Milwaukie Expressway to the Rock Creek Junction to meet **existing and future safety, connectivity, continuity, access, and mobility needs** for statewide, regional, and multimodal travel within the OR 212/224 corridor.

2 Provide transportation improvements that support the viability of the Clackamas area for **industrial uses**, and allows development of the **Rock Creek Employment Area**.

3 Support **community livability** and protect the quality and integrity of **residential uses** within and adjacent to the corridor.

4 Provide a facility that minimizes and effectively mitigates adverse impacts to **natural and cultural resources** within the project corridor.

Objectives

Identify overall cost and construction efficiencies from the original 2010 EIS project

Provide features compatible with Get Moving 2020 criteria

Ensure improvements are forward compatible (limit throw away elements) as future phases of improvement are implemented

Preserve the Sunrise Gateway Corridor right of way

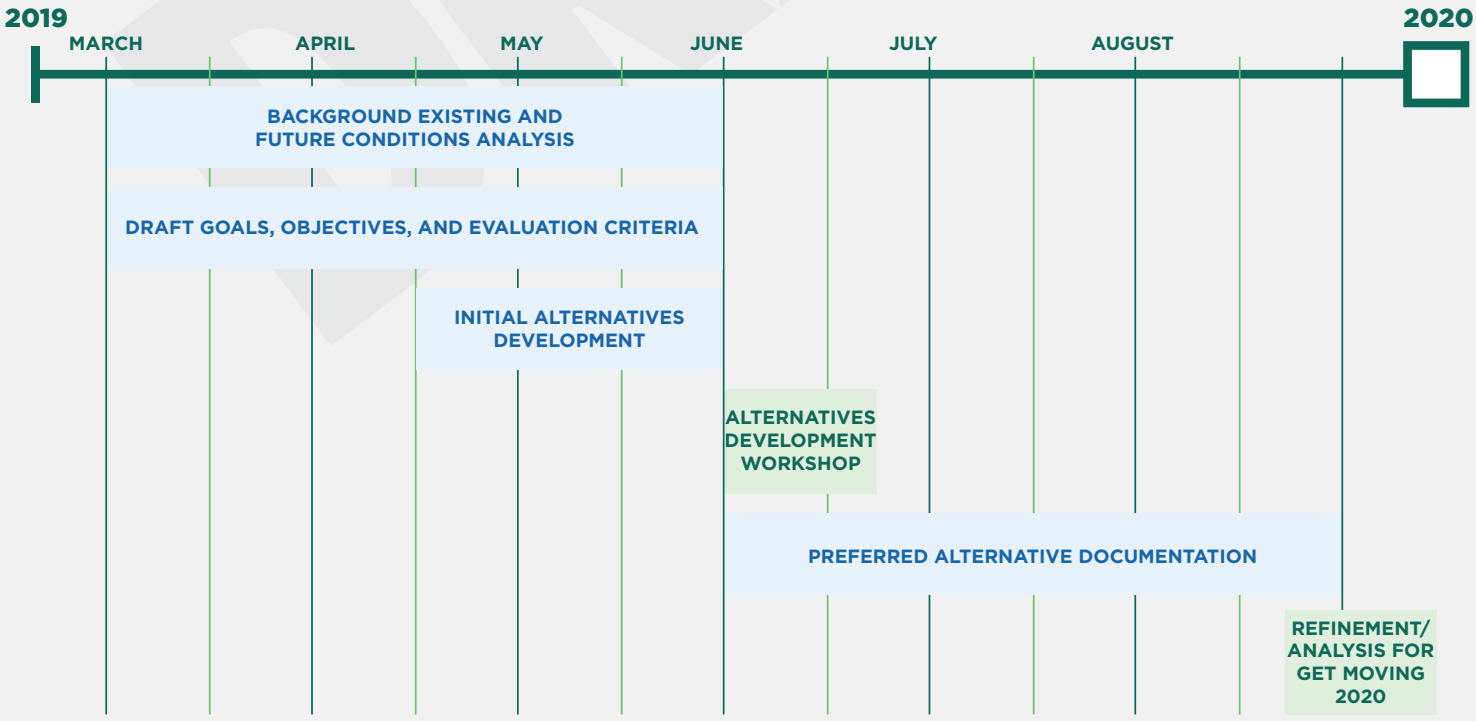
Maximize return on investment

Develop a phasing strategy that can be used to achieve a four-lane corridor when traffic exceeds 70% of the volume that can be served by a the two lane initial phase.

SCHEDULE

Concept development began in 2019 and continued throughout 2020. A summary of activities involved appears below.

Timeline of Activities



Traffic Conditions

Key Points in This Chapter:

There are already significant delays and backups due to congestion at several key intersections along the OR 212/224 corridor today between SE 135th Avenue and SE 172nd Avenue.

To plan for the future, it's important to understand today's traffic conditions. This section describes the traffic analysis conducted in the development of the Sunrise Gateway Corridor Concept including where traffic information was collected, how the system is performing under existing conditions and what congestion delays and traffic backups are anticipated over the next 20 years. It should be noted that all data used in this traffic analysis were collected in 2019 before the COVID-19 pandemic and represent traffic prior to any changes brought about during and since the pandemic.

DATA COLLECTION

Turning movement counts were collected at nine intersections along OR 224 (Sunrise Expressway) and OR 212 midweek during the weekday evening peak period (4:00 to 6:00 p.m.). In addition, several key intersections were counted during the weekday morning peak period (7:00 to 9:00 a.m.). Turning movement counts were collected at nine locations. Intersections 1, 2, and 3, while evaluated as part of this process and in the background memorandum[1], are part of Sunrise Phase 1 and not carried forward here.

4. SE 122nd Avenue/OR 212/OR 224 (morning and evening)
5. SE 135th Avenue/OR 212-OR 224 (evening only)
6. SE 142nd Avenue/OR 212-OR 224 (evening only)
7. SE 152nd Avenue/OR 212-OR 224 (evening only)
8. OR 224/OR 212 (Rock Creek) Junction (morning and evening)
9. SE 172nd Avenue/OR 212 (morning and evening)

EXISTING TRAFFIC OPERATIONS

Turning movement counts identified local system peak traffic hours of 7:00 to 8:00 a.m. and 5:00 to 6:00 p.m. **TABLE 1** and **FIGURE 3** (pp 10-11) shows study intersections over capacity during the weekday morning and evening peak hours[1].

What is volume to capacity (v/c) ratio?

Volume-to-capacity (v/c) ratio measures congestion on a roadway by dividing the amount of traffic by the roadway's available space.

***A v/c ratio of 0.90** suggests the roadway is fairly congested but not yet over capacity.*

***A v/c ratio of 1.0** is at capacity.*

***Over 1.0** is over capacity.*

[1] Presented in Memorandum 2A: Phase 2 Existing and Future Conditions Analysis (Reference 2).

The following intersections and turning movements are prone to congestion, exceeding their applicable volume-to-capacity (v/c) ratio thresholds:

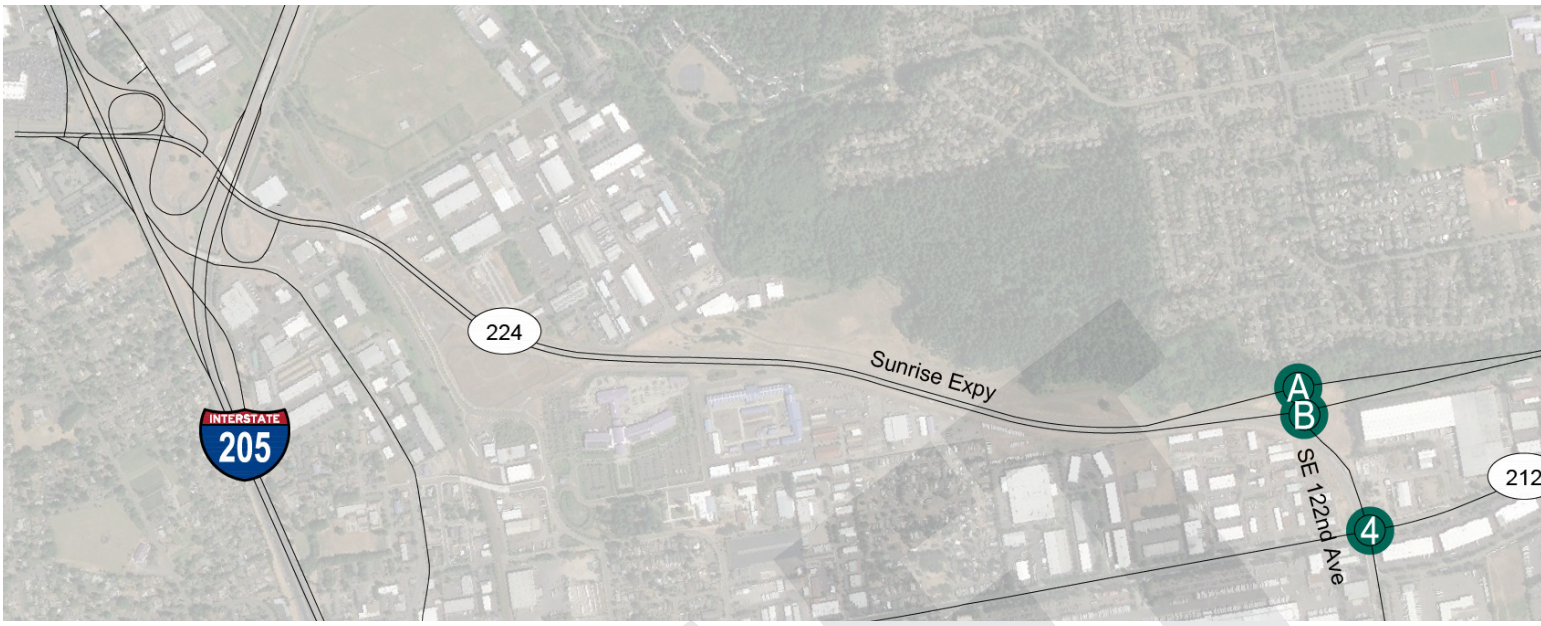
WEEKDAY MORNING PEAK HOUR

9 **SE 172nd Avenue/OR 212**, where westbound traffic experiences congestion and delay. The traffic queues from Rock Creek Junction spills back to the west receiving leg, restricting northbound left-turning and southbound right-turning vehicles' ability to pass through the intersection.

WEEKDAY EVENING PEAK HOUR

5 **SE 135th Avenue/OR 212-OR 224** intersection operates over capacity. Though eastbound and westbound through movements experience less delay, northbound right turns and southbound left turns experience more.

FIGURE 3. Existing Intersections That Are Over Capacity



Future Traffic Operations

By running forecast population and employment data through traffic models, it is possible to predict future traffic conditions along the Sunrise Gateway Corridor.[2] The future traffic volumes were developed using existing (2019) conditions as well as several future Metro model scenarios. The results of the traffic modeling were post-processed and reviewed to confirm the model closely represented actual conditions. Operational performance was compared to the same v/c thresholds used for existing conditions.

As shown in **TABLE 1**, many of the intersections are over capacity for the 2040 scenarios. There are five intersections that are over capacity under 2040 no-build conditions:

4 SE 122nd Avenue/Sunrise Gateway Corridor/OR 212
5 SE 135th Avenue/OR 212-OR 224
6 SE 142nd Avenue/OR 212-OR 224
8 Rock Creek Junction (OR 212/OR 224)
9 SE 172nd Avenue/OR 212

Three intersections differ in meeting or not meeting their threshold across scenarios:

5 SE 135nd Avenue/OR 212-OR 224. This intersection is above the 0.99 v/c threshold for the 2015 no-build and 2040 no-build scenarios. It is not over capacity under any scenario with an extended Sunrise Gateway Corridor.

6 SE 142nd Avenue/OR 212-OR 224. This intersection is above the 0.99 v/c threshold for the 2040 no-build scenarios. It is not over capacity under any scenario with an extended Sunrise Gateway Corridor.

9 SE 172nd/Sunrise Gateway Corridor. This intersection at the eastern terminus of the proposed Sunrise Gateway Corridor extension is over capacity in the 2015 no-build scenario.

Last, there are six intersections that remain below capacity across all 2040 scenarios:

A SE 122nd Avenue/Sunrise Gateway Corridor WB
B SE 122nd Avenue/Sunrise Gateway Corridor EB
C SE 142nd Avenue/SE 152nd Avenue
D SE 142nd Avenue/OR 212 WB ramps
E SE 142nd Avenue/OR 212 EB ramps
7 SE 152nd Avenue/OR 212-OR 224

[2] Presented in Memorandum 2A: Phase 2 Existing and Future Conditions Analysis and Memorandum 2B: Workshop Summary and Alternatives Evaluation (Reference 2 and 3, respectively).

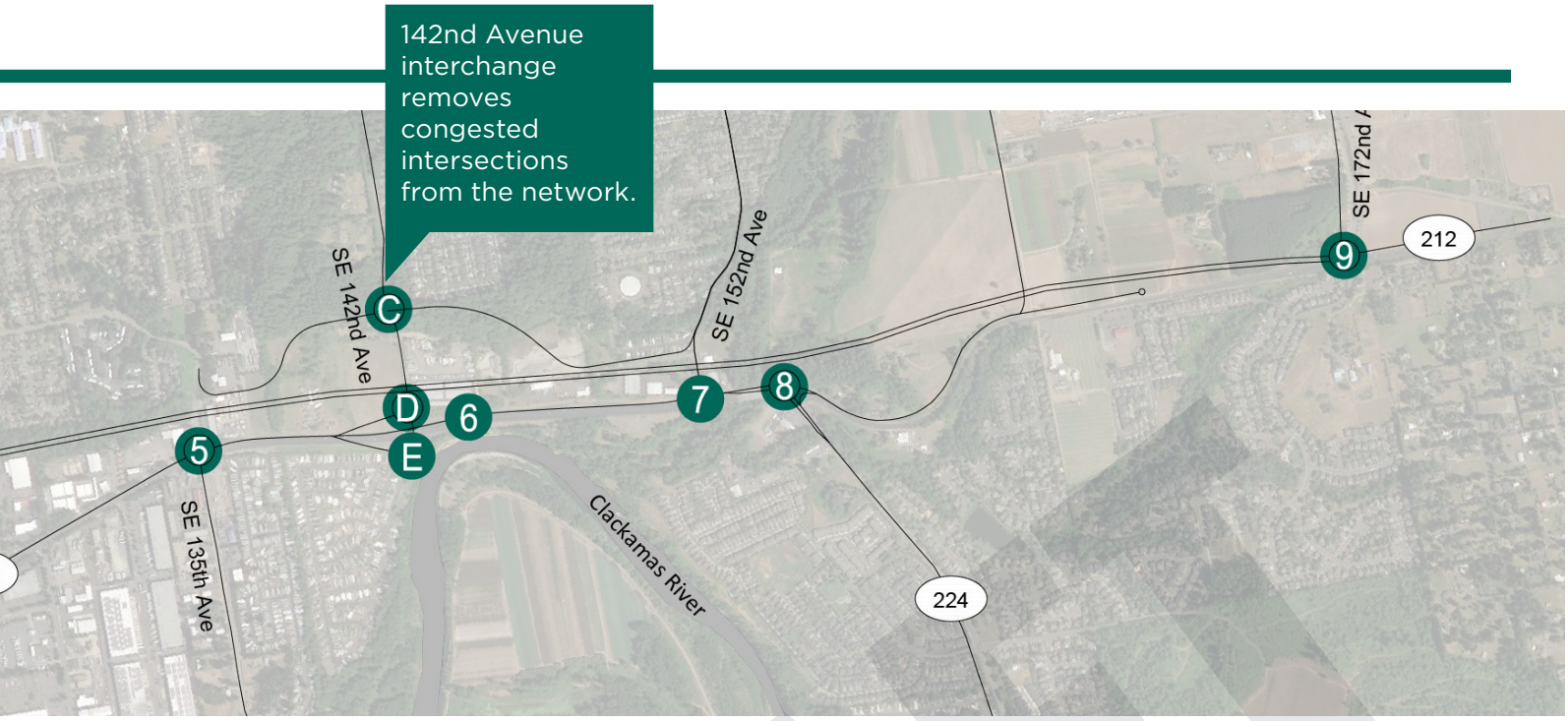


TABLE 1. Study Intersections Exceeding Volume-to-Capacity Thresholds

		EXISTING INTERSECTIONS						FUTURE INTERSECTIONS				
Intersection Scenario	**Time**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**
2015 No-Build	AM	0.85	NA	NA	NA	0.79	**>1**	NA	NA	NA	NA	NA
	PM	0.72	**>1**	0.96	0.5	0.92	0.84	NA	NA	NA	NA	NA
2040 No-Build	AM	**>1**	NA	NA	NA	0.84	**>1**	NA	NA	NA	NA	NA
	PM	0.86	**>1**	**>1**	0.96	**>1**	0.96	NA	NA	NA	NA	NA
2040 Two-Lane	AM	**>1**	NA	NA	<0.85	0.58	0.84	0.69	0.51	<0.85	<0.85	<0.85
	PM	**>1**	0.89	NA	<0.85	**>1**	0.64	0.5	0.62	0.87	0.65	0.83
2040 Four-Lane	AM	**>1**	NA	NA	<0.85	0.58	0.98	0.75	0.65	NA	NA	NA
	PM	**>1**	0.55	NA	<0.85	1.01	0.71	0.43	0.76	0.85	0.65	0.77

Note: Operations at intersection 4 worsen in the 2040 Two-Lane and Four-Lane PM peak hour compared to 2040 No-Build. Traffic that currently makes an eastbound through movement to continue on OR 212 instead makes an eastbound left-turn movement to get onto the Sunrise Gateway Corridor, causing higher congestion from the left-turn movements. A design study will need to be prepared to determine if dual eastbound left-turn lanes are necessary at 122nd/OR212-224 to facilitate the transition of OR212 traffic onto the Sunrise Gateway Corridor.

Alternatives Development and Analysis

Key points in this chapter:

- **Increases in traffic make backups and congestion even worse where issues exist today and will cause new backups at intersections that are not routinely congested today.**
- **Through workshops with agency and consultant staff, the study team developed preliminary design concepts, or 'alternatives,' to address these issues.**
- **The workshops concluded with identification of a preferred alternative that addressed existing and future congestion and saved approximately $100 million in construction costs compared to the original 2010 EIS design concept.**

ALTERNATIVES DEVELOPMENT

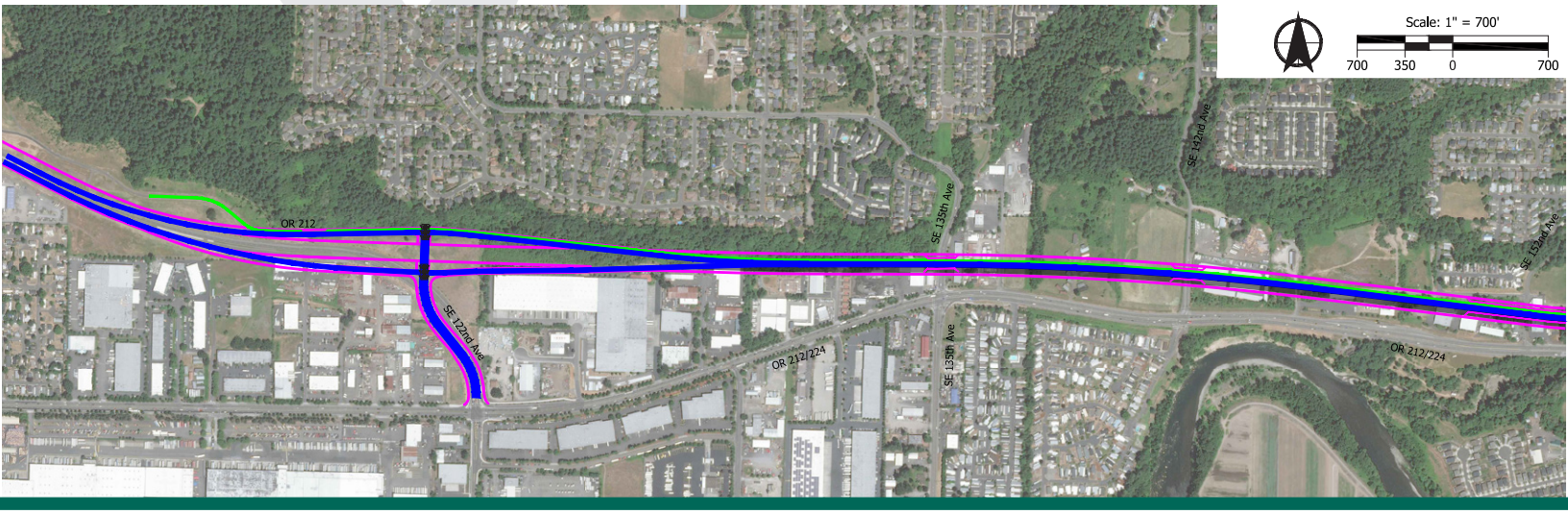
The project team held two, day-long workshops to develop corridor design alternatives, and ultimately select a preferred alternative that could be submitted for potential Get Moving 2020 funding.

The workshops were held in May and June 2019. Participants included staff from the City of Happy Valley, Clackamas County, ODOT, and Metro with consultants supporting the City (Harper Houf Peterson Righellis, Inc. and DKS Associates) and County (Kittelson).

Workshop 1: May 30, 2019

The first workshop focused on developing concepts, which included considering the Phase 2 EIS. In preparation for the workshop, an initial corridor concept was prepared utilizing the original EIS preferred alternative and the goals and objectives established by the Metro Council for the Get Moving 2020 corridors.

FIGURE 4. Initial Concept



Several priorities were considered when developing the initial corridor concept including:

- Provide east-west transportation improvements from I-205 at the Milwaukie Expressway to the Rock Creek Junction to meet existing and future safety, connectivity, continuity, access, and mobility needs for statewide, regional, and multimodal travel within the OR 212-224 corridor.
- Provide transportation improvements that support the Clackamas industrial area's viability.
- Support community livability and protect the quality and integrity of residential uses within and adjacent to the corridor.
- Provide a facility that minimizes and effectively mitigates adverse impacts to natural and cultural resources within the project corridor.

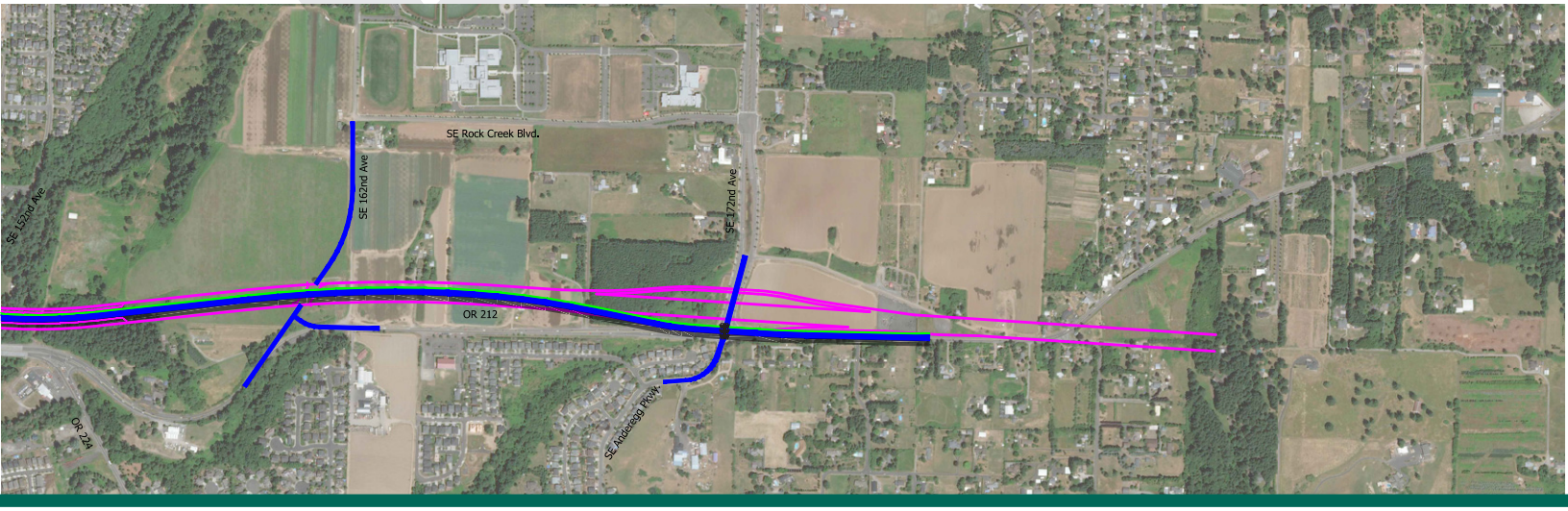
The initial corridor concept, illustrated in **FIGURE 4,** includes the following modifications to the EIS preferred alternative:

- Remove the interchange at OR212/OR224 (Rock Creek Junction).
- Realign the eastern end of OR 212 past Rock Creek Junction to pass underneath the proposed Sunrise Gateway Corridor and connect with SE 162nd Avenue to the north.
- Establish full access control along the proposed Sunrise Gateway Corridor from 122nd Avenue to 172nd Avenue.
- Establish two-lane cross-sections for the Sunrise Gateway Corridor that can later become four lanes without substantial reconstruction that would 'throw away' previous work.
- Include a multi-use path along the entire length of the corridor from the east end of Sunrise Phase 1 to the SE 172nd Avenue intersection.

Concept-level cost estimates, developed on a per-linear-foot basis, were prepared for the initial corridor concept for both the full four-lane cross-section and the reduced two-lane cross-section shown in **TABLE 2**. The cost estimates include major road items such as grading, paving, bridges, retaining walls, signing, striping, traffic signals, and right-of-way.

TABLE 2. Initial Concept Planning Level Cost Estimates

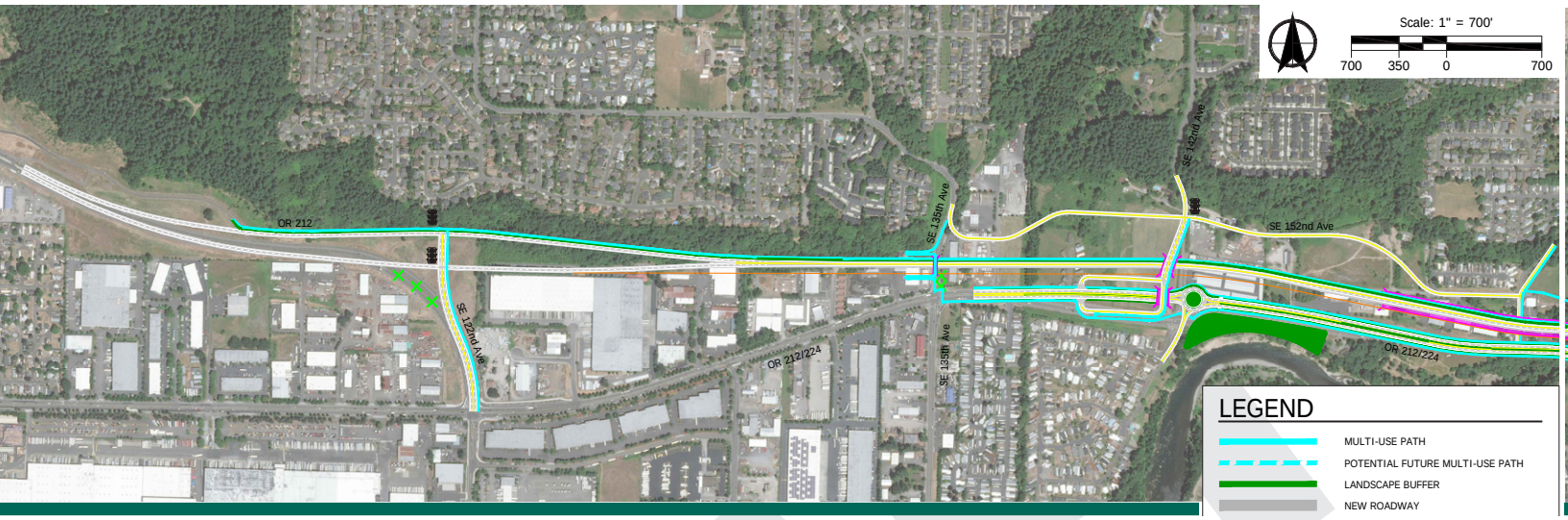
At-Grade Alternative	Construction Cost (including Engineering)	Right-of-Way Cost	Total Cost
Two-Lane	$274.6M	$89.3M	**$363.9M**
Four-Lane	$373.7M	$89.3M	**$463.0M**



KEY: Roadway Multi-Use Path Envisioned Ultimate Alignment

The initial concept was used as a baseline for participants to develop other potential concepts for the corridor. In the workshop, participants prepared hand-drawn sketches depicting their ideas for the Sunrise Gateway Corridor Phase 2 concept. Nearly 50 sketch concepts were collected and used to generate revisions and refinements to the initial concept design.

FIGURE 5. Enhanced Concept



Workshop 2: June 13, 2019

The initial evaluation from Workshop 1 and the findings of the traffic operations analysis were presented and discussed during the second workshop.

The project team presented an enhanced corridor concept that accounted for feedback received during Workshop 1. The enhanced corridor concept is shown in **FIGURE 5**. Workshop 2 participants provided feedback on these materials using a score card.

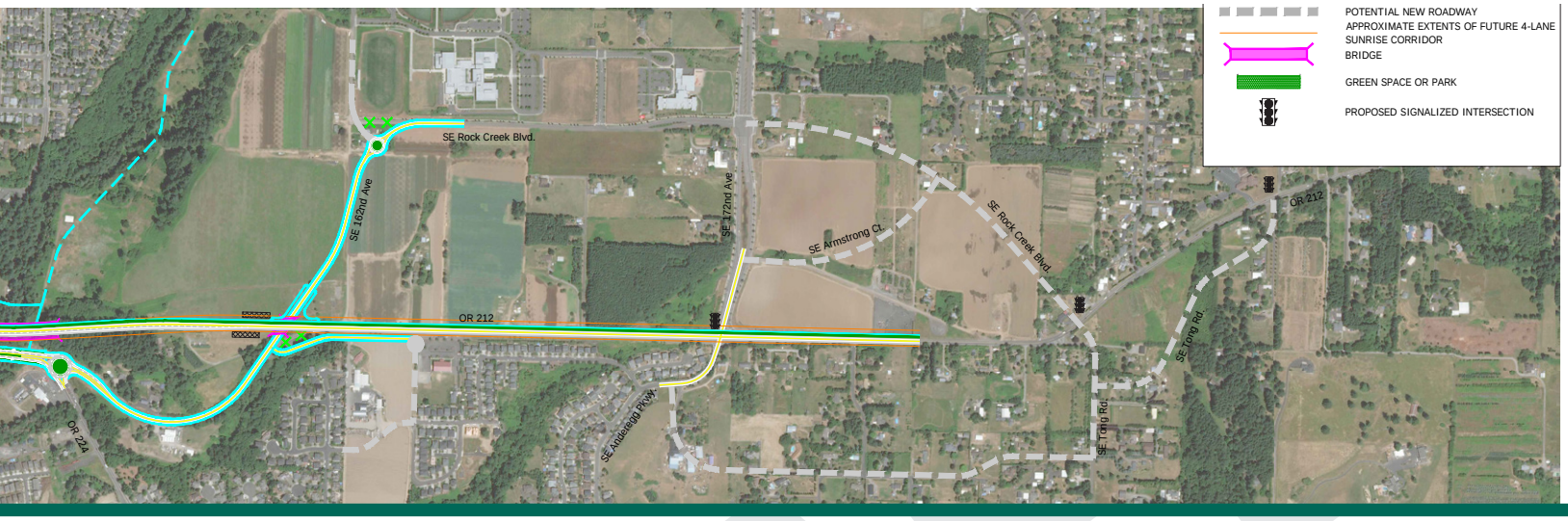
The assumptions and criteria for Workshop 1 remained in place for Workshop 2. Based on Workshop 2, concept scenarios were expanded to include an at-grade Sunrise Gateway Corridor with an OR 212-224/ SE 142nd Avenue consolidated interchange with frontage road between SE 135th Avenue and SE 152nd Avenue. Cost estimates were updated to reflect this further enhanced concept scenario.[3]

As shown in **TABLE 3**, the revised two-lane concept decreased the construction cost by $60.7 million and the four-lane concept decreased construction cost by nearly $89.3 million. Construction cost reductions were primarily due to reduced earthwork and bridge undercrossing needs, with segments of the Sunrise Gateway Corridor being lowered to existing grade between SE 135th Avenue and SE 152nd Avenue.

Conversely, the right-of-way costs increased by approximately $66 million for both the revised two-lane and the revised four-lane concepts. This was due to an updated right-of-way analysis that accounted for the most current property values. The previous right-of-way estimate of $84 million had been carried forward from the 2010 EIS concept design work and was therefore out of date.

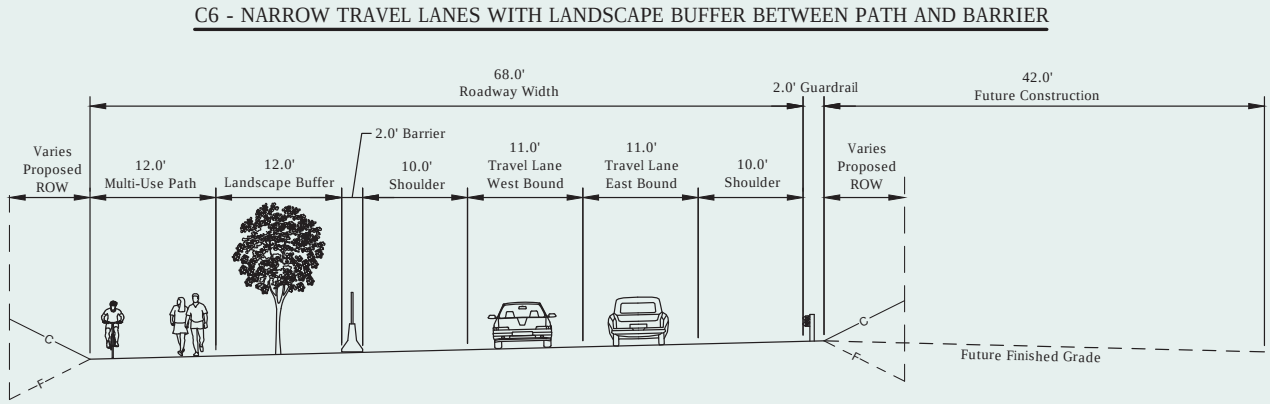
TABLE 3. Enhanced At-Grade Alternative Scenario Cost Estimate Opinions

At-Grade Alternative	Construction Cost (including Engineering)	Right-of-Way	Total Cost
Two-Lane	$220M	$150M	**$370M**
Four-Lane	$283M	$150M	**$433M**



Several cross-section alternatives were also considered for the enhanced corridor concept. An example two-lane corridor concept is shown in **FIGURE 6** below.

FIGURE 6. Example Sunrise Corridor Cross-Section Alternative



[3] Workshop summaries and materials are included in Memorandum 2B: Workshop Summary and Alternatives Evaluation (Reference 3).

Enhanced Corridor Refinement Analysis

Following Workshop 2 and the completion of the future traffic conditions analysis, the project team evaluated the remaining concepts for their cost, constructibility, multimodal connectivity, design constraints, and operational results. The following section provides a detailed description of the Sunrise Gateway Corridor concept.

CROSS SECTIONS

The corridor cross section—how the available road space is allocated between cars, bikes, pedestrians and landscaping—will be a major factor in cost, resulting travel speed, and user comfort.

The cross section defined the corridor from the user perspective and determined its ability to meet Metro Get Moving 2020 evaluation criteria. ODOT and Clackamas County design standards based on the intended use of roadways were considered in the development of the preferred cross sections. Additionally, recent changes to ODOT's design guidance conveyed by the ODOT Blueprint for Urban Design initiative were incorporated into the preferred cross sections.

Based on stakeholder feedback, the workshops, and Get Moving 2020 feedback, the project team recommended a preferred cross-section that includes narrower travel lanes of 11 feet as opposed to 12 feet, to manage speeds and decrease costs and the need for right-of-way acquisition.

The preferred alternative also includes the visual narrowing of the street through a mountable shoulder with different pavement markings to encourage slower speeds while maintaining space for emergency pullout and emergency vehicle access.

Lastly, a vegetated buffer provides additional comfort and separation for bicycles and pedestrians using the multi-use pathway while further encouraging slow speeds for motor vehicle traffic.

FIGURE 7 shows the interim two-lane and year 2040 four-lane recommended preferred cross-sections for the corridor.

Based on the policy change associated with the ODOT Blueprint for Urban Design and guidance by Metro for all Get Moving 2020 projects, the proposed cross section would provide:

- 11-foot lane widths
- 18-foot median in the four-lane cross section
- 13-foot bus lane/shoulder
- Guard rails, where fill slope warrants them
- 12-foot landscape buffer
- 12-foot multi-use path

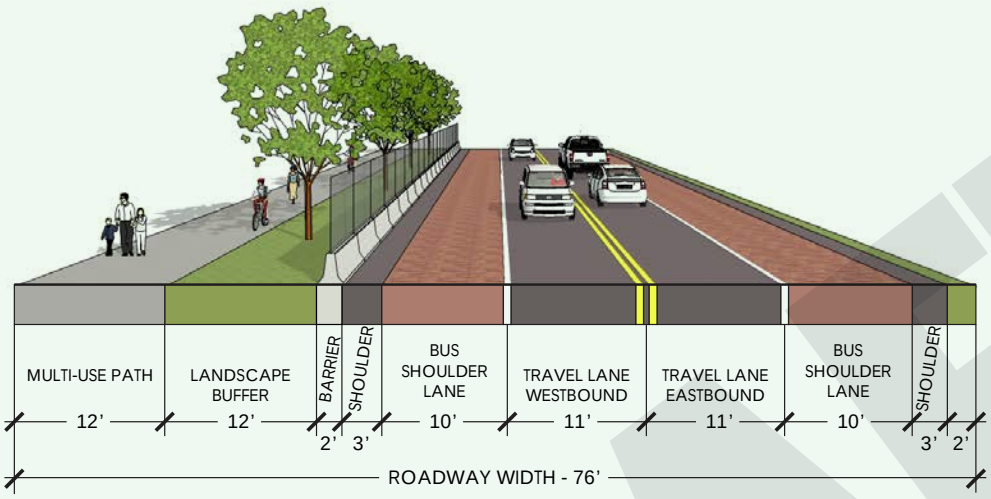
What is the blueprint for urban design?

ODOT's Blueprint for Urban Design provides guidance to engineers and planners to create roadway designs that accommodate people walking, biking, and driving safely and comfortably. The design approach provides flexibility based on the use of roads, surrounding properties, and other criteria that was previously lacking from some design requirements.

FIGURE 7. Preferred Corridor Roadway Cross Sections

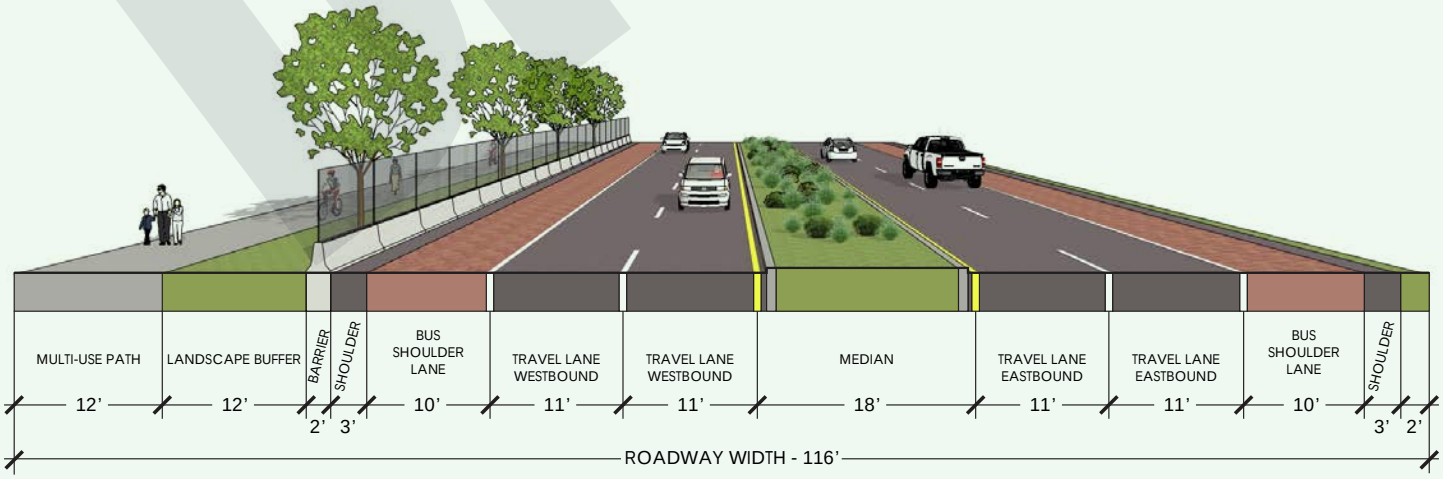
Two-Lane Cross Section

Narrow Travel Lanes with Landscape Buffer (looking east)



Four-Lane Cross Section

Narrow Travel Lanes with Landscape Buffer (looking east)



SPECIFIC PROJECT AREA CONSTRAINTS & RECOMMENDATIONS

During the design workshops and evaluation process, constraints and cost implications emerged that eliminated several alternatives. The identified design constraints and recommendations at each key location are discussed in the following pages.

122nd Tie-In and Segment Alternatives

At SE 122nd Avenue, the project is constrained due to existing development and the desire to maintain compatibility with a future diamond interchange. In each of the alternatives considered, this was accomplished by building the interim two-lane or four-lane cross section on top of the future on- and off-ramp locations. This area is also constrained by buildings in both the southwest and southeast quadrants. The 2010 EIS concept plan called for three buildings in the southwest quadrant to be removed. However, the current proposed refined alternatives attempt to avoid impacts to these buildings by shifting the eastbound alignment to the north.

Recommendation: Based on the operational analysis and current constraints, the project team recommended Refined Alternative 1A. This alternative, illustrated in **FIGURE 8,** introduces a one-way couplet with two-phase signal operation at the long-term ramp locations. A multi-use path connects to OR212 on the east side of SE 122nd Avenue.

As part of the 122nd tie-in, a design study will need to be conducted on potential modifications to the 122nd/OR212-OR224 intersection (e.g., dual eastbound left-turn lanes) to accommodate eastbound traffic transitioning from OR212 to the Sunrise Gateway Corridor.

FIGURE 8. 122nd Tie-in and Segment Alternatives

135th/142nd/152nd Tie-in and Segment Alternatives

SE 135th Avenue, SE 142nd Avenue, and SE 152nd Avenue intersect with the existing OR 212-224 alignment and cross the future proposed alignment of the Sunrise Gateway Corridor. The design options are constrained due to the need to maintain connectivity between OR 212-224 and the neighborhoods to the north. Two primary scenarios were considered to accomplish this:

1/ **Elevated Corridor**—The 2010 EIS proposed constructing the Sunrise Gateway Corridor 25-30 feet above existing grade, bridging over SE 135th Avenue, SE 142nd Avenue and SE 152nd Avenue. This scenario maintained all current connection points to OR 212-224, but construction cost would be much higher and the prospect of an elevated roadway dividing the area may not be favorable to future redevelopment.

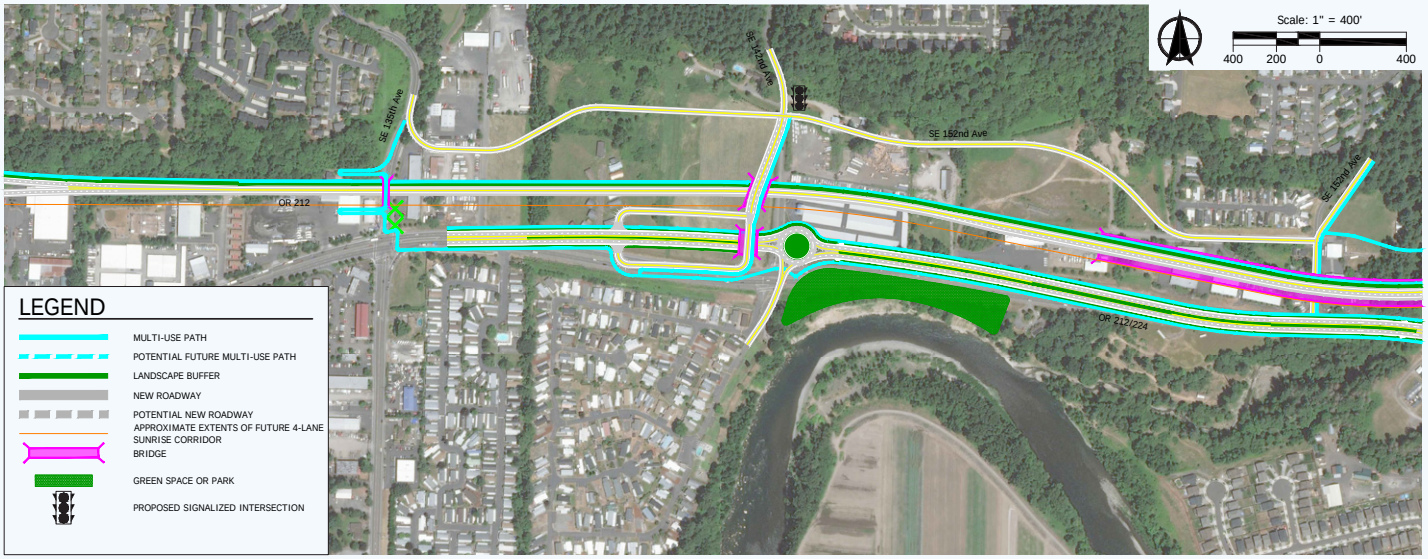
2/ **At-Grade Corridor**—The Sunrise Gateway Corridor could be constructed on existing grade between SE 122nd Avenue and SE 152nd Avenue by adding an interchange on OR 212-224 at SE 142nd Avenue that bridges over the Sunrise Gateway Corridor. Vehicle connections to OR 212-224 would be disconnected at SE 135th Avenue and be rerouted to SE 142nd Avenue. Bike and pedestrian connections would be maintained at SE 135th Avenue (via a pedestrian/bicycle bridge), SE 142nd Avenue (via the proposed 142nd bridge), and SE 152nd Avenue (via the Rock Creek trail connection to the OR212/OR224 (Rock Creek Junction) intersection. This option reduces costs associated with earthwork and bridges compared to grade-separating the Sunrise Gateway Corridor and provides more flexibility for bike and pedestrian connections.

The SE 152nd Avenue/OR 212-224 intersection is converted to right-in/right-out with all remaining movements rerouted to an interchange at SE 142nd Avenue at OR212-224.

The simplification of the remaining three-leg SE 135th Avenue (south)/OR 212-224 intersection and removal of the existing signalized SE 142nd Avenue and at-grade full movement (potential future signal) SE 152nd Avenue intersections reduces congestion and significantly improves safety along the corridor by eliminating conflicts and the need for multiple stops in the eastbound and westbound direction.

Recommendation: Based on the operational analysis, cost savings, multimodal benefits, and current constraints, the project team recommended the proposed alternative that maintains Sunrise at grade from SE 122nd Avenue through SE 152nd Avenue as shown in **FIGURE 9**.

FIGURE 9. 135th/142nd/152nd Tie-in and Segment Alternatives



Rock Creek Junction Alternatives

The Rock Creek Junction (intersection of OR 212 and OR 224) area is constrained by both existing development and the area's topography. The 2010 EIS proposed a single-point interchange immediately north of the OR212/OR224 (Rock Creek Junction) intersection. However, recently approved and constructed housing developments directly to the south of this area have decreased the possibility of a future interchange at this location due to the inability to shift the existing OR212/OR224 (Rock Creek Junction) intersection further south.

As part of the alternative development and assessment, various partial interchange alternatives were considered at Rock Creek Junction, including loop ramps, fly-over ramps, and at-grade connections. The vertical alignment and right-of-way constraints made these options either geometrically infeasible or cost-prohibitive since it is not possible to shift the Rock Creek Junction further south.

Recommendation: The most promising alternative proposes no direct connection be made between the Sunrise Gateway Corridor and OR 224 at Rock Creek Junction. Vehicles on OR 224 would access the Sunrise Gateway Corridor via SE 122nd Avenue or SE 172nd Avenue.

Based on the operational analysis and current constraints, a multi-lane roundabout is recommended for the intersection of OR 212 and OR 224 as shown in **FIGURE 10**. It should be noted that the roundabout cannot be constructed prior to completing the two-lane Sunrise Gateway Corridor between 122nd and 172nd.

Rock Creek Junction/162nd to 172nd Tie-in and Segment Alternatives

As mentioned in the previous section, the single-point interchange at Rock Creek is no longer feasible. A reconfiguration concept is needed for surrounding collector roads to accommodate an OR 212 connection to the Sunrise Gateway Corridor at SE 172nd Avenue. Alternatives considered by the project team included:

- Various combinations of realigning SW 162nd Avenue, Rock Creek Boulevard, Anderegg Parkway, and SE Tong Road
- Various combinations of interchanges, traffic signals, and roundabouts at SE 162nd Avenue and SE 172nd Avenue
- Using a couplet with split-diamond interchange between SE 162nd Avenue and SE 172nd Avenue

The roundabout and couplet options are infeasible due to operational and geometric constraints related to capacity and vertical grade issues at SE 162nd Avenue. Alternatives analysis revealed that realigning the surrounding collector roads is the most feasible alternative and could be development-driven. The realigned collector roads will facilitate movement of vehicles, bikes, and pedestrians from the Damascus area and the planned Rock Creek Employment Center to OR 212, OR 224, and the new Sunrise Gateway Corridor.

Recommendation: Based on the operational analysis and current constraints, the project team recommended the alternative shown in **FIGURE 11.** Notable features include:

- Realignment of SE 162nd Avenue and Rock Creek Boulevard as a continuous roadway, with the northern segment of SE 162nd Avenue intersecting with Rock Creek Boulevard at a right angle, improving driver visibility of other vehicles and reducing the pavement area needed to accommodate turning vehicles
- A future interchange providing access between Sunrise Gateway Corridor and SE 162nd Avenue at SE 172nd Avenue.
- Construction of a four-lane bridge across Rock Creek between SE 152nd Avenue and SE 162nd Avenue under the two-lane scenario. This would serve as a climbing lane in the two-lane configuration and be compatible with the four-lane configuration in the future. The length and complexity of this bridge structure suggest widening it in the future would significantly increase overall costs to the corridor.
- The Sunrise Gateway Corridor alignment was shifted south between SE 162nd Avenue and SE 172nd Avenue to use the existing OR 212 alignment, reducing right-of-way impacts and costs for the segment.

To improve safety and local access east of SE 172nd Avenue the following improvements are also recommended:

- Extension of SE Tong Road to intersect OR 212 near SE 187th Avenue
- Extension of Rock Creek Boulevard from SE 172nd Avenue to intersect OR 212 at a signalized intersection at the approximate location of the SE Tong Road intersection
- Implementation of access control on OR 212 east of SE 172nd Avenue to the new Rock Creek Boulevard intersection
- Addition of a new road south of existing development from Anderegg Parkway to Tong Road providing access to existing properties

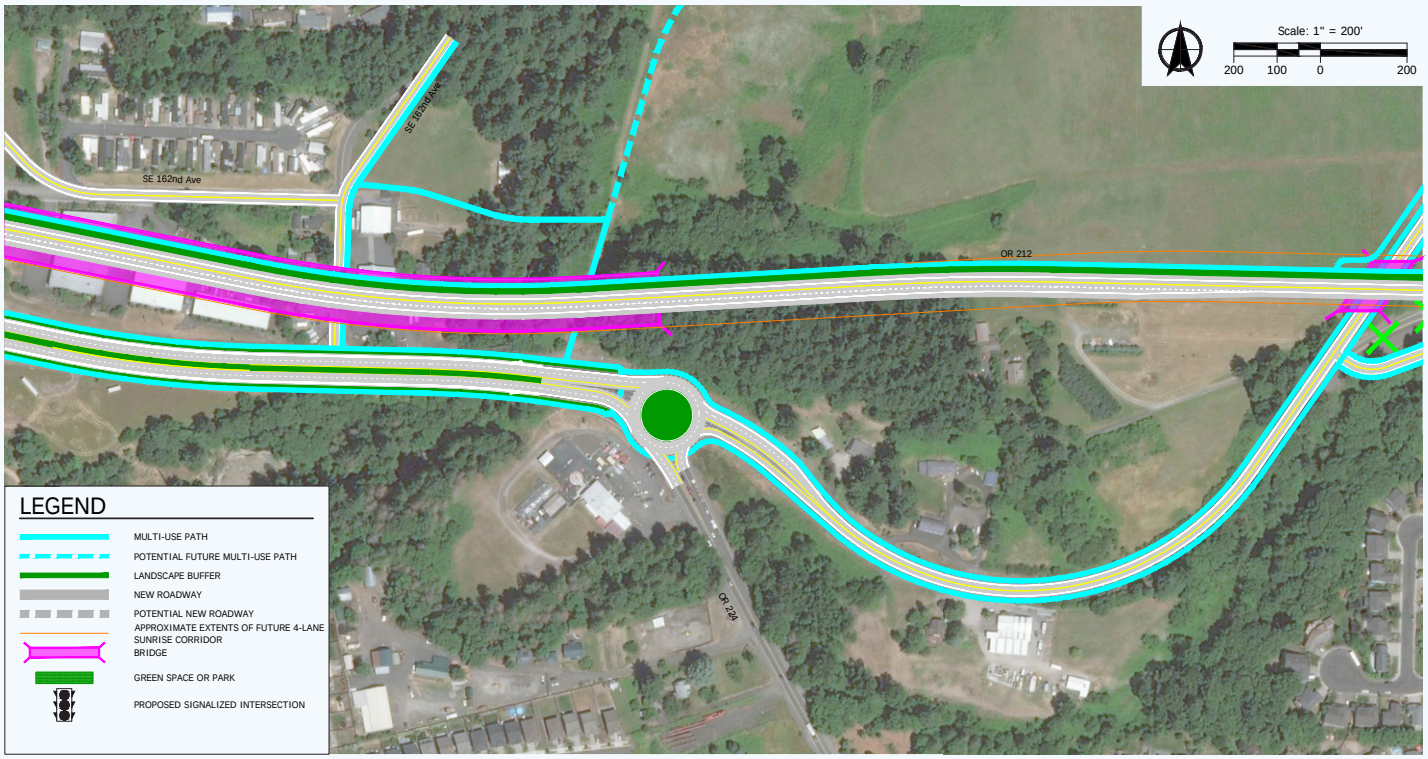


FIGURE 10. Rock Creek Junction Preferred Alternative

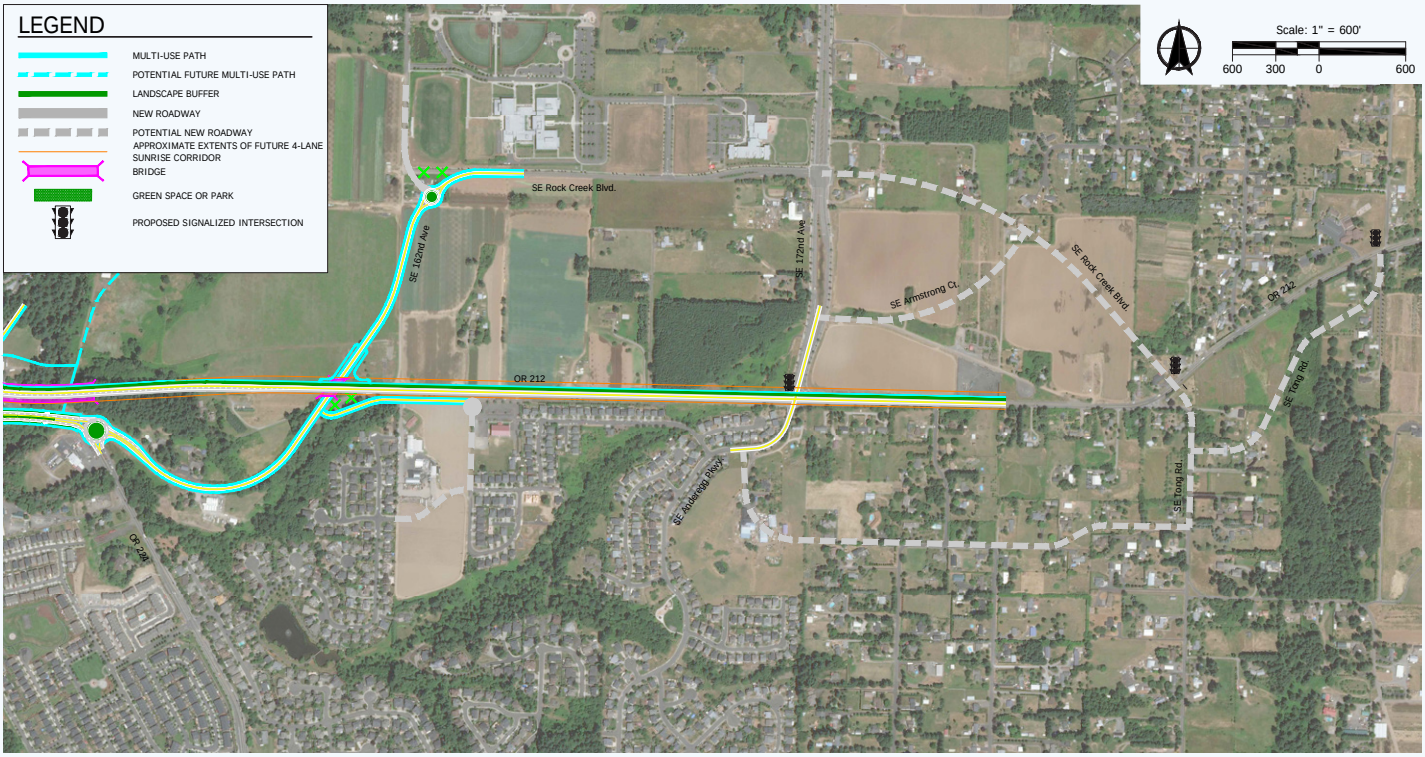


FIGURE 11. Rock Creek Junction/162nd to 172nd Tie-in and Segment Preferred Alternative

Sunrise Gateway Corridor Concept

To address operational deficiencies in the near term, refinements were made to the 135th Avenue to 152nd Avenue segment of the Sunrise Gateway Corridor that would be compatible with proposed future improvements, which were separated into three distinct improvement packages to meet traffic needs as growth occurs. These pseparated into three distinct improvement packages are as follows:

Safety & Local Connection Project
Part A. Reconstruct portions of OR 212 roadway including sidewalks, bicycle facilities and crossings to improve access and safety. Construct the elevated intersection at OR 212/142nd and realign 135th to build local connections. Acquire right-of-way per revised corridor concept. Restrict left-out movement at OR 212/152nd Avenue. Provide sidewalks and buffered bike lanes along OR 212 and OR 224.

Part B. Provide local roadway connection from 152nd Avenue to 142nd Avenue, convert the existing OR 212/152nd Avenue to a right-in, right-out intersection.

Regional Connection Project
Part A. Construct two-lane Sunrise Gateway Corridor, including the couplet at 122nd Avenue and right-of-way acquisition for possible bus-only/HOV lanes from 122nd Avenue to 172nd Avenue. Provide a separated multiuse path and build a new pedestrian and bicycle bridge at the former 135th connection.

Part B. Widen the two-lane Sunrise Gateway Corridor to its ultimate four-lane width when PM peak hour traffic exceeds 70% of capacity.

Rock Creek Employment Area Connections Install a roundabout at Rock Creek Junction, install a roundabout at Rock Creek Boulevard/162nd Avenue, and provide new local connections to Rock Creek and Verne Duncan schools.

The maps on pp 26 and 27 show the two-lane Sunrise Gateway Corridor Concept phased improvements. Operations results for near-term implementation indicated that the Part A Safety & Location Connection Project would operate acceptably until approximately 2027, with implementation of all Part B Safety & Local Connection Project improvements allowing intersections to operate acceptably until approximately 2031.

All the projects combined are anticipated to handle traffic well through 2040.

Cost estimates for the phased improvements were developed to reflect the change in quantities and right-of-way impacts. The estimate for the right-of-way increased from the 2010 EIS due to a higher industrial land value, additional improvements to the properties in the area that would need to be mitigated, and higher relocation costs.

TABLE 4. Sunrise Gateway Corridor (122nd to 172nd) Design, Construction, and Right-of-Way Cost Estimate Opinions (4-Lane)[4]

Phase	Safety & Local Connection Projects	Regional Connection Projects	Rock Creek Area Connections	Total[5]
Design & Construction	$44.7 M	$225.6 M	$12.3 M	**$282.6 M**
Right-of-way	$72.7 M	$70.0 M	$7.7 M	**$150.4 M**
Total Phase Cost	$117.4 M	$295.6 M	$20.0 M	**$433.0 M**

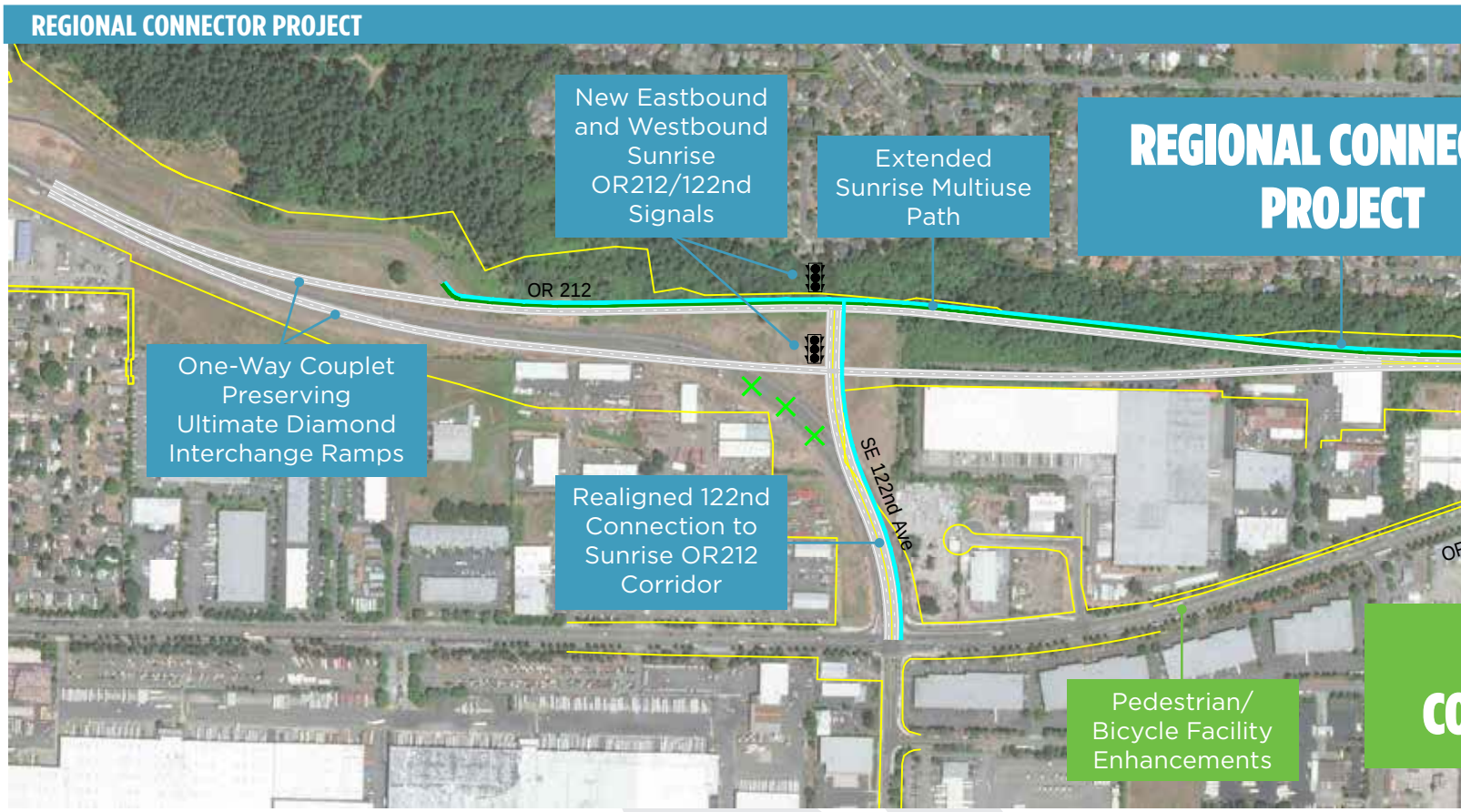
Get Moving 2020 Cost Estimate: The Get Moving 2020 Cost Estimate included all costs for the Safety and Local Connection Projects, pedestrian and bicycle improvements for the Regional Connection Projects, and right-of-way preservation costs for the entire corridor improvements. Right-of-way costs were calculated for both a low and high cost range.

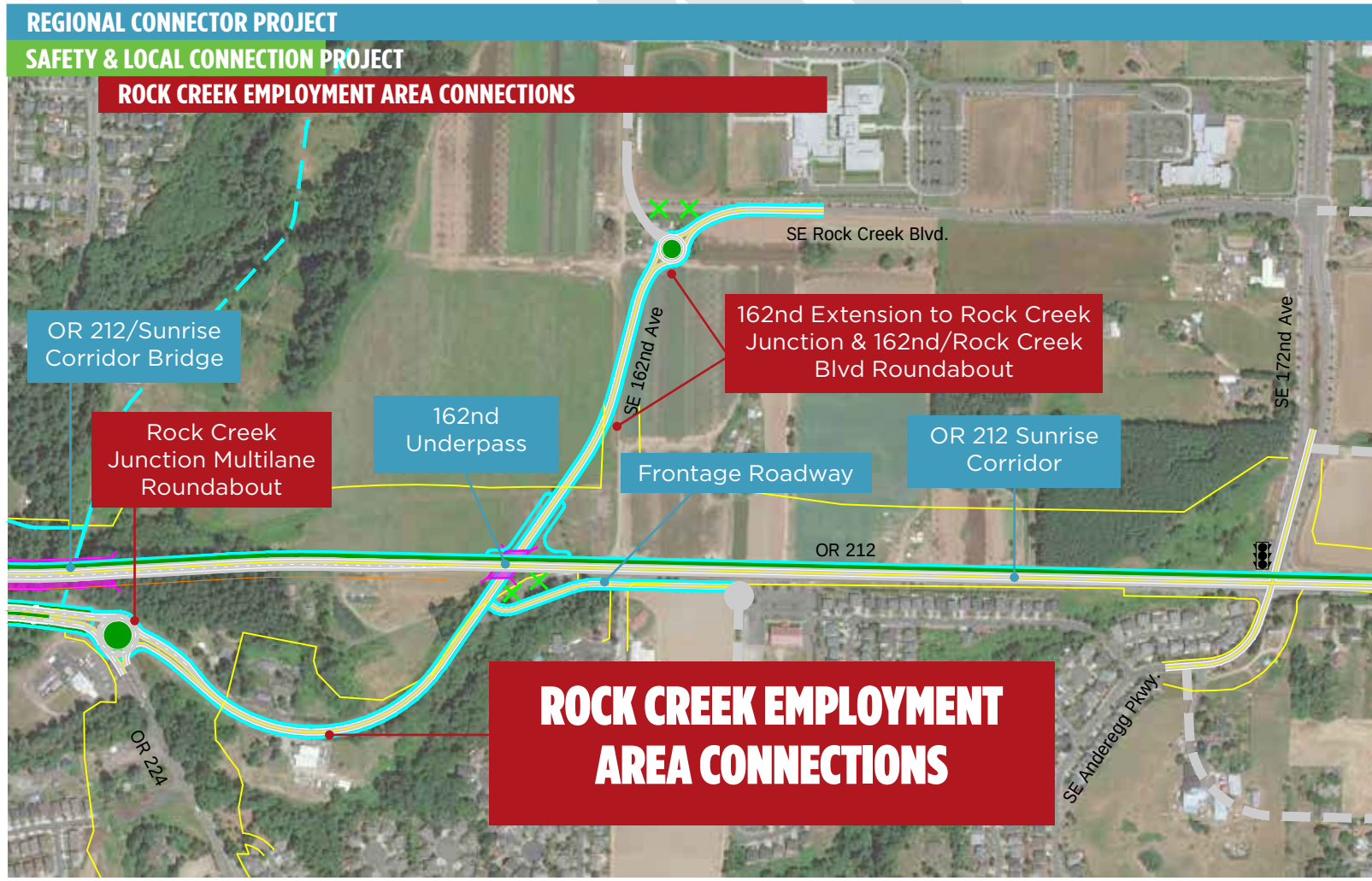
Future Corridor Transit

In addition to existing transit on the corridor, future local and regional transit connectivity are planned by TriMet, Sandy Area Metro, and Clackamas County. Transit can provide additional capacity and travel options for residents, employees, and visitors along the Sunrise Gateway Corridor. Transit improvements in the corridor will support existing affordable housing and new employment locations.

[4] Presented in Memorandum 2C: Preferred Concept Refinement (Reference 4).

[5] Note: Get Moving 2020 cost estimates included differing estimates for certain permitting and risk factors, due to the potential funding mechanism, and vary slightly from the estimates provided here.


REGIONAL CONNECTOR PROJECT
New Eastbound and Westbound Sunrise OR212/122nd Signals
Extended Sunrise Multiuse Path
REGIONAL CONNE
PROJECT
OR 212
One-Way Couplet Preserving Ultimate Diamond Interchange Ramps
SE 122nd Ave
Realigned 122nd Connection to Sunrise OR212 Corridor
Pedestrian/ Bicycle Facility Enhancements


REGIONAL CONNECTOR PROJECT
SAFETY & LOCAL CONNECTION PROJECT
ROCK CREEK EMPLOYMENT AREA CONNECTIONS
SE Rock Creek Blvd.
OR 212/Sunrise Corridor Bridge
SE 162nd Ave
162nd Extension to Rock Creek Junction & 162nd/Rock Creek Blvd Roundabout
SE 172nd Ave
Rock Creek Junction Multilane Roundabout
162nd Underpass
Frontage Roadway
OR 212 Sunrise Corridor
OR 212
OR 224
SE Anderegg Pkwy.
ROCK CREEK EMPLOYMENT AREA CONNECTIONS


CTOR
Multiuse Bridge
142nd/Backage Road Signal
Realigned Regional Boulevard
142nd Overpass
OR 212/Sunrise Corridor Bridge
SE 135th Ave
SE 152nd
Multiuse Path
R 212/224
SE 135th Ave
Multilane Roundabout Gateway & Access to Riverbend
OR 212/224
SAFETY & LOCAL
ONNECTION PROJECT
LEGEND
MULTI-USE PATH
POTENTIAL FUTURE MULTI-USE PATH
LANDSCAPE BUFFER
NEW ROADWAY
POTENTIAL NEW ROADWAY
2010 EIS PROPOSED CONSTRUCTION IMPACT LINE
BRIDGE
GREEN SPACE OR PARK
PROPOSED SIGNALIZED INTERSECTION
SE Armstrong Ct.
SE Rock Creek Blvd.
OR 212
SE Tong Rd.
SE Tong Rd.

122nd Tie-In

The 122nd Tie-in is designed to preserve the long-term diamond interchange footprint and allow phased construction of the ultimate mainline expressway and bridge over the crossroad.

- Construct Sunrise Gateway Corridor at-grade with either a 2-lane or 4-lane cross section depending on traffic needs and funding.
- Construct parallel signalized intersections acting as a one-way couplet.
- Reconnect the Sunrise Gateway Corridor to OR 212 at SW 122nd Avenue.
- As part of the 122nd tie-in, a design study will need to be conducted on potential modifications to the 122nd/OR212-OR224 intersection (e.g., dual eastbound left-turn lanes) to accommodate eastbound traffic transitioning from OR212 to the Sunrise Gateway Corridor.

135th/142nd/152nd Tie-in

This tie-in allows the consolidation of left-turn access to/from OR 212/224 through the development of a grade-separated overcrossing of the highway and new Sunrise Gateway Corridor and provides a gateway to the industrial area.

- Construct Sunrise Gateway Corridor at-grade with either a 2-lane or 4-lane cross section depending on traffic needs and funding.
- Disconnect SE 135th Ave from OR 212, realign to connect with SE 142nd Ave, and construct a pedestrian and bike bridge over Sunrise at SE 135th Ave.
- Construct new signalized intersection at SE 142nd and construct bridge over Sunrise that connects to OR 212 via eastbound and westbound ramps.
- Construct 3 leg roundabout at SE 142nd Ave and OR 212 to service the mobile home park.
- Construct connector road between SE 142nd Ave and SE 152nd Ave and implement right-in/right-out access at the intersection of SE 152nd/OR 212.
- Implement potential park & ride for high capacity transit and/or bus rapid transit.

Rock Creek Junction

Rock Creek Junction will be converted into multi-lane roundabout to improve safety and provide adequate capacity following the development of the Sunrise Gateway Corridor.

- Disconnect direct access between OR 224 and the Sunrise Gateway Corridor.
- Construct multi-lane roundabout at the intersection of OR 224/OR 212, following construction of the two-lane Sunrise extension to SE 172nd.

Rock Creek Junction/162nd to 172nd Tie-in

This improvement minimizes right-of-way impacts and provides access to the Rock Creek Employment area via OR212, OR224, and the Sunrise (at 172nd Avenue) corridor.

- Realign Rock Creek Blvd to connect into SE 162nd Ave as a continuous roadway.
- Extend Rock Creek Blvd from SE 172nd Ave to OR 212 near SE Tong Rd.
- Remove OR 212 between SE 162nd Ave and SE 172nd Ave and extend SE Tong Rd to connect with 187nd Ave south of the of the current OR 212 alignment.

Next Steps

The Sunrise Gateway Concept will need to be shared and refined through community engagement, incorporated into Clackamas County's Transportation System Plan (TSP), reviewed for National Environmental Protection Act (NEPA) reevaluation needs, further refined in design, and funded for construction.

This section describes next steps for Clackamas County and the Partner Agencies (ODOT, City of Happy Valley, and Metro) to implement the Sunrise Gateway Corridor Concept.

COMMUNITY ENGAGEMENT NEEDS

The Get Moving 2020 and Sunrise EIS efforts included community involvement in the Local Investment Teams (LIT) and community outreach. However, the refinement of the Sunrise Gateway Corridor Concept has not been extensively vetted with the community. Further community engagement on the Sunrise Gateway Corridor concept should be conducted as part of the Sunrise Corridor Community Visioning Project.

PLAN AMENDMENTS

Clackamas County plans to update their TSP from 2022 to 2024. As such, it is recommended that the revised version of the Sunrise Gateway Corridor Concept be either amended into the current TSP or included in the next TSP update. In addition, the Metro Regional Transportation Plan (RTP) will also need to be amended to reflect these changes.

NEPA NEEDS

An environmental impact statement was previously completed in 2010 to satisfy NEPA requirements for the Sunrise Gateway Corridor. However, this Concept's amendments trigger the need for a reevaluation report, which would determine whether there is a need for a full revision to the environmental impact statement. This environmental reevaluation is required prior to construction.

DESIGN NEEDS

Further refinements to the concept will need to be completed to prepare this project for final design and construction. It is recommended that a 30% design be prepared following completion of the environmental reevaluation report, in conjunction with an update to the EIS, if necessary. The 30% designs should includes the following elements:

- Updated topographic survey of the project area.
- Detailed geometric design for the four-lane cross section that meets applicable Clackamas County and ODOT Roadway Standards.
- Detailed geometric design for the interim two-lane cross-section that is forward compatible with the ultimate four-lane section.
- Vertical profile design, corridor modeling, and earthworks calculations for both the two-lane and four-lane cross sections.
- Construction phasing plan.
- Updated cost estimates.

FUNDING OPPORTUNITIES

ODOT, Clackamas County, Happy Valley, and Metro will need to pursue funding for each phase of the Sunrise Gateway Corridor. Key funding sources for these facilities could include:

/ **RAISE**—Rebuilding American Infrastructure with Sustainability and Equity (RAISE),[5] formally known as BUILD and TIGER, a discretionary federal grant with criteria including safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. The U.S. Department of Transportation (USDOT) plans to prioritize projects that can demonstrate improvements to racial equity, reduce impacts of climate change, and create good-paying jobs. For the current fiscal year (FY) 2021 discretionary grant funding, the maximum grant award is $25 million, and no more than $100 million can be award to a single state.

/ **INFRA**—The Infrastructure for Rebuilding America (INFRA)[6] discretionary grant program funds transportation projects of national and regional significance that align with the Biden Administration's principles for national infrastructure projects. The projects should result in good-paying jobs, improve safety, apply transformative technology, and explicitly

[5] Information on the RAISE Program is available at: https://www.transportation.gov/RAISEgrant

[6] Information on the INFRA Program is available at: https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america

address climate change and racial equity. Grant funding for the current FY totals $889 million.

/ **HSIP**—The Highway Safety Improvement Program (HSIP)[7] is a core federal-aid program with the purpose of achieving a significant reduction in traffic facilities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands. HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. Applications must focus on a strategy, activity, or project consistent with a state strategic highway safety plan. Projects must correct or improve a hazardous road location or feature, or address a highway safety problem, including automated enforcement in school zones. Projects require a small local match (10%) and are administered through the Statewide Transportation Improvement Program (STIP; next page).

/ **NHPP**—The National Highway Performance Program (NHPP)[8] provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that federal investments in highway construction support progress toward the achievement of performance targets established in a state's asset management plan for the NHS. States may transfer up to 50% of the funds to the Surface Transportation Block Program (STBG), Transportation Alternatives, HSIP, or the Congestion Mitigation and Air Quality programs.

/ **STBG**—The Surface Transportation Block Grant Program (STBG)[9] provides flexible funding that may be used by states and localities for projects to preserve and improve conditions and performance on any federal-aid highway; bridge and tunnel projects on any public road; walking and biking infrastructure; and transit capital projects, including intercity bus terminals. Projects must be identified in the state's STIP or Transportation Improvement Program and be consistent with the long-range statewide transportation plan and the metropolitan transportation plan(s).

/ **STIP**—The Statewide Transportation Improvement Program (STIP)[10] is ODOT's four-year capital improvement program for state- and federally-funded projects. STIP project lists are developed through the coordinated efforts of ODOT, federal and local governments, area commissions on transportation, tribal governments, and the public. The STIP is divided into five major categories:

- The Fix-It program funds projects that fix or preserve the state's transportation system, including bridges, pavement, culverts, traffic signals, and others.
- The Enhance program funds projects that enhance or expand the transportation system—area commissions on transportation recommend high-priority investments from state and local transportation plans in many Enhance programs.
- Safety programs reduce deaths and injuries on Oregon's roads. This includes the All Roads Transportation Safety (ARTS) program, described in detail below, which selects projects through a data-driven process to ensure resources have maximum impact on improving the safety of Oregon's state highways and local roads.
- Non-highway programs fund bicycle, pedestrian, and transit projects.
- Local government programs direct funding to local governments for priority projects.

/ **ARTS**—ODOT's All Roads Transportation Safety (ARTS)[11] program (formerly known as the Jurisdictionally Blind Safety Program) is intended to address safety needs on all public roads in Oregon. By working collaboratively with local jurisdictions, ODOT expects to increase safety awareness on all roads, promote best practices for infrastructure safety, complement behavioral safety efforts, and focus limited resources to reduce fatal and serious injury crashes in Oregon. The program is data-driven to achieve the greatest benefits in crash reduction, including addressing "hotspot" locations where a high concentration of crashes occur. A portion is dedicated to a few proven low-cost measures for wide implementation that are demonstrated to be most useful. Local agencies can submit applications for bicycle and pedestrian projects.

[7] Information on the HSIP Program is available at: https://safety.fhwa.dot.gov/hsip/

[8] More information on the NHPP Program is available at: https://www.fhwa.dot.gov/fastact/factsheets/nhppfs.cfm

[9] Information on STBG is available at: https://www.fhwa.dot.gov/specialfunding/stp/160307.cfm#c

[10] More information on STIP is available at: http://www.oregon.gov/ODOT/TD/STIP/Pages/default.aspx

[11] More information on the ARTS program is available at: https://www.oregon.gov/ODOT/Engineering/Pages/ARTS.aspx

REFERENCES

1/ Clackamas County Sunrise Gateway Corridor/Highway 212 Brochure

2/ Memorandum 2A: Phase 2 Existing and Future Conditions Analysis

3/ Memorandum 2B: Workshop Summary and Alternatives Evaluation

4/ Memorandum 2C: Preferred Concept Refinement