

DRAFT TECHNICAL MEMORANDUM #6

ALTERNATIVES ANALYSIS AND FUNDING PROGRAM

Table of Contents

1 Introduction	1
2 Preferred Alternatives	1
2.1 Roadway Alternatives	11
2.1.1 Hemlock Street.....	14
2.1.2 Access Management and Spacing	23
2.2 Parking Management Strategies	23
2.3 Pedestrian and Bicycle System.....	28
2.3.1 Downtown to Midtown Pedestrian and Bicycle Improvements.....	30
2.3.2 Tolovana Pedestrian and Bicycle Improvements.....	33
2.3.3 Bikeway Network	35
2.3.4 Crossings	39
2.4 Emergency Response and Evacuation System	45
2.4.1 Vertical Evacuation Structure (EM-1)	46
2.5 Public Transportation.....	47
2.5.1 Mobility Hubs.....	51
2.6 Freight	52
2.7 Transportation Demand Management	52
2.8 Transportation System Management and Operations Strategies	54
2.9 Emerging Transportation Technologies	56
3 Transportation Funding Plan	57
3.1 Existing Transportation Revenues.....	57
3.2 Cost-Constrained Alternatives	57
3.3 Funding Gap	59
Appendix A	61
Funding Alternatives	61
Local Funding Options.....	61
Grant-Based Funding Options.....	63

1 INTRODUCTION

This memorandum describes preferred transportation alternatives for the City of Cannon Beach Transportation System Plan (TSP). The preferred alternatives have been identified through a combination of technical analysis and coordination with the project management team (PMT), as well as input from the Cannon Beach City Council, Planning Commission, the Project Advisory Committee (PAC), and general public. The preferred alternatives consist of a combination of transportation improvement projects, strategies, and potential programs to address transportation needs and opportunities in the City. The preferred alternatives were also evaluated based consistency with TSP goals and objectives, planning-level cost, and implementation considerations as documented in *Technical Memorandum #4: Alternatives Analysis and Funding Program*.

2 PREFERRED ALTERNATIVES

The preferred alternatives reflect transportation improvement options for all transportation modes in the City, including projects and programs to support walking, cycling, driving, public transportation, and freight. They also include strategies for managing visitor traffic and parking that could be implemented over time.

The preferred alternatives are prioritized based on the TSP goals. Anticipated City transportation revenues are also considered to recommend phased implementation of the preferred alternatives over the next 20 years. Projects that are relatively low-cost and high impact are prioritized, with the opportunity to implement more capital-intensive and/or lower priority projects in the long-term as funding becomes available.

Table 1 below summarizes the preferred transportation alternatives, organized by transportation mode and location. Roadway solutions describe phased improvements at each of the improvement locations (R-1 through R-7). Table 1 also summarizes planning-level cost estimates and implementation priority/timeline.

Cost estimates are based on average costs per unit for similar facilities and are reported in 2021 dollars. These order of magnitude costs were developed without detailed designs, although basic measurements were taken, and geometric analysis was conducted to obtain reasonably accurate unit-level costs. Program and policy-based alternatives report conceptual cost using dollar signs representing an approximate range of less than \$50,000 (\$), between \$50,000 and \$100,000 (\$\$), and more than \$100,000 (\$\$\$).

Solutions are prioritized by an implementation timeframe of:

- Near (0 to 5 years)
- Medium (5 to 10 years)
- Long (beyond 10 years)

Table 1. Overview of Preferred Alternatives

ID	Description	Cost	Priority
ROADWAY ALTERNATIVES ¹			
R-1	Intersection at S Hemlock Street and Warren Beach Road		
R-1a	All-way (4-way) stop control	\$7,000	Near
R-3	Intersection at Sunset Boulevard and Hemlock Street		
R-3b	Unconventional stop control: Implement a three-way stop by adding a stop sign to northbound Hemlock (and keeping southbound Hemlock free)	\$2,000	Long
R-4	Intersection at 1st Street and Hemlock Street		
R-4a	All-way (4-way) stop control	\$4,000	Near
R-4c	Mini roundabout	\$924,000	Long
R-5	2nd Street and Hemlock Street		
R-5a	All-way (4-way) stop control	\$4,000	Near
R-5b	Mini roundabout	\$924,000	Medium
R-7	Hemlock Street between 1st Street and 3rd Street		
R-7a	Couplet with Hemlock and Spruce	\$129,000	Medium
R-7b	Hemlock Pedestrian Plaza – 1st Street to 3rd Street	\$167,000	Near
TRANSPORTATION DEMAND MANAGEMENT STRATEGIES			
TDM-1	Establish program to encourage visitors to leave the car at home or in an off-site parking area and arrive by other modes (the “Summer Stay” program)	\$\$	Near
TDM-2	Implement robust information campaigns to encourage visitors to travel to and within Cannon Beach by modes other than driving	\$	Near
TDM-3	Establish parking permit program to regulate the number of cars parking on-street	\$\$	Near
TDM-4	Publish data on City website of when traffic is busiest based on historical trends	\$	Near

¹ Alternative (R-5c) at the N Hemlock Street/2nd Street intersection and Alternative (R-4b) at the N Hemlock Street/1st Street intersection were removed from the list of recommended TSP projects because they are expected to operate with v/c ratios that exceed the mobility target. For more information, see *Technical Memorandum #5: Alternatives Analysis and Funding Program*.

ID	Description	Cost	Priority
TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS STRATEGIES			
TSMO-2	Establish parking monitoring program with camera or other system. Helps people driving make informed decisions about parking without the need to circle looking for an available space	\$\$\$	Medium
TSMO-4	Establish curb management program to balance the space needed for parking, deliveries, loading, and other uses	\$	Near
PEDESTRIAN AND BICYCLE FACILITY IMPROVEMENTS ²			
PB-1	Multiuse Trail from 2nd Street to Monroe Street	\$415,000	Near
PB-2	Spruce Pedestrian and Bicycle Route	\$1,104,000	Near
PB-3	S-Curves Multiuse Bypass	\$1,623,000	Near
PB-4	US 101 to Spruce/Haystack Hill Trail	\$656,000	Near
PB-5	S Hemlock S-Curves Improvements – Sunset to Yukon	\$134,000	Medium
PB-6	S Hemlock Shoulder Improvements – Yukon to Maher St	\$290,000	Near
<i>Bicycle Network Improvements</i>			
B-1	2nd Street Bicycling Improvements	\$23,000	Near
B-2	1st Street Bicycling Improvements	\$14,000	Near
B-3	Monroe Bicycling Improvements	\$23,000	Medium
B-4	Gower Bicycling Improvements	\$14,000	Near
B-5	Pacific Bicycling Improvements	\$232,000	Medium
B-6	W Warren Way Bicycling Improvements	\$7,000	Near
<i>Crossing Improvements</i>			
C-1	Enhanced crossing at N Hemlock at 2nd Street	\$284,000	Near
C-2	Marked crossing at Hemlock Street at Monroe	\$8,000	Medium
C-3	Enhanced crossing at Hemlock Street at Coolidge Avenue	\$150,000	Near
C-4	Enhanced crossing at Sunset Boulevard at Spruce Street	\$139,000	Near
C-5	Marked crossing at Hemlock Street at Haystack Lane	\$7,000	Medium
C-6	Marked crossing at Hemlock Street at Yukon Street	\$7,000	Medium

² PB-4 (Hemlock Street Curves Shoulder Improvements –Sunset Boulevard to Yukon Street) was combined with PB-5 (S Hemlock Shoulder Restriping) based on stakeholder input. PB-5 is inclusive of shoulder improvements from Sunset Boulevard to Yukon Street, shoulder restriping through the Cannon Beach S-curves to provide a wider northbound shoulder, and “sharrow” pavement markings in the southbound direction.

ID	Description	Cost	Priority
C-7	Marked crossing at Hemlock Street at Delta Street	\$8,000	Medium
C-9	Enhanced crossing at Hemlock Street between Coos Street and Orford Street	\$149,000 ³	Near
C-10	Marked crossing at Hemlock Street at Brailier Street	\$7,000	Medium
C-11	Marked crossing at Hemlock Street at Maher Street	\$7,000	Medium
EMERGENCY RESPONSE AND EVACUATION SYSTEM			
EM-1	Vertical Evacuation Structure	\$\$\$	Long
TRANSIT FACILITY ALTERNATIVES			
T-1	Bus stop with shelter at north end of City	\$57,000	Near
T-2	Mini mobility hub- N Spruce Street at 2nd Street (near Chamber of Commerce) Mini	\$113,000	Near
T-3	Mini mobility hub – Coolidge Avenue at S Hemlock	\$211,000	Medium
T-4	Mini mobility hub – S Hemlock at Warren Beach Road (Tolovana beach parking area)	\$135,000	Near
T-5	Mini mobility hub – N Spruce Street at 1st Street	\$113,000	Medium
TRANSIT SERVICE ALTERNATIVES			
TS-1	Increased intercity service	\$\$\$	Medium
TS-2	Frequent service circulator shuttle	\$\$\$	Medium
TS-3	Employee shuttle	\$\$\$	Near
FREIGHT ALTERNATIVES			
F-1	Designate short term loading zones for delivery trucks	\$	Near
EMERGING TRANSPORTATION TECHNOLOGIES – ALTERNATIVES			
ET-1	Adopt TSP policy supportive of future investments in scooter and bike share	N/A	Medium
ET-2	Adopt policy in municipal code to regulate scooter and bike share	N/A	Near
ET-3	Invest in EV charging stations to encourage EV use	\$	Long
ET-4	Adopt policy and regulations for ride-hailing transportation network companies (TNCs, like Uber and Lyft) before they begin operating in the City	N/A	Near

³ Recommended rectangular rapid-flashing beacon (RRFB) at this location.

ID	Description	Cost	Priority
PARKING MANAGEMENT STRATEGIES			
PM-1	Stripe on-street parking stalls in Downtown	\$\$	Near
PM-2	Stripe on-street parking stalls in Midtown	\$\$	Near
PM-3	Install clear, legible signage for on-street parking stalls	\$\$	Near
PM-4	Remove painted curbs throughout the Downtown study area	\$\$	Near
PM-6	Designate employee parking locations on and off-street	\$\$	Medium
PM-7	Impose time restrictions for on-street parking (e.g., 3 Hours)	\$\$	Near
PM-8	Conduct periodic parking enforcement of time-limited parking	\$\$	Medium
PM-9	Transition to employee parking permits	\$\$	Medium
PM-10	Identify remote parking lots for employee and overflow visitor use	\$\$\$	Near

Preferred alternatives are mapped in Figure 1 through Figure 5 below. Given the length of the City, alternatives were mapped into two main segments:

- Figure 1: North segment – North City limits approximately to Cannon Beach “S-curves” just south of Sunset
- Figure 2: South segment – S-curves to South City limits

Additional maps of key areas were also developed to show alternatives in greater detail:

- Figure 3: Downtown
- Figure 4: Midtown
- Figure 5: Tolovana

Cannon Beach Solutions Alternatives North Segment

Legend

- Roadway alternative
- [] Intersection improvement
- Multiuse path
- - - Bicycle improvement
- Shoulder improvement
- = Marked crossing
- = Enhanced crossing
- Transit improvement

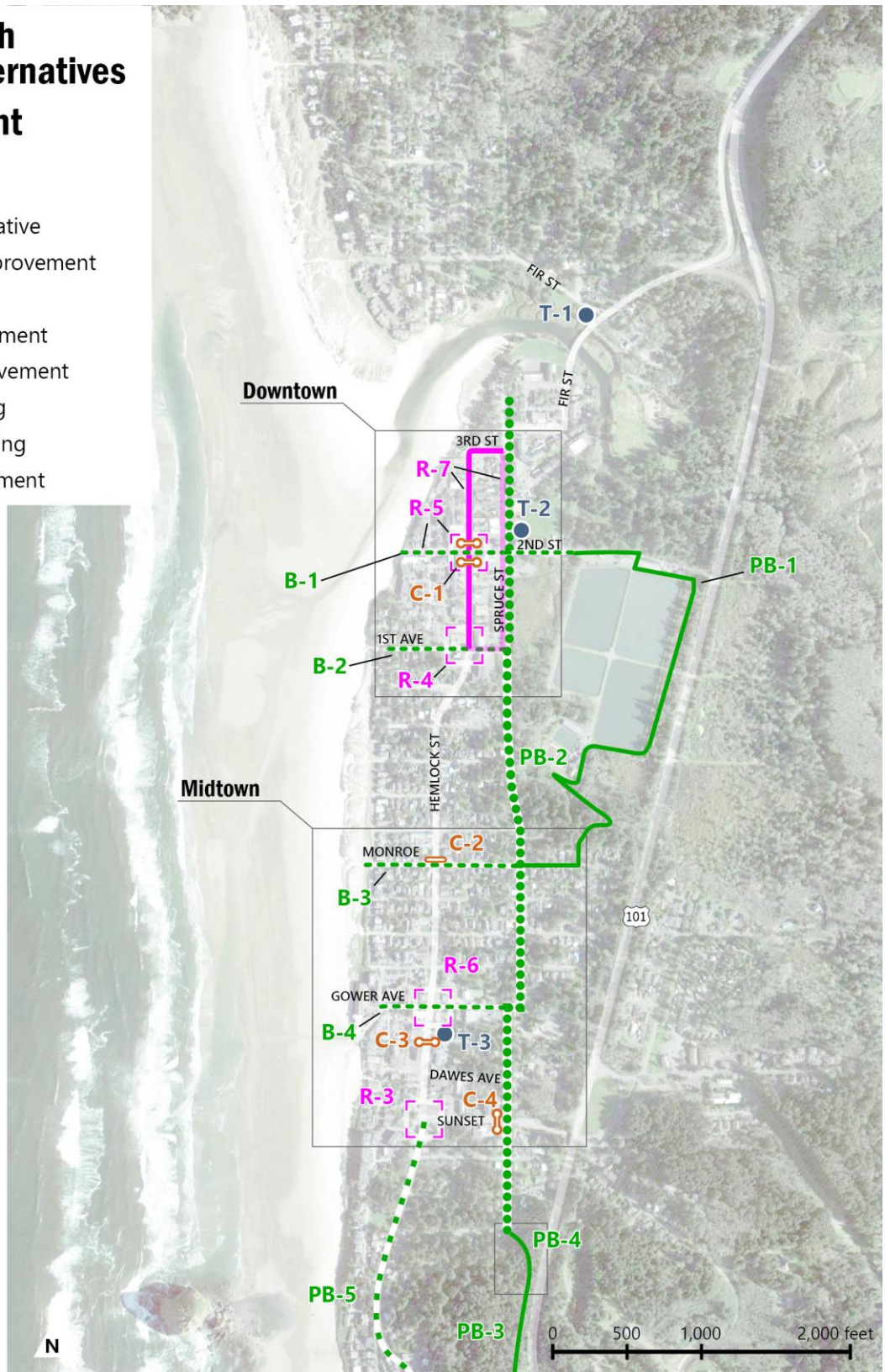


Figure 1. Preferred Alternatives: North Segment

Cannon Beach Solutions Alternatives South Segment

Legend

- Roadway alternative
- Intersection improvement
- Multiuse path
- - - Bicycle improvement
- Shoulder improvement
- = Marked crossing
- = Enhanced crossing
- Transit improvement



Figure 2. Preferred Alternatives: South Segment

Cannon Beach Solutions Alternatives Downtown

Legend

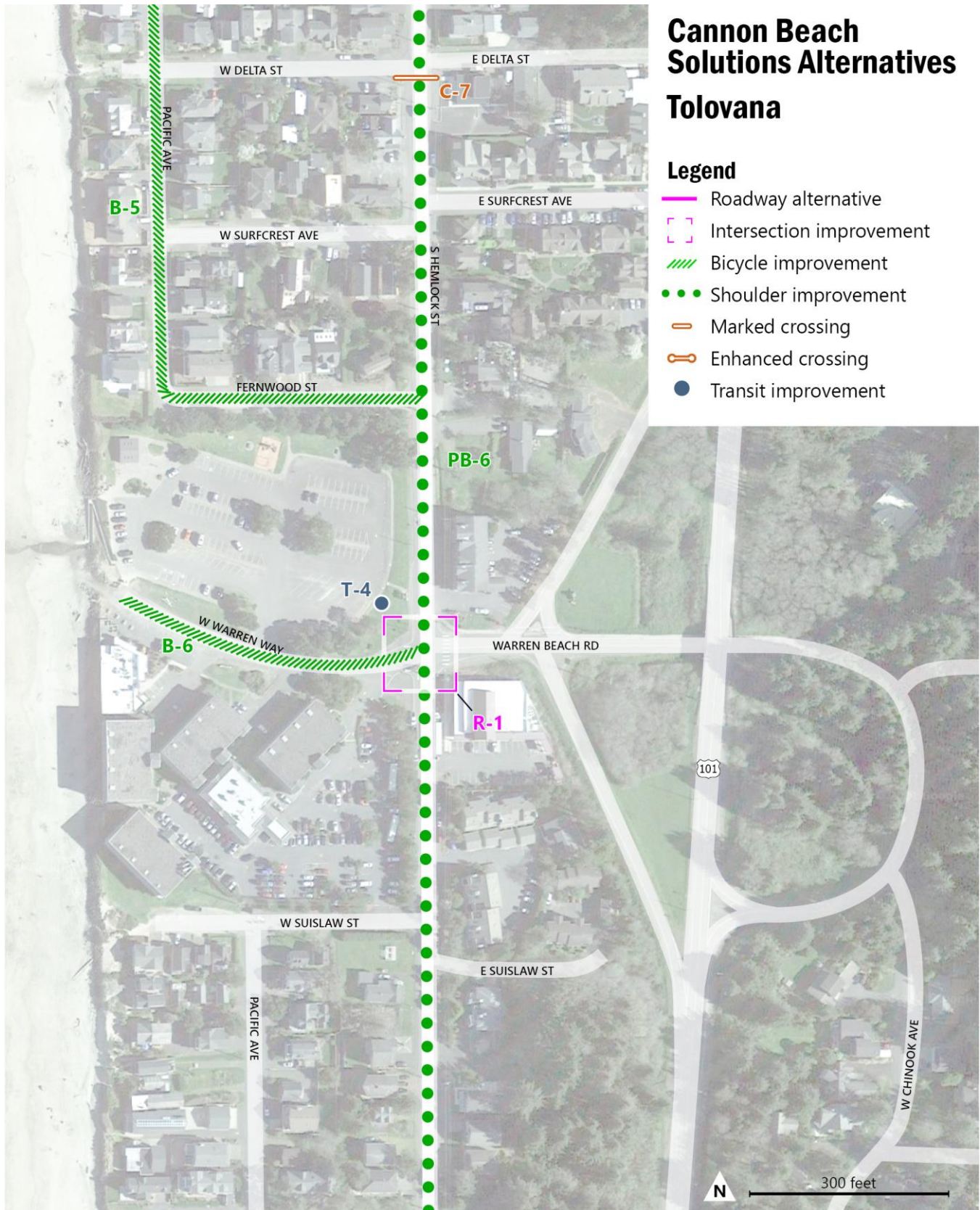
- Roadway alternative
- [] Intersection improvement
- /// Bicycle improvement
- ● ● Shoulder improvement
- Marked crossing
- Enhanced crossing
- Transit improvement



Figure 3. Preferred Alternatives: Downtown



Figure 4. Preferred Alternatives: Midtown



The following sections describe the preferred alternatives in more detail.

2.1 Roadway Alternatives

The preferred roadway alternatives (Table 2) address transportation needs and deficiencies related to the City's overall street and roadway network, including issues related to traffic delays and bottlenecks, parking, and intersection safety. Roadway alternatives aim to improve safety and comfort for people driving as well as for people walking, biking, or using a mobility device, as these road users are more vulnerable than drivers when interacting with vehicles. The City's most significant roadway issues stem from peak-season visitor impacts, including traffic delays, congestion, and parking constraints. The high volumes of pedestrian crossings – especially in Downtown Cannon Beach – also contributes to traffic delays and safety issues at intersections. Figure 6 and Figure 7 below display the preferred roadway alternatives.

Table 2. Recommended Roadway Alternatives

ID	Description	Cost	Priority
R-1	Intersection at S Hemlock Street and Warren Beach Road		
R-1a	All-way (4-way) stop control	\$7,000	Near
R-3	Intersection at Sunset Boulevard and Hemlock Street		
R-3b	Unconventional stop control: Implement a three-way stop by adding a stop sign to northbound Hemlock (and keeping southbound Hemlock free)	\$2,000	Long
R-4	Intersection at 1st Street and Hemlock Street		
R-4a	All-way (4-way) stop control	\$4,000	Near
R-4c	Mini roundabout	\$924,000	Long
R-5	2nd Street and Hemlock Street		
R-5a	All-way (4-way) stop control	\$4,000	Near
R-5b	Mini roundabout	\$924,000	Medium
R-7	Hemlock Street between 1st Street and 3rd Street		
R-7a	Couplet with Hemlock and Spruce	\$129,000	Medium
R-7b	Hemlock Pedestrian Plaza – 1st Street to 3rd Street	\$105,000	Near

Cannon Beach Roadway Alternatives North Segment

Legend

- Roadway alternative
- [] Intersection improvement

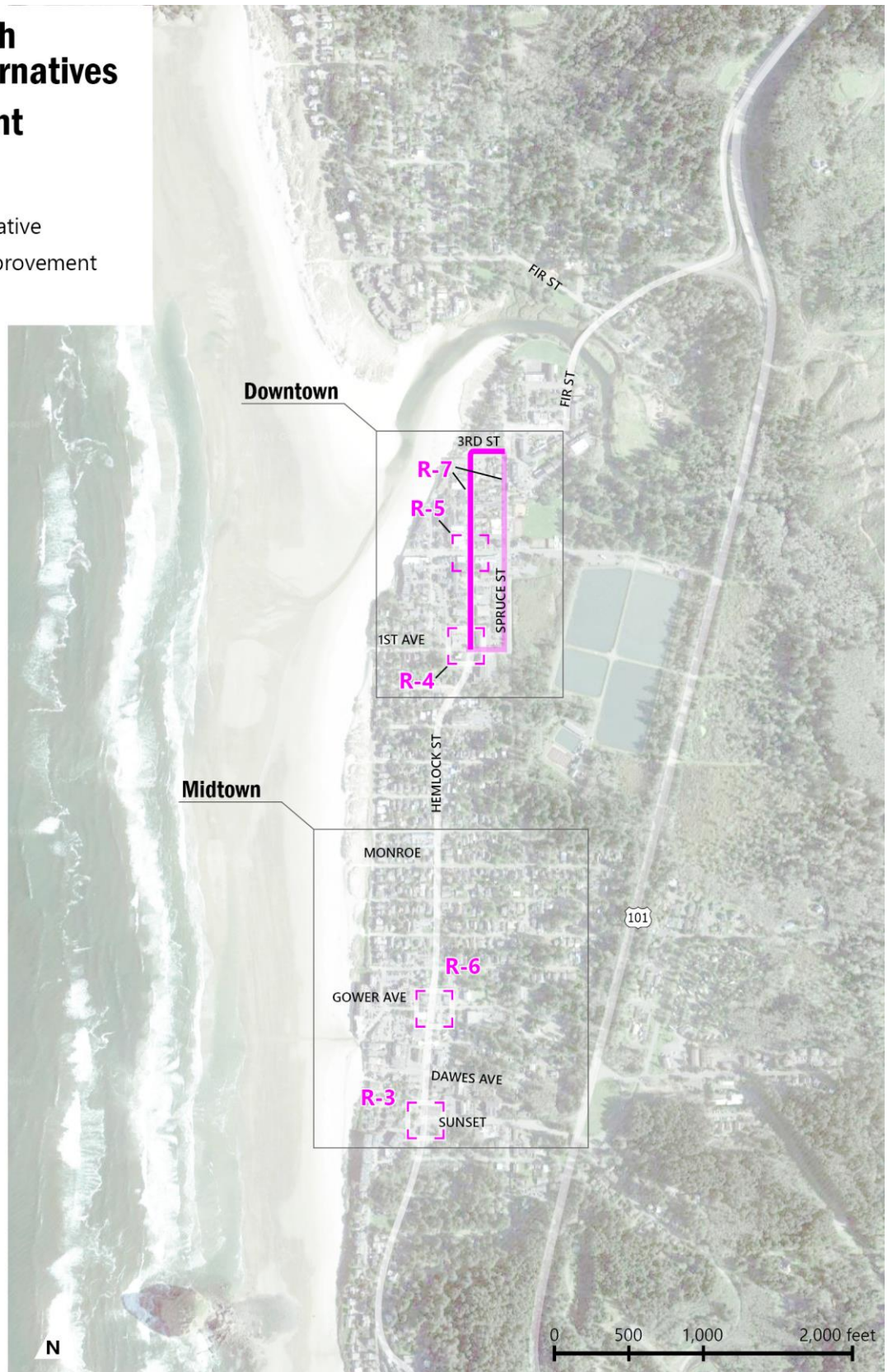


Figure 6. Roadway Alternatives: North Segment

Cannon Beach Roadway Alternatives South Segment

Legend

- Roadway alternative
- Intersection improvement



Figure 7. Roadway Alternatives: South Segment

2.1.1 Hemlock Street

Hemlock Street is the City’s main commercial and cultural corridor, as well as the primary north-south connection through town. The preferred roadway alternatives address the corridor’s primary transportation issues such as a lack of stop controls along Hemlock Street resulting in congestion for intersecting side streets, high pedestrian crossing volumes and associated safety concerns, and seasonal delays on the Hemlock mainline.

The intersection mobility analysis completed as part of *Technical Memorandum #4: Alternatives Analysis and Funding Program* found that several side streets intersecting with the Hemlock Street mainline would function at level-of-service (LOS) F by 2040.⁴ The intersections at 2nd Street, 1st Street, Gower Street, and Sunset Boulevard are all expected to operate at LOS F under Future No-Build conditions.

The preferred roadway alternatives described below were selected for generally improving side street mobility and operations compared to the Future No-Build scenario. The improved mobility conditions for side streets would only result in relatively minor impacts to the Hemlock mainline or in the case of the roundabout concepts, resulted in low to no negative impacts to LOS along Hemlock.

The following subsections describe the preferred alternatives along the Hemlock corridor.

2.1.1.1 All-Way Stop Controls

The existing intersections at Hemlock Street and 1st Street, 2nd Street, E Gower Avenue, Warren Beach Road, and Sunset Boulevard all currently have 2-way stop control for the streets intersecting Hemlock; Hemlock does not stop. Traffic delays and safety issues are significant for those waiting to turn onto Hemlock and are exacerbated by relatively high traffic volumes along Hemlock Street (especially during peak visitor season) and high pedestrian crossings. In addition, during peak tourism season pedestrian volumes in Downtown Cannon Beach are comparable to large cities like Portland, which can lead to right-of-way safety issues and slow traffic. With tourism expected to increase in the future, all-way stop control alternatives were identified to address current and future operational and safety needs along the Hemlock corridor.

The preferred alternatives include all-way stop controls at the following intersections:

- N Hemlock Street at 1st Street (R-4)
- N Hemlock Street at 2nd Street (R-5)
- S Hemlock Street at Warren Beach Road (R-1)
- S Hemlock Street at Sunset Boulevard (R-3)



Figure 8. Typical 4-Way Stop

⁴ Level of service (LOS) is a traffic analysis metric that describes how well an intersection flows and operates. Intersections receive a LOS grade from “A” to “F”, where LOS “A” represents the best conditions with minimal delay at the intersection and LOS “F” represents the worst conditions. See *Technical Memorandum #5: Alternatives Analysis and Funding Program* and appendices to review the complete Intersection Mobility Analysis.

As reported in *Technical Memorandum #5: Alternatives Analysis and Funding Program*, the traffic analysis results show that adding stop controls along Hemlock would improve corridor congestion and flow by minimizing side street delays at intersections, with some trade-offs on Hemlock Street. Note, the preferred alternatives do not include a recommended improvement for N Hemlock Street and Gower Avenue; the traffic analysis found that all-way stop control at this location would disproportionately impact operations on N Hemlock Street, while other intersection improvements such as adding left- and right-turns to facilitate travel from Gower Avenue onto/off of Hemlock would require significant physical impacts to the existing intersection configuration with minimal operational benefits. The following subsections provide a brief summary of each of the preferred stop control alternatives and trade-offs.

2.1.1.1.1 N Hemlock and 1st Street All-way Stop Control (R-4a)

All-way stop control at N Hemlock and 1st Street would reduce delays on 1st Street and facilitate access and turns on and off N Hemlock. All-way stop control would bring LOS at N Hemlock and 1st Street from B and F (future no-build) to C and B (2040), respectively. Although implementing stop controls at this location would lower LOS on the Hemlock mainline from B to C, these results indicate that all-way stop controls would help balance north-south and east-west operations through this intersection, resulting in a net benefit for all who travel through this intersection.



Figure 9. N Hemlock and 1st Street intersection looking northbound

2.1.1.1.2 N Hemlock Street and 2nd Street All-way Stop Control (R-5a)

At Hemlock Street and 2nd Street, adding all-way stop control would result in similar trade-offs as Hemlock at 1st Street. All-way stop controls at N Hemlock and 2nd Street would reduce backups on 2nd Street and facilitate access and turns on and off N Hemlock. However, improving side street operations would result in some trade-offs on Hemlock Street. For example, all-way stop control would bring LOS at N Hemlock Street and 2nd Street from A and F (future no-build) to B and A, respectively. While implementing stop controls at this location would lower LOS on the Hemlock mainline from A to B, the improvements would still result in a net benefit for the intersection and are recommended as part of the preferred alternatives.



Figure 10. N Hemlock and 2nd Street intersection looking northbound

2.1.1.1.3 S Hemlock Street at Warren Beach Road (R-1a)

All-way stop control at S Hemlock Street and Warren Beach Road would facilitate 4-way travel through the intersection while mitigating backups onto Warren caused by vehicles waiting to turn onto Hemlock. **As of this writing, the City of Cannon Beach already has approval to make this an all-way stop and is recommended as a preferred alternative.**

2.1.1.1.4 S Hemlock at Sunset Boulevard – Three-Way Stop Control (R-3b)

This alternative proposes implementing a three-way stop at S Hemlock and Sunset Boulevard by adding a stop sign to northbound S Hemlock, and thereby keeping southbound Hemlock traffic free. This improvement would address known vehicle queue backups onto Sunset and the southbound ramp into town from US 101 while preserving southbound travel (and left turns onto Sunset) along Hemlock – the heaviest traffic movement through this intersection (Figure 11).

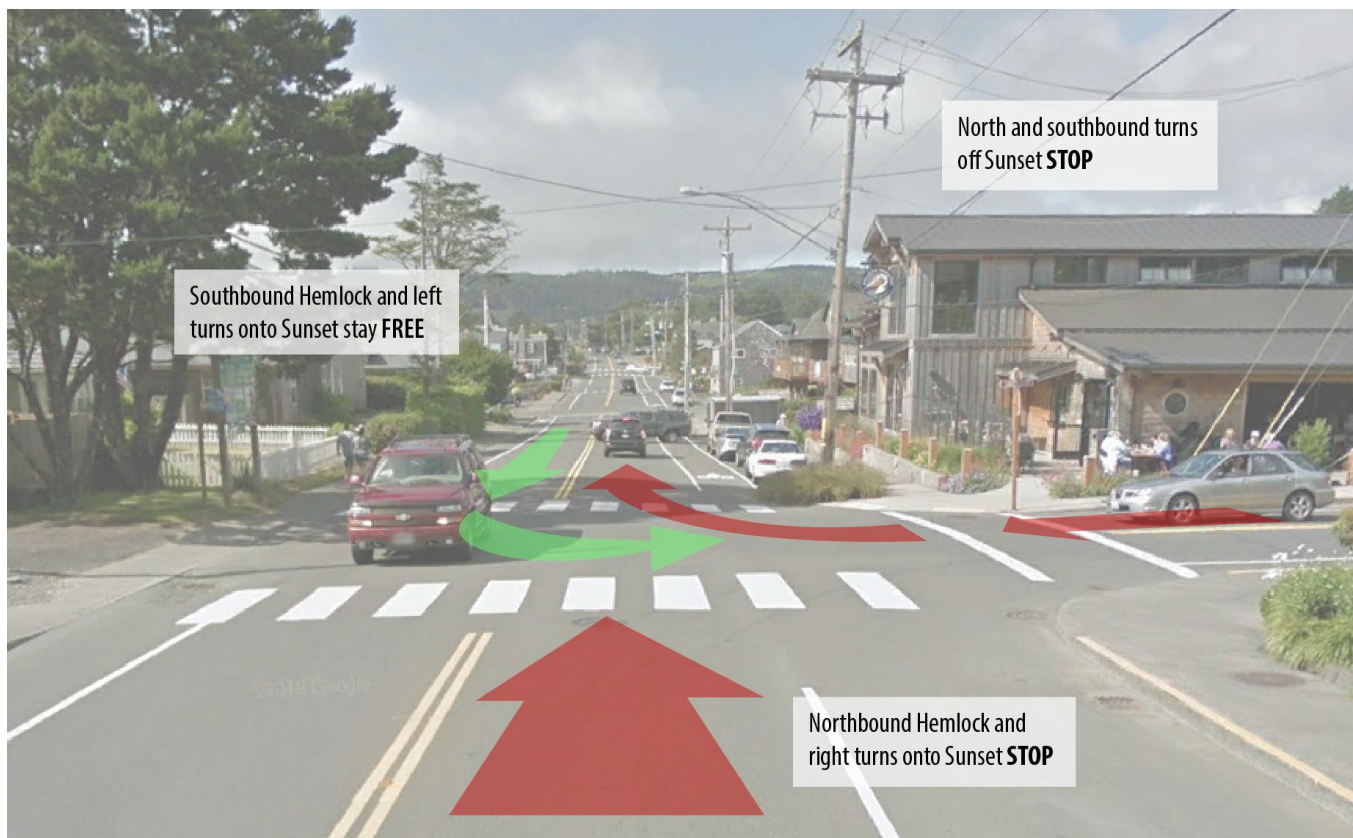


Figure 11. S Hemlock at Sunset Boulevard – Three-Way Stop Control (R-3b) Conceptual Diagram

The traffic analysis results show that three-way stop control at this location would bring LOS on S Hemlock and Sunset Boulevard from A and F (future no-build) to D and C, respectively. Although LOS on S Hemlock would still deteriorate from A to D under this scenario, the overall delay at the intersection would be reduced from 73 seconds (future no-build) to 53 seconds, representing a net operational benefit at the intersection level. Furthermore, delays on Hemlock would be greater in the northbound direction, where travel demand is lower on the corridor. Therefore, this improvement is recommended as a preferred alternative for balancing mainline and side-street operations.

2.1.1.2 Mini Roundabouts

Mini-roundabouts are longer-term investments dependent on future funding, further study, and ongoing engagement with community members. All-way stop control could be implemented as near-term, interim treatments while mini-roundabouts are more appropriate as long-term goals.

Mini-roundabouts are preferred given they can be constructed at a lower cost, use a significantly smaller physical footprint, and require fewer right-of-way impacts compared to a conventional roundabout. There is also existing design guidance for mini-roundabouts that would be appropriate for the existing right-of-way on Hemlock Street (approximately 35 feet) (Figure 12). However, implementation may require some parking removal on the approaches to the intersection and more detailed analysis is needed to determine feasibility. To be functional in Cannon Beach, mini roundabouts would also need to accommodate emergency vehicles and delivery trucks. The design would also need to accommodate safe and comfortable biking and could include landscaping or artwork to make it a community feature.



Figure 12. FHWA Diagram of a conceptual mini-roundabout with pedestrian elements

The main benefit that mini-roundabouts would bring Cannon Beach as compared to all-way stops is that the roundabout would improve side street operations **while also improving operations on the Hemlock mainline.** This means that side street operations could be significantly improved without any reductions to LOS on Hemlock. Mini-roundabouts would maintain traffic flow and facilitate turns at intersections while minimizing the need for full stops and keeping speeds relatively low. Mini-roundabouts would also facilitate merges from side streets onto Hemlock more efficiently and safely than three- or four-way stop controlled intersections and can reduce auto/pedestrian conflict points at intersections.

The preferred alternatives include mini roundabout treatments at:

- Hemlock Street and 1st Street (R-4c)
- Hemlock Street and 2nd Street (R-5b)

Because of the higher costs and levels of impact associated with mini-roundabouts, they are generally recommended as longer-term projects to be implemented as funding becomes available through grants or other means. However, a mini roundabout treatment at the intersection of Hemlock Street and 2nd Street is prioritized as a medium-term project due to the level of congestion and pedestrian crossings at this location. The following subsections provide a brief summary of each of the preferred mini-roundabout alternatives.

2.1.1.2.1 Hemlock Street and 1st Street Mini-Roundabout (R-4c)

A mini-roundabout at N Hemlock and 1st Street would facilitate 4-way vehicle movements through the intersection while minimizing the need for full stops. The mini-roundabout would also provide locations for pedestrian crossings and traffic calming through the intersection.

A mini-roundabout would bring LOS at N Hemlock and 1st Street from B and F (future no-build) to A and A, respectively. The mini-roundabout would also reduce delay through the intersection by more than 2 minutes.

2.1.1.2.2 Hemlock Street and 2nd Street Mini-Roundabout (R-5b)

At N Hemlock and 2nd Street, a mini-roundabout offers similar benefits to the preferred alternative at N Hemlock and 1st Street. Vehicle movements along the Hemlock mainline and 2nd Street would be facilitated while minimizing the need for full stops. A mini-roundabout would also improve pedestrian crossing conditions by providing new places for people to wait and cross while also providing traffic calming through the intersection.

A mini-roundabout would preserve an LOS of A (future no-build) along N Hemlock. At 2nd Street, a mini-roundabout would improve LOS from a grade of F (future no-build) to A, saving approximately 4 minutes of delay at the intersection. Given the high level of congestion, pedestrian crossings, and significant operational benefits a mini-roundabout would bring at this location, this project is recommended as a medium-term improvement as further study is conducted and funding becomes available.

2.1.1.3 Downtown Corridor Improvements

In addition to the previously described stop controls, the preferred alternatives include corridor improvement concepts for addressing congestion and multimodal travel needs through Downtown Cannon Beach. Downtown Cannon Beach is distinct from other parts of the City as the town's cultural and commercial hub, with high levels of year-round activity from drivers, pedestrians, people bicycling, and people on mobility devices. Downtown also serves as a popular access point to the beach and is served by a concentration of local shops, cafes, and restaurants. The preferred alternatives aim to support the local economy, address parking constraints, improve safety, and expand places for comfortable walking and biking. The preferred Downtown corridor alternatives for are described in the following subsections.

2.1.1.3.1 Hemlock Pedestrian Plaza – 1st Street to 3rd Street (R-7b)

This project would close N Hemlock Street to motor vehicle traffic between 1st Street and 3rd Street while allowing pedestrian and bike access. Cross traffic along 2nd Street would likely be diverted through the N Larch Street and N Spruce Street intersections. The pedestrian plaza is envisioned to celebrate the Cannon Beach town center, creating a safe place for people of all ages and abilities to enjoy a pedestrian-oriented and car-free environment.

The project would also remove on-street parking on Hemlock Street from 1st Street to 3rd Street. By not allowing parking in the plaza, vehicles would be diverted to other nearby streets and reduce the negative effects of people circling Downtown looking for a parking spot. Limiting parking through the plaza and addresses safety issues resulting from people pulling in and out of parking spaces. The extra street space could be used for loading zones (for deliveries or Americans with Disabilities Act [ADA]), bicycle parking or travel, businesses access, the creation of parkettes, outdoor café seating, or other uses.

The plaza could be implemented in a variety of ways:

- On a temporary or pilot basis to understand benefits and impacts (Figure 13)
- Seasonally, during periods of high pedestrian demand
- During certain days of the week, e.g., only on weekends, one day a month, etc.
- Year-round

Short-term options would consist on movable elements like signage and temporary traffic controls. Permanent treatments could incorporate the use of pavement markings and fixed signage.

If the plaza was made permanent, the project also recommends removal of parking on 2nd Street from Spruce Street to the beach. Parking removal on 2nd Street would further reduce traffic congestion and parking constraints in Downtown and would improve safety and operations at the N Hemlock and 2nd Street intersection. Parking removal on 2nd Street is not recommended if the plaza is only implemented on a pilot basis.

Because of the overall reduction of parking capacity in Downtown, this alternative should be implemented with other transportation demand and parking management strategies to create efficient and convenient access to nearby parking and to maintain access to local businesses. Implemented in such a way, this alternative could help reduce the overall level of car traffic and congestion through Downtown. Parking would be diverted to other nearby areas and would boost the efficient use of off-street parking. Reducing on-street parking capacity through Downtown would encourage people to travel by other modes, and could result in a more pedestrian-friendly, safe, and comfortable Downtown experience for residents and visitors alike (Figure 13).



Pilot Project:

Temporary Pedestrian Plaza Between 1st and 2nd Street

Based on feedback from the general public, Cannon Beach City Council, Planning Commission, and staff, a temporary pilot demonstration between 1st and 2nd Street is recommended to test how the pedestrian plaza affects circulation and foot traffic for businesses. The pilot would be a first step to implementing the preferred alternative between 1st and 3rd Street.

Figure 13. Pedestrian Plaza on Park Avenue in Laguna Beach, CA. The plaza features temporary traffic diverters and create a pedestrian and bicycle-only area for seating, dining, and shopping.

The plaza supports pedestrian-oriented tourism and local business while also addresses local air quality, light pollution, and traffic congestion. By reclaiming the space that would normally be used for driving, the space can

be converted for a range of community uses, outdoor dining, farmers' markets, craft or art fairs, concerts, or other public celebrations. There are annual opportunities to implement them in coordination with festivals like Savor Cannon Beach or the Sandcastle Contest. Other features, like food cart clusters and playgrounds, can also draw people.

To be most successful, the pedestrian plaza concept would be implemented along with other transportation demand management strategies such as a visitor and/or employee shuttle and parking passes for designated areas throughout town. The pedestrian plaza would need to preserve access for people using mobility devices, emergency, and business deliveries. The plaza would also need to allow access for deliveries, trash pickup, and emergencies. This would have to be coordinated with property owners, waste services, and emergency services. A circulation study is recommended to assess the business access and diversion impacts to identify the optimal street configuration.

2.1.1.3.2 Hemlock/Spruce Couplet Conversion (R-7a)

This project would convert N Hemlock Street and N Spruce Street from a pair of two-way streets to into a pair of one-way streets, also known as a couplet (Figure 14). A couplet refers to a pair of parallel, one-way roads. While Alternative (R-7a) could be configured in several different ways, this analysis proposes N Hemlock Street as a single lane of southbound traffic and N Spruce Street as a single lane of northbound traffic extending from 3rd Street to 1st Street (Figure 15). The couplet concept could be implemented on a pilot basis to test operations or permanently pending further analysis and community support (Figure 16). Short-term options would consist on movable elements like signage and temporary traffic controls. Permanent treatments would incorporate the use of pavement markings, fixed signage, and other permanent traffic control devices.

It is important to note that this project and the Hemlock Pedestrian Plaza (R-7b) are mutually exclusive; while both are recommended as near-term solutions that the City and community members could choose to pursue, the implementation of one would preclude the implementation of the other. Therefore, additional study and refinement by the City are required to decide which of these concepts is the preferred alternative.

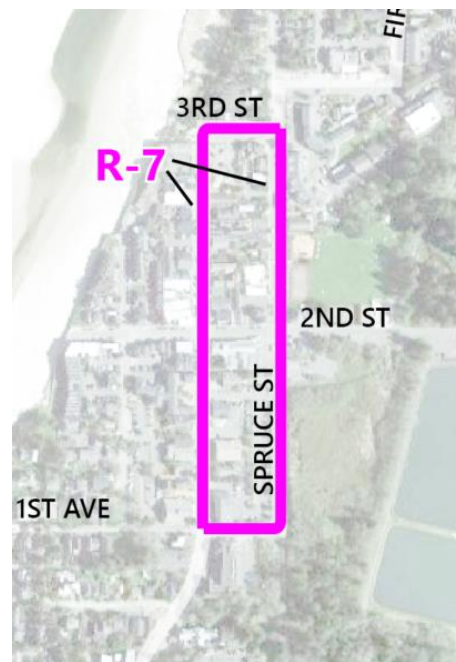


Figure 14. Hemlock/Spruce Couplet Conversion (R-7a)

On N Hemlock Street, the couplet project would help balance operations between the Hemlock mainline and side streets, while maintaining a high level of mobility on Hemlock and creating new on-street space for multimodal improvements.

- At N Hemlock and 2nd Street, the couplet would change LOS from A (future no-build) to B. However, the couplet would also improve LOS on 2nd Street from F (future no-build) to A, saving approximately 4 minutes of delay. The net impact of the couplet at this intersection would significantly improve side street operations while preserving mobility on the Hemlock mainline.
- At N Hemlock and 1st Street, the couplet would improve LOS from B and F (future no-build) to B and E. The operational benefits at this location would not be as significant as at the 2nd Street intersection, although the couplet would still prevent operations at 1st street from failing by 2040. The couplet would also reduce 1st Street intersection delay by more than 1 minute.

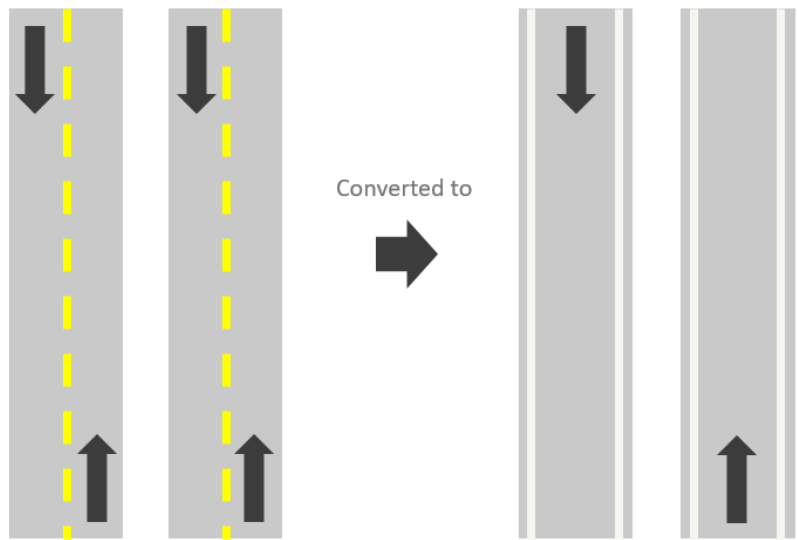


Figure 15. Concept diagram showing the conversion of two parallel, two-way streets into a pair of one-way streets (couplet)



Figure 16. Concept diagram showing temporary implementation of the Hemlock/Spruce couplet.

On N Spruce Street, the couplet would result in minimal negative operational impacts to the Spruce mainline while improving side street congestion and reducing intersection delay.

- At N Spruce Street and 3rd Street, the couplet would maintain an LOS of B (future no-build) on Spruce while reducing delay by 2 seconds. At 3rd Street, the couplet would improve LOS from B (future no-build) to A, reducing delay by 3 seconds.
- At N Spruce and 2nd Street, the couplet would maintain future no-build LOS grades of B and A, respectively. However, the couplet would add a total of 2 seconds of delay to the intersection as a whole.

The couplet concept could entail reconfiguring the roadway in multiple ways. By reducing to a single travel lane in each direction, additional room would become available for increasing parking capacity and for improving conditions for people walking, bicycling, or using a mobility device. For example, the repurposed roadway space could be used to install one-way bicycle lanes on a temporary or permanent basis. There would also be enough space to physically protect these bicycle lanes from vehicle traffic using cost-effective treatments like raised flower beds or decorative bollards. Pedestrian crossings would become safer since people would only need to cross one lane of traffic.

This concept would also preserve on-street parking space and makes angled parking possible, which is easier for drivers to pull into than parallel spaces, reducing disruptions to traffic flow. If angled parking is preferred, back-in parking could be considered because it allows for better visibility when pulling into traffic and it reduces the risk of a large vehicle extending into the roadway. However, back-in angled parking can be challenging where users are not familiar with backing in.

Although the roadway can be reconfigured in multiple ways, three parking configuration options were identified:

- Two lanes of parallel parking with bike lane
- One lane of parallel parking and one lane of angled parking
- One lane of angled parking with a bike lane
- Select parking removal

Figure 17 through Figure 19 below display some possible configurations and typical cross sections for the couplet concept.

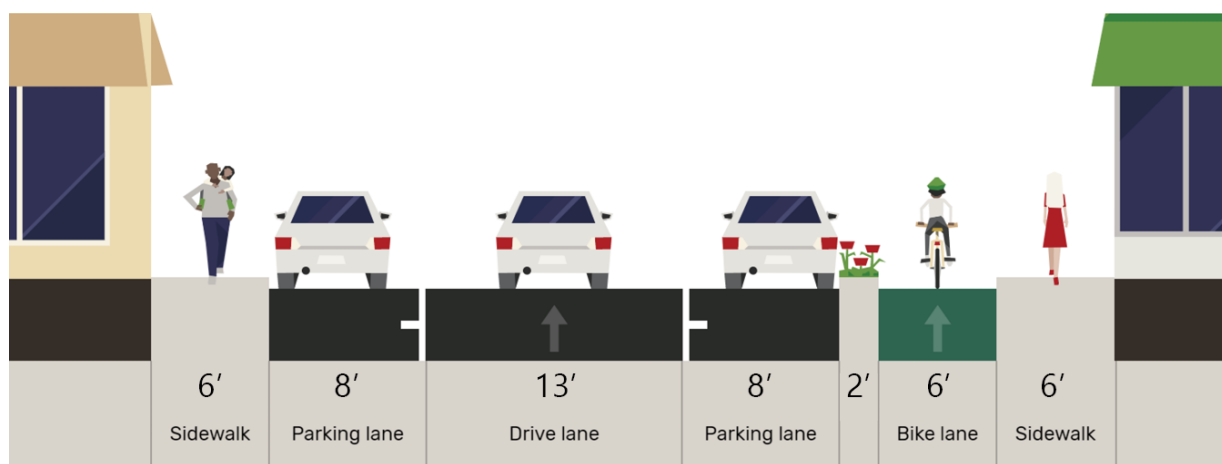


Figure 17. Alternative (R-7a) Configuration 1: Two Lanes of Parallel Parking with Protected Bike Lane

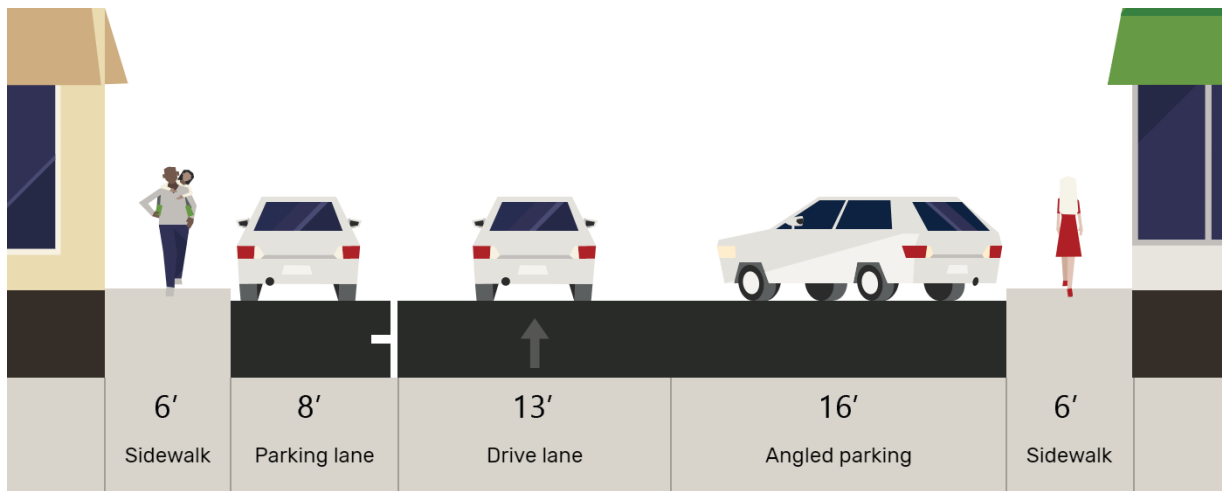


Figure 18. Alternative (R-7a) Configuration 2: Parallel Parking with Angled Parking (No Bike Lane)

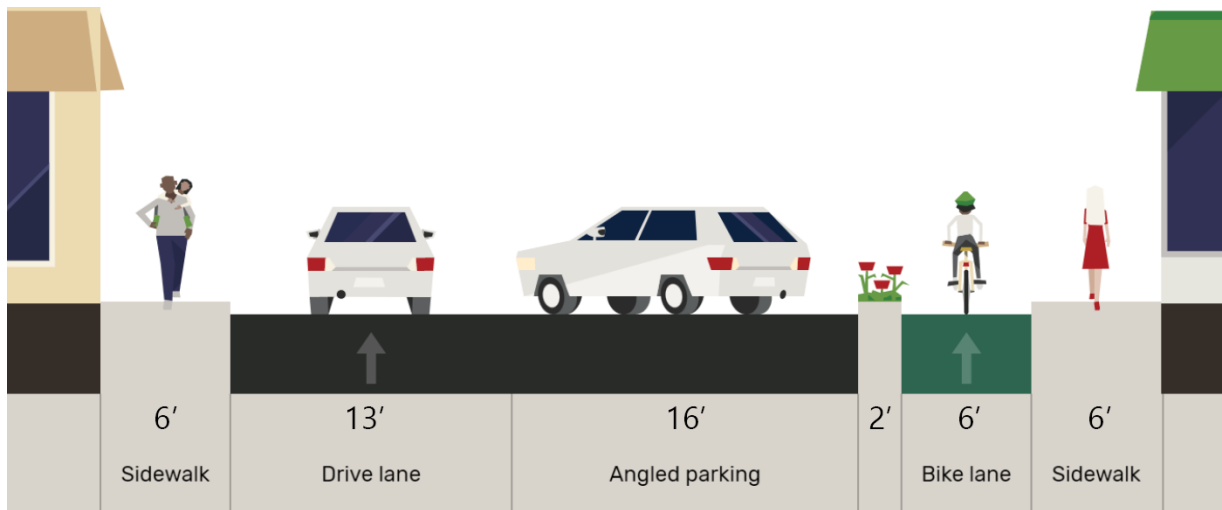


Figure 19. Alternative (R-7a) Configuration 3: One Lane of Angled Parking with Protected Bike Lane

2.1.2 Access Management and Spacing

While proposing specific driveway closures is outside of the scope of the TSP, the alternatives analysis considered future access management strategies and opportunities to improve access management on City streets, as well as recommended strategies to adjust current access points to US 101 based on OAR Chapter 734 Division 051, and City access goals and ordinances. Few access management strategies were identified. The City has a current policy in place to limit access along Hemlock Street – the main corridor that would benefit from local access changes. Conceptual amendments to the City’s development code to address access management and spacing opportunities are provided in *Appendix C: Conceptual Development Code Amendments*.

2.2 Parking Management Strategies

The preferred strategies for managing the City’s parking are summarized in Table 3 below. These strategies focus on more efficient use of the City’s existing parking supply using cost-effective and scalable treatments. According to public feedback, the highest priority strategies include identifying remote parking lots for

employees and overflow visitor use, imposing time restrictions for some on-street parking spaces, and striping existing on-street parking stalls. Some parking management strategies would also be enhanced by transportation demand management and transit strategies, which could include mobility hubs, educational campaigns, and other improvements that would increase the ability to get around town without a vehicle.

Table 3. Parking Management Strategies

ID	Location (if applicable)	Description	Considerations
PM-1	N Hemlock N Spruce 1st Street 2nd Street 3rd Street	<i>Stripe on-street parking stalls in <u>Downtown</u></i>	Striping on-street spaces is a customer-friendly amenity, particularly in heavily touristed Downtowns. It will also result in more efficient parking, allowing more vehicles, on average, to park on-street on a typical day. Stalls should be striped to Manual on Uniform Traffic Control Devices (MUTCD) standards.
PM-2	S Hemlock from Gower to Sunset	<i>Stripe on-street parking stalls in <u>Midtown</u></i>	Creates a more efficient parking format for visitors to Midtown, allowing more vehicles to park on-street on a typical day.
PM-3	Combine new signage with stall striping strategy (PM-1) above	<i>Install clear, legible signage for on-street parking stalls</i> <ul style="list-style-type: none"> • Signs should indicate time limitation (if applicable, e.g., 3 hours, 10 hours), hours of enforcement, and a directional arrow indicating the stalls where the restrictions apply • To maintain visibility, while avoiding street clutter, signage should be placed approximately every 100–125 feet 	This strategy should be done in conjunction with stall striping. Combined, the two work well together to reassure visitors that they can park for a specified time without fear of a citation. Without any signage, visitors are left to wonder what parking restrictions may be.

ID	Location (if applicable)	Description	Considerations
PM-4	Should apply to the same streets as described in PM-1	<i>Remove painted curbs throughout the Downtown study area</i>	For painted curbs to be effective (i.e., accurately communicate parking restrictions) requires regular on-going maintenance. Faded curb paint can be confusing to visitors as to whether the parking restriction still applies. Painted curbs can also mean different things in different jurisdictions, which is why curb-based management is primarily done with signage. It reduces ambiguity and clearly communicates to users permissible use of the curb space.
PM-6	<p>Spruce between 1st and 2nd Streets</p> <p>Larch between 1st and 2nd Streets</p> <p>A portion of the public lot on west side of Spruce</p> <p>A portion of the off-street lots along E 2nd Street</p>	<p><i>Designate employee parking locations on and off-street</i></p> <ul style="list-style-type: none"> • Signage should be clear to users that these spaces are prioritized for employee use • The effectiveness of this strategy will be stronger when combined with the implementation of PM9, Employee Parking Permits 	Signing specific areas for employee parking on the edges of Downtown preserves a dedicated amount of parking to support Downtown employee access.

ID	Location (if applicable)	Description	Considerations
PM-7	Begin with Hemlock, 1st, 2nd and 3rd Streets	<p><i>Impose time restrictions for on-street parking (e.g., 3 hours)</i></p> <ul style="list-style-type: none"> Visitors needing longer stays can park on Larch or Spruce or in any public off-street parking lot 	<p>Today, prime on-street parking is being used by some visitors and employees for all-day parking. Time limiting parking on Hemlock and the east/west streets will increase turnover, allowing more visitors to access the Downtown. It will also encourage employees to seek out less convenient stalls on the periphery of Downtown.</p> <p>If successful, time restrictions could be expanded to additional on-street locations, provided enough off-street (non-time limited) spaces are identified for use. This can also be done in combination with employee parking permits but would require greater resources to manage the program.</p> <p>Could include seasonal time limits for peak season</p>
PM-8	Must be combined with the implementation of PM7	<p><i>Conduct periodic parking enforcement of time-limited parking</i></p>	<p>If the City elects to implement time restrictions on on-street parking, it will become necessary to enforce those time restrictions. Without enforcement (and penalties), compliance with time restrictions will be greatly reduced, particularly among employees.</p>
PM-9		<p><i>Transition to employee parking permits</i></p> <ul style="list-style-type: none"> This strategy would be triggered along with strategies PM-6 and PM-7 Permits should be used in specific designated on and off-street locations 	<p>This strategy becomes more important with the expansion of on-street time restrictions. Actively managing parking in the Downtown will begin to restrict parking options for employees. Therefore, it is important that they are given reasonable alternatives where they can park (either on or off-street). See PM-6.</p>

ID	Location (if applicable)	Description	Considerations
PM-10	Lots outside of the Downtown	<i>Identify remote parking lots for employee and overflow visitor use</i>	<p>These lots should be linked via the existing shuttle service that serves Cannon Beach, the NW Connector.</p> <p>These lots should have a base design standard to encourage greater use, particularly if visitors are expected to use them. Base design standards include striping, signage, lighting, landscaping, drainage, safe ingress/egress, etc.</p> <p>This strategy will be more effective once Downtown parking occupancies regularly exceed 90%.</p>

2.3 Pedestrian and Bicycle System

The preferred pedestrian and bicycle alternatives focus on improving the connectivity, safety, access, and comfort of the City's integrated pedestrian and bicycle network. An emphasis was placed on identifying a network of improvements that would create a continuous north-south connection for safe and comfortable walking and bicycling through Cannon Beach.

Opportunities to tie into the City existing and planned network of trails and multi-use paths were also assessed, with the goal of finding routes that could serve multiple purposes (e.g., walking, cycling, evacuation routes). A range of treatments were identified to provide options to meet the community's strong desire to preserve a village look and feel. Pedestrian and bicycle alternatives also seek to improve non-vehicle links to the City's evacuation system.



Figure 20. Multiuse Path Example

Table 4 summarizes preferred pedestrian and bicycle alternatives ranging from low-stress neighborhood bikeway treatments to investments in off-street, multiuse paths (Figure 20). Note that these improvements would provide substantial benefits to both pedestrians and bicyclists. Figure 21 displays the preferred pedestrian and bicycle alternatives on a map. The City's revised assembly areas are also shown on the map to illustrate planned pedestrian and bicycle connections to the City's emergency response and evacuation system. The pedestrian and bicycle system stresses improving access to the assembly area at Spruce Street and Arbor Lane via the existing Haystack Hill Trail. This is the closest assembly area to Midtown and Downtown. Improved connections are also proposed to the assembly area at Yukon Street and US 101.

Table 4. Pedestrian and Bicycle Facility Preferred Alternatives

ID	Description	Cost	Priority
PB-1	Multiuse Trail from 2nd Street to Monroe Street	\$415,000	Near
PB-2	Spruce Pedestrian and Bicycle Route	\$1,104,000	Near
PB-3	S-Curves Multiuse Bypass	\$1,623,000	Near
PB-4	US 101 to Spruce/Haystack Hill Trail	\$656,000	Near
PB-5	S Hemlock S-Curves Improvements – Sunset to Yukon	\$134,000	Medium
PB-6	S Hemlock Shoulder Improvements – Yukon to Maher St	\$290,000	Near

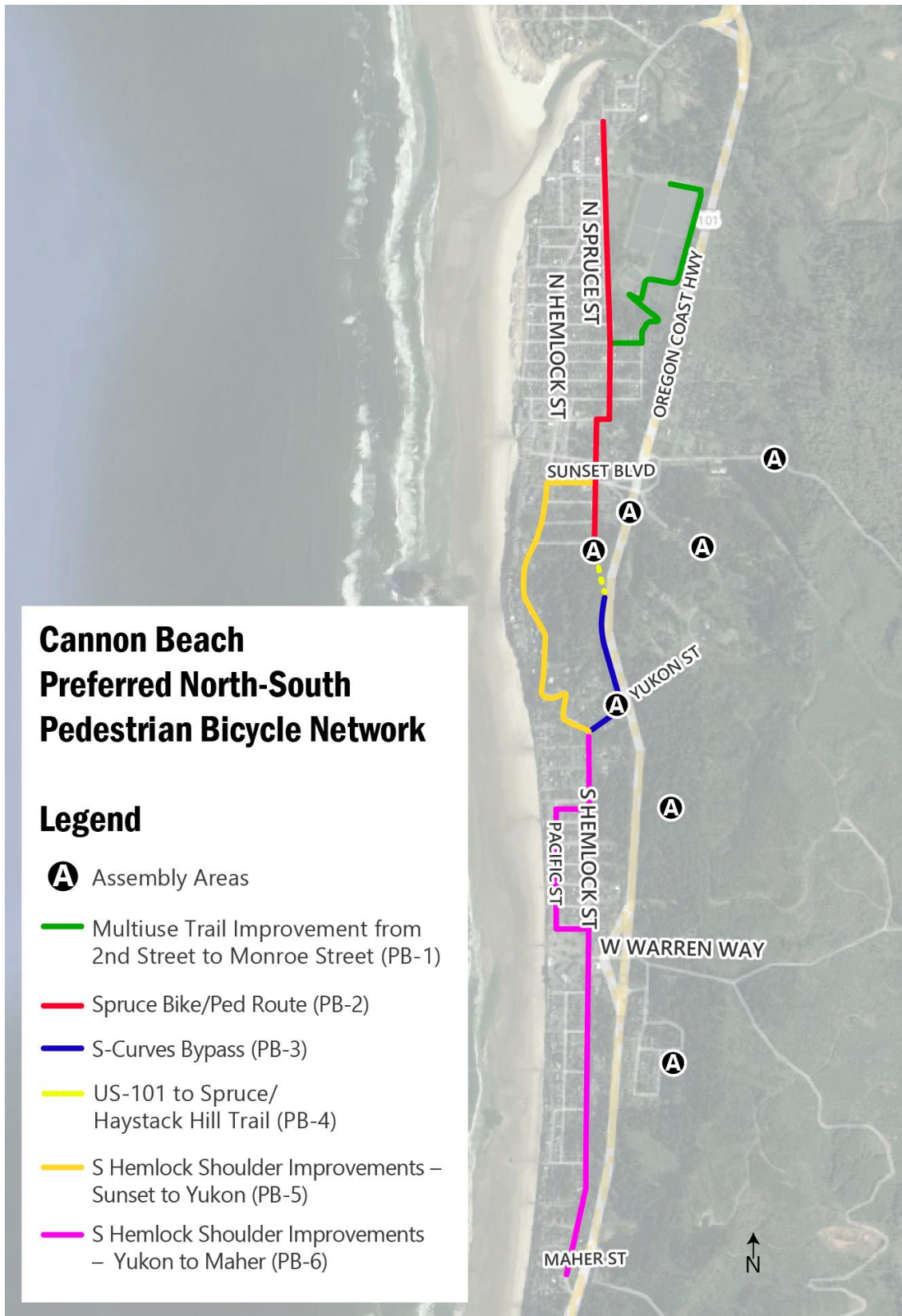


Figure 21. Preferred Pedestrian and Bicycle Alternatives

2.3.1 Downtown to Midtown Pedestrian and Bicycle Improvements

Although pedestrian and bicycle improvements are planned along N Hemlock Street, the TSP envisions N Spruce Street as the main north-south corridor for safe and comfortable bicycling, walking, and rolling through Downtown and Midtown Cannon Beach. Spruce Street also functions as an alternate route to the more heavily trafficked Hemlock Street for local travelers and visitors. The Spruce corridor also plays an important role in connecting the City's key evacuation and assembly areas, including the Haystack Rock assembly area accessible at Spruce Street and Arbor Lane via the Haystack Hill Trail. Spruce Street is also planned to receive two mini-mobility hubs, further enhancing Spruce as a critical multimodal corridor through Cannon Beach. The following subsection describes the preferred pedestrian and bicycle improvements for the Spruce Street corridor between 3rd Street and Arbor Lane.

2.3.1.1 Multiuse Trail from 2nd Street to Monroe Street (PB-1)

The Ecola Creek Trail is an existing off-street, paved multiuse trail that connects Fir Street to 2nd Street along the forested stream bank east of Spruce Street. Crossing 2nd Street, the trail continues along a gravel path that follows the perimeter of the detention ponds between 2nd Street and Monroe Street and between Spruce Street and US 101. The Cannon Beach Parks Master Plan previously recommended the creation of the North Multi-Use Trail, that would create a multiuse trail connection from the north end of town to Monroe Street adjacent to US 101. Given the relatively high cost that is expected in order to construct the North Multi-Use Trail in the Master Plan, the preferred alternative would improve the gravel trail on the east side of the retention ponds and create a new multiuse connection from the ponds to Monroe and S Elm Street (Figure 22). Completion of the trail adjacent to the ponds would result in a continuous north-south pedestrian and bicycle connection from the north end of town to S Elm Street, where users could then continue north-south travel along the planned Spruce pedestrian and bicycle corridor. This improvement also facilitates pedestrian and bicycle access to the nearest City evacuation assembly point at Spruce and Arbor Lane.

The preferred alternative provides additional safety benefits by providing an alternate north-south route that avoids the Spruce segment through Downtown. The alternative also provides an off-street option for people biking north and



Figure 22. Multiuse Trail from 2nd Street to Monroe Street (PB-1)

south along the Oregon Coast Bike Route (OCBR) for use and enjoyment by residents and visitors alike.

2.3.1.2 Spruce Pedestrian and Bicycle Route (PB-2)

The Spruce Pedestrian and bicycle Route is the highest-priority improvement planned for the Spruce corridor in the TSP. The preferred alternative would establish an enhanced walk/bike facility on Spruce Street between 1st Street and Arbor Lane, providing an alternate north-south route to Hemlock Street. The route would connect Downtown Cannon Beach to the Haystack Hill evacuation and assembly area at Arbor Lane and would be considered as part of the continuous north-south pedestrian and bicycle route from the north end of town to the southern City limits (Figure 23).

Through the Downtown segment, the route would mainly consist of signage and pavement marking upgrades due to limited right-of-way for dedicated bicycle facilities. Given the lack of space for on-street bike lanes, improvements would include the use of sharrow pavement markings to indicated shared use of the roadway by all users.

South of the Downtown segment, the route would include the construction of hard-packed sidepaths in segments where existing shoulder space is available. Sidepaths would be constructed at grade and could be delineated with pavement striping or with hard-packed materials like compacted gravel or turf (Figure 24). At-grade drainage could be constructed where pooling or flooding issues have been identified by community members. Sidepaths are cost-effective alternatives to traditional sidewalks, are relatively easy to construct, and are appropriate walking facilities in a village context. Where shoulders are too constrained for the construction of sidepaths, improvements would be limited to signage and pavement markings to alert drivers to pedestrians and bicyclists in the existing shoulders. Sharrow pavement markings would be used in places where shoulders are too constrained for safe use by pedestrians and bicyclists.

The exact locations of these sidepaths would need to be investigated further by the City to assess potential right-of-way impacts and constructability issues.



Figure 23. Spruce Pedestrian and Bicycle Route (PB-2)



Figure 24. Sidepath example shows compacted gravel along a repurposed roadway shoulder

2.3.1.3 S-Curves Multiuse Bypass (PB-3)

The Cannon Beach Parks Master Plan previously identified a new connection parallel to US 101 to serve as an off-street bypass to the Cannon Beach S-curves. Building from this concept, the preferred alternative would provide an alternate north-south multiuse path between Arbor Lane and Yukon Street just west of the US 101 corridor. Given the constrained right-of-way that limits pedestrian and bicycle safety improvements through the S-curves without major investment, the project would provide a pedestrian and bicycle bypass around the S-curves for safe and comfortable travel by users of all ages and abilities (Figure 25). The bypass serves as a critical connection within the preferred north-south pedestrian and bicycle route through town, linking to the Spruce Street pedestrian and bicycle corridor to the north (PB-2) and the S Hemlock Street improvements to the south (PB-6 and PB-7). The bypass would also provide an off-street option for people biking north and south along the Oregon Coast Bike Route.

The bypass would also provide a direct connection to two critical evacuation assembly areas. The assembly area at Arbor Lane and Spruce Street junction near the Haystack Hill Trail is the nearest assembly area to Downtown and Midtown. The bypass would also connect to an adjacent assembly area at Yukon Street and US 101. The bypass provides a pedestrian and bicycle-friendly link accessible by the neighborhoods south of the S-curves via Yukon Street and the new off-street connection proposed from US 101 to the existing Haystack Hill Trail (PB-4).

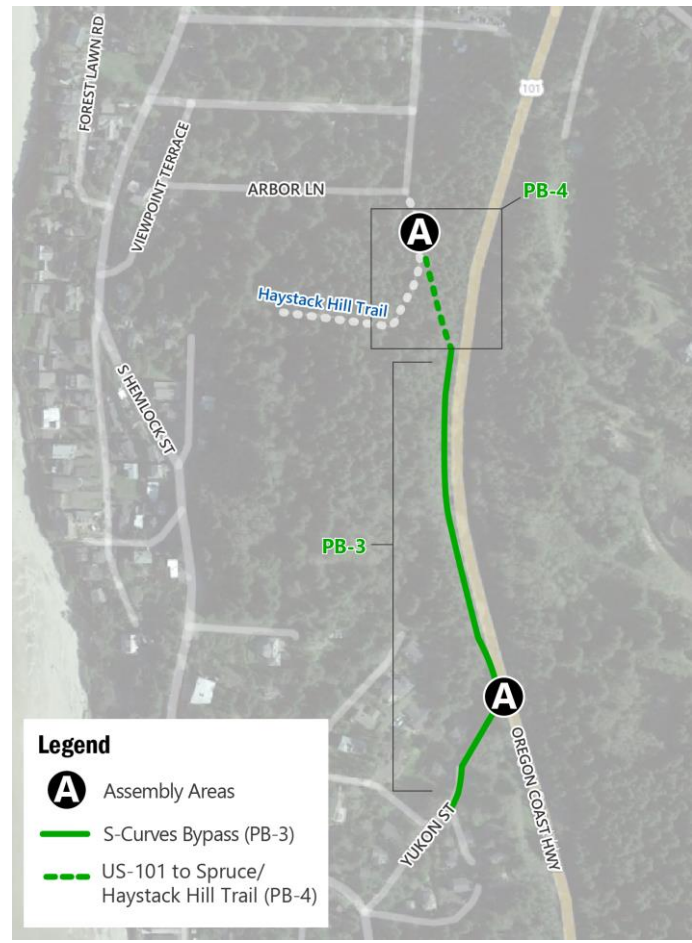


Figure 25. S-Curves Bypass (PB-3) and US-101 to Spruce/Haystack Hill Trail (PB-4)

2.3.1.4 US 101 to Spruce/Haystack Hill Trail (PB-4)

The US 101 to Spruce/Haystack Hill Trail would create a new path connection from US 101 mainline to the existing Haystack Hill Trail and S-curves bypass (PB-3) (Figure 18). This connection would also facilitate access to evacuation route and assembly area at Arbor Lane and Spruce. The trail would begin near the US 101 shoulder and travel up and over the existing forested hill. Given the grade of hill, the trail would likely need to be constructed using switchbacks to maintain ADA accessibility. The trail would consist of hard-packed materials such as sand or gravel and would be constructed at grade. Construction of the trail would involve the removal of some trees and further coordination with ODOT to resolve any access issues from the state highway.

The preferred alternative would improve shoulders along S Hemlock Street in the short segment between Sunset Boulevard and Arbor Lane. The City recently removed on-street parking on the west side of S Hemlock, so this project would utilize pavement markings and signage to designate this space for walking and bicycling. Rumble strips would be installed to help further delineate the driving lane from the pedestrian and bicycle shoulder. Improvements would stop short of the S-Curves where right-of-way is more constrained.

2.3.2 Tolovana Pedestrian and Bicycle Improvements

South of Sunset Boulevard, pedestrian and bicycle improvements on S Hemlock are generally limited given constrained right-of-way; any substantial improvements to widen the roadway would be costly and would require the acquisition of property. For those reasons, improvements south of Sunset are limited to modest improvements to S Hemlock through the S-curves and to Maher Street. The following subsections describe the preferred pedestrian and bicycle alternatives from the Tolovana area to the south City limits.

2.3.2.1 S Hemlock S-Curves Improvements - Sunset to Yukon (PB-5)

The primary pedestrian and bicycle improvement through the S-curves is envisioned as the multiuse bypass (PB-3) linking the Spruce pedestrian and bicycle corridor to Yukon Street. However, modest improvements are also recommended on S Hemlock and Sunset Boulevard for more confident cyclists and/or pedestrians that prefer this route (Figure 26).

Right-of-way and shoulder width is severely constrained and inconsistent on S Hemlock through the S-curves, so the proposed improvements are limited to the implementation of sharrow pavement markings and signage to indicate the presence of cyclists and pedestrians. Where space is available, shoulder markings could be reinforced with rumble strips to alert drivers when they are encroaching in the pedestrian and bicycle space. Rumble strips are generally recommended on the west side of S Hemlock from Sunset Boulevard to Arbor Lane, where the City of Cannon Beach recently restricted on-street parking (Figure 27). This former parking space can be repurposed as a designated walking and cycling space with the use of rumble strips, signage, and pavement markings. There is currently no parking allowed on Sunset Boulevard and the existing shoulders could be repurposed as shoulder bike lanes to connect pedestrians and cyclists on S Hemlock to the Spruce pedestrian and bicycle corridor.



Figure 26. S Hemlock S-Curves Improvements – Sunset to Yukon (PB-5)



Figure 27. S Hemlock looking northbound to the Sunset Blvd intersection. On-street parking has been removed on the west side and could be repurposed for pedestrian and bicycle travel between Sunset and Arbor Lane.

South of Arbor Lane through the S-curves, right of way is more constrained so rumble strips and pavement markings will need to be implemented intermittently where space is available. The exact placement of the improvements will depend on further investigation from the City as implementation funding becomes available.

2.3.2.2 S Hemlock Shoulder Improvements – Yukon to Maher (PB-6)

The preferred alternative would complete the southern leg of a contiguous north-south pedestrian and bicycle connection through Cannon Beach (Figure 28). Given that there are no sidewalks along S Hemlock from Yukon to the south City limits, improvements would primarily consist of pavement markings and signage within the existing roadway shoulders to designate dedicated space for pedestrians and cyclists.

The preferred pedestrian and bicycle route would deviate from S Hemlock Street to Pacific Street from Matanuska Street to Fernwood Street, before continuing south along S Hemlock. This detour would provide greater separation, safety, and comfort for pedestrians and cyclists from the more highly trafficked Hemlock corridor.

The preferred alternative would also pave the gravel segment along Pacific Street between W Delta St and W Surfcrest Ave included as part of the Pacific Street bicycle route (B-5). Paving this segment would increase the accessibility of the route, address drainage issues, and provide a safe connection for use by people in wheelchairs, walkers, and other mobility devices.



Figure 28. S Hemlock Shoulder Improvements – Yukon to Maher (PB-6)

2.3.3 Bikeway Network

In combination with the pedestrian and bicycle alternatives (PB-1 through PB-6), the preferred bikeway alternatives would create a designated bikeway network in Cannon Beach consisting of low-stress, accessible connections for people of all ages and abilities.

Table 5 below summarizes the preferred bikeway alternatives. The preferred alternatives primarily consist of cost-effective spot treatments on low-traffic streets such as signage and sharrow pavement markings to make navigation easy and to encourage people to walk and bike (Figure 26). Once completed, these bikeways also known as greenways would provide safe and comfortable travel for people of all ages and abilities (Figure 29). These routes would join with other pedestrian and biking facilities to form a network that is continuous and connected. Wayfinding would include tsunami evacuation information, including the direction to the nearest assembly area.

Note that the preferred bikeway alternatives generally improve east-west connectivity to the preferred north-south pedestrian and bicycle network (Figure 21). Although the preferred bikeway alternatives primarily improve safety, comfort, and connections for bicycle riders, the alternatives would also facilitate travel for pedestrians and people rolling, using a wheelchair, or other mobility device. The preferred bikeway alternatives are mapped on Figure 30 and Figure 31 below.



Figure 29. Bikeway Network – Signage and Pavement Marking

Table 5. Preferred Bikeway Network⁵

ID	Name	Location	Benefits and Considerations
B-1	2nd Street Bicycling Improvements – Sharrows + Signage	2nd Street – Between N Larch Street and Cannon Beach Skate Park	Connects to 2nd Street to Monroe Street Multiuse Trail (PB-1) and Spruce Pedestrian and Bicycle Route (PB-2). Improves access to beach, Downtown Mobility Hub (T-2), Chamber of Commerce, tennis courts, and Skate Park
B-2	1st Street Bicycling Improvements – Sharrows + Signage	1st Street – Between beach access and N Spruce Street	Connects to Spruce Street Pedestrian and Bicycle Route (PB-2). Provides low-stress connection between beach and Hemlock Street
B-3	Monroe Bicycling Improvements – Sharrows + Signage	Monroe – Between beach access and S Elm Street	Provides southern access to 2nd Street to Monroe Street Multiuse Trail (PB-1) and Spruce Street Pedestrian and Bicycle Route (PB-2)
B-4	Gower Bicycling Improvements – Sharrows + Signage	Gower Avenue – Between Ecola Court and S Spruce Street	Crosses roadway improvement at Gower and Hemlock (R-6) and connects to Spruce Street Pedestrian and Bicycle Route (PB-2). Facilitates bike access to Midtown Mini-Mobility Hub (T-3).
B-5	Pacific Bicycling Improvements – Sharrows + Signage	Pacific Street – Between Matanuska Street and Fernwood Street	Provides an alternate biking route to S Hemlock Street. Corresponds with paving of the gravel segment of Pacific Street between W Delta Street and W Surfcrest Street included as part of PB-6.
B-6	W Warren Way Bicycling Improvements – Sharrows + Signage	W Warren Way – Between beach access and S Hemlock Street	Improve biking access to beach, Tolovana Mini Mobility Hub (T-4), and Tolovana Public Parking Lot

⁵ Note: On-street bike lanes are not recommended as part of the bicycle network due to right-of-way constraints and a community desire to preserve a non-urban, village character in Cannon Beach.

Cannon Beach Bikeway Alternatives North Segment

Legend

//// Bicycle improvement



Figure 30. Bikeway Alternatives: North Segment

Cannon Beach Bikeway Alternatives South Segment

Legend

//// Bicycle improvement



Figure 31. Bikeway Alternatives: South Segment

2.3.4 Crossings

The preferred crossing alternatives are focused on addressing known pedestrian safety concerns along Hemlock Street, the City's main north-south connection. The preferred crossing alternatives also intend to facilitate access to the City's planned multimodal network of trails, sidepaths, transit stops, and mini-mobility hubs. The preferred crossing alternatives also seek to improve some of the existing marked crossings in Cannon Beach today, many of which are worn, faded, or otherwise difficult to see due to sightline issues. The preferred crossing alternatives also seek to upgrade the level of protection that the City's existing crossings offer pedestrians; except for the vertical plastic bollards at the Warren Beach Way intersection, the existing crossings do not include pedestrian illumination or physical separation from moving vehicles. The preferred crossing alternatives seek to provide a higher order of safety and protection for pedestrians travelling along the Hemlock mainline while maintaining a village aesthetic. To achieve this, the preferred crossing alternatives consist of two kinds of crossing improvements:

Marked Crossings refer to basic crossing improvements consisting of crosswalk markings, stop bars, and pedestrian crossing signage (Figure 32).⁶ Although marked crossings are basic improvements to the pedestrian system, the City could consider enhancing their effectiveness through the use of low-cost, innovative treatments like reflective or glow-in-the-dark paint, textured paint treatments, or solar lighting to make crossings more visible (Figure 33 and Figure 34). Marked crossings are relatively low-cost investments that can help alert motorists to the potential presence of pedestrians. Marked crossings can be combined with other multimodal improvements to enhance their safety.

⁶ Continental or "hashed" crossings are typically used for through traffic or mid-block crossings. If stop bars are added at locations with existing continental markings, continental crossings should be changed to reflect the added stop bars. Stop bars with parallel marked crossings are typically used at stop controlled intersections.



Figure 32. Basic Marked Crossings (Source: National Association of City Transportation Officials - NACTO)



Figure 33. In-Roadway Warning Light (Source: Silicon Constellations)



Figure 34. Illuminated Bollards (Source: Bendy Bollards)

Enhanced Crossings refer to crossings with a higher level of protection for pedestrians, and can include a range of treatments such as raised crosswalks or speed tables, illuminated signage, curb extensions or bump outs (either using at-grade treatments like paint and bollards or grade-separated treatments like concrete), median refuge islands, and pedestrian-activated flashing beacons (Figure 35). These crossings are more costly than standard marked crossings but offer a substantially higher level of protection for pedestrians, people using mobility devices, and bicyclists. Enhanced crossings are reserved for locations within the City’s transportation system with known safety issues and bottlenecks.

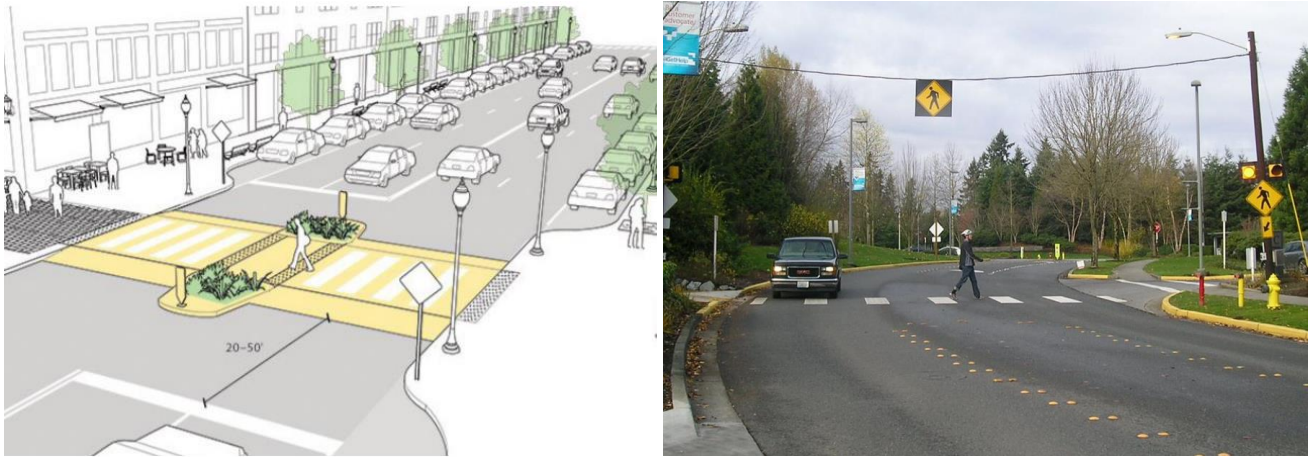


Figure 35. Enhanced Crossings (Source: National Association of City Transportation Officials - NACTO)

Enhanced crossings are recommended for four locations due to high volumes of pedestrian traffic. For all these intersections, speed tables, illuminated crossing indicators, and pedestrian-scale illumination are recommended, which would provide a safer experience for people walking and biking while still maintaining the village aesthetic. It is important to note that while illuminated crossings are recommended at some Cannon Beach intersections, the City will need to do additional investigation and community outreach to determine the appropriate treatment to match the village context. Illuminated signage and pedestrian indicators are highly effective in making pedestrians more visible to drivers. The City could consider “alternative illumination options” for enhanced pedestrian safety at intersections:

- Conventional controls such as rectangular rapid-flashing beacons (RRFBs). HAWK signals are not recommended as traffic signalization is not currently being considered in Cannon Beach.
- An illuminated globe on a pole, like the Belisha Beacon in the United Kingdom (Figure 36).
- In-roadway warning lights flash on the road surface (Figure 33).
- Illuminated bollards help with pedestrian lighting (Figure 34).
- All illumination options can be designed to run off solar power, avoid light pollution, and to be aesthetically pleasing for a village context.



Figure 36. The “Belisha Beacon” is an illuminated pedestrian beacon used in the United Kingdom.

Except for the Enhanced Crossing at Cannon Beach Academy (C-9), alternative illumination options are recommended for the village aesthetic of Cannon Beach. Alternative illumination options would provide significant safety benefits while being more subtle than rapid rectangular flashing beacons and not requiring drivers to stop. Table 6 summarizes the preferred crossing alternatives. Figure 37 and Figure 38 display the preferred crossing alternatives on a map.

Table 6. Crossing Alternatives

ID	Location	Type	Benefits and Considerations
C-1	N Hemlock at 2nd Street (north and south legs)	Enhanced – Alternative illumination option recommended	Aligns with (B-1) proposed pedestrian and bicycle route Contingent on alternatives chosen for concepts R-5 and R-7
C-2	Hemlock Street at Monroe (north leg)	Marked	
C-3	Hemlock Street at Coolidge Avenue (north leg)	Enhanced – Alternative illumination option recommended	Connects with proposed Mid-Town Mini Mobility Hub (T-3)
C-4	Sunset Boulevard at Spruce Street (west leg)	Enhanced – Alternative illumination option recommended	Aligns with proposed north-south pedestrian and bicycle route (PB-2)
C-5	Hemlock Street at Haystack Lane (south leg)	Marked	
C-6	Hemlock Street at Yukon Street (south leg)	Marked	There may be speed/sight distance issues at this location
C-7	Hemlock Street at Delta Street (south leg)	Marked	
C-9	Hemlock Street between Coos Street and Orford Street	Enhanced – a RRFB is recommended at this location	Improves existing crossing at the Cannon Beach Academy. An RRFB is recommended given use by students.
C-10	Hemlock Street at Brailier Street (north leg)	Marked	
C-11	Hemlock Street at Maher Street (north leg)	Marked	Proximity to US 101: Within the Cannon Beach UGB, the existing US 101 interchange spacing of 1.07 miles does not meet OHP standards of 3 miles. The existing access spacing of 890 feet does not meet of 1,320 feet. There may also be speed/sight distance issues at this location

Cannon Beach Crossing Alternatives North Segment

Legend

- Marked crossing
- Enhanced crossing



Figure 37. Crossing Alternatives: North Segment

Cannon Beach Crossing Alternatives South Segment

Legend

- Marked crossing
- Enhanced crossing

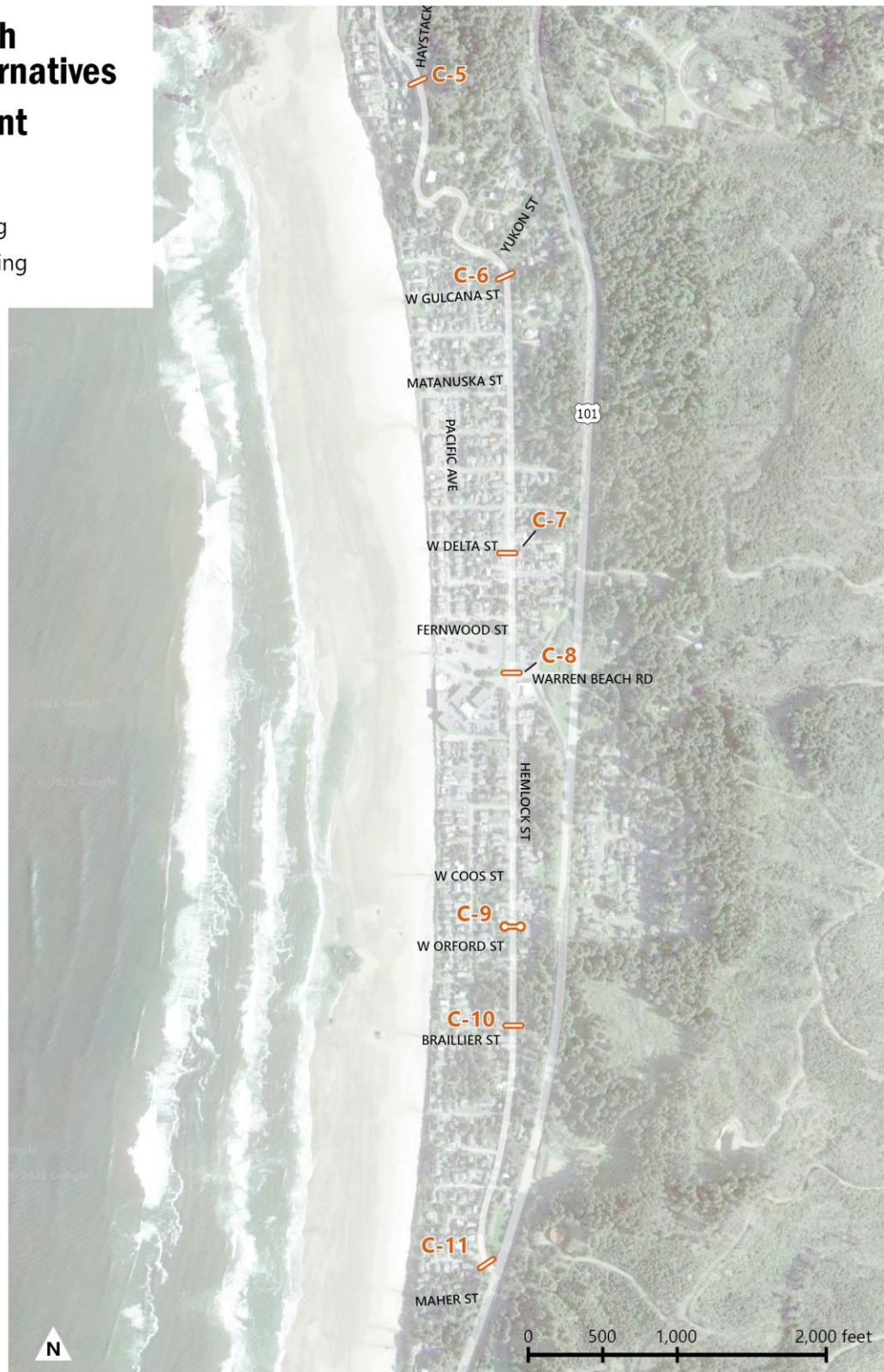


Figure 38. Crossing Alternatives: South Segment

2.5 Emergency Response and Evacuation System

Cannon Beach is vulnerable to the risks of earthquake and tsunami, and much of the City is within the inundation zone, based on analyses by Oregon Department of Geology and Mineral Industries (DOGAMI). The preferred pedestrian and bicycle system include strategies and capital improvements to support the City's evacuation and emergency response system in the following ways:

- The preferred north-south pedestrian and bicycle network through Cannon Beach provides an improved and direct connection to the Haystack Hill assembly area. This is the closest assembly area to Downtown and Midtown and is therefore a critical connection for the TSP to address.
- In addition to its year-round multimodal benefits, the Spruce Pedestrian and Bicycle Route (PB-2) would function as the main egress corridor through the heart of town in the event of an earthquake/tsunami event.
- The 2nd Street to Monroe Street Multiuse Trail (PB-1) and S-Curves Multiuse Bypass (PB-3) also provide improved connections to the Haystack Hill Assembly Area. These improvements also run adjacent to the US 101 corridor which is higher ground than traveling on N Hemlock.
- The S-Curves Multiuse Bypass (PB-3) would provide a direct connection to/from two critical evacuation assembly areas: the Haystack Hill assembly point at Spruce Street and Arbor Lane, and the assembly point at Yukon Street and US 101. The Haystack Hill assembly point is critical because it is the closest assembly area to Midtown and Downtown.
- The US 101 to Spruce/Haystack Hill Trail (PB-4) would provide a direct connection to/from the Haystack Hill assembly point and US 101.
- Evacuation information, signage, and wayfinding is recommended as part of several of the preferred alternatives. The pedestrian and bicycle network proposes pavement markings and signage to indicate the nearest evacuation route and assembly areas. Emergency response and evacuation information is also recommended at mini-mobility hubs and existing transit stops.
- Taken together, the complete north-south pedestrian and bicycle corridor makes it feasible for residents and visitors to evacuate Downtown/Midtown in the timeframe of 20 minutes. City staff have indicated that getting people to safety in the first 20-minutes of an emergency is critical to public safety; the TSP should support a transportation system that supports the safe and efficient movement of community members in the case of an emergency.
- The Funding Plan considers FEMA grants that could provide opportunities for financially constrained projects to obtain funding where projects include evacuation strategies.

To further incorporate evacuation facilities into the TSP, it is recommended that the City **establish evacuation routes along all preferred multiuse trails, to the extent they are assessed to provide an evacuation benefit**. All trails should comply with Americans with Disabilities Act (ADA) accessibility guidelines.

2.5.1 Vertical Evacuation Structure (EM-1)

Although the exact siting and features are outside the scope of the TSP, it is recommended that the City consider possible locations to site a vertical structure where a 20-minute evacuation on foot would be difficult today. Downtown Cannon Beach is a good candidate location for this kind of structure given that the nearest assembly area to the commercial core is the Haystack Hill assembly area at Spruce and Arbor Lane, which may be difficult for some people to get to within a 20-minute window. The site of the structure should also tie strongly into the preferred pedestrian and bicycle network in the TSP to maximize access for all people. This kind of structure could also incorporate additional elements to function as multimodal mobility hub. The deck could also be opened at different times throughout the year as a viewpoint for residents and visitors (Figure 39).

Implemented as a coordinated investment in the City's emergency response and multimodal transportation network, the structure could meet several TSP goals and be eligible for state and federal grants such as FEMA Building Resilient Infrastructure and Communities (BRIC) funds.



Figure 39. A visualization of the Shoalwater Bay tsunami evacuation tower in Tokeland, WA. The structure would stand at least 50 feet tall and is designed to hold 486 people. Source: Visual Engineering Resource Group (2019).

2.6 Public Transportation

The preferred public transportation alternatives will achieve multiple outcomes: establish a network of inter-modal mobility hubs, help address peak seasonal demand for traffic and parking, and improving existing transit service in Cannon Beach. The preferred alternatives include improvements to physical infrastructure such as bus stops as well as enhancements to service (e.g., frequency, reliability, travel times) to make transit more attractive to residents and visitors. The preferred public transportation alternatives are summarized in Table 7 and displayed in Figure 40 and Figure 41.

Table 7. Public Transportation Alternatives⁷

ID	Name	Location	Description	Considerations
T-1	Bus stop with shelter at north end of City	Fir and 5th Street	New bus stop and shelter to serve neighborhood north of Ecola Creek	<ul style="list-style-type: none"> Existing City-owned gravel parking area with utility building may facilitate the development of a new bus stop at this location.
T-2	Downtown Mini Mobility Hub	N Spruce Street at 2nd Street (near Chamber of Commerce) or at 1st Street if implemented with Hemlock Spruce Couplet (R-7a)	Mini mobility hub to bring together transit, biking, micro-mobility, EVs, and potentially TNCs	<ul style="list-style-type: none"> Existing bus bay on west side of Cannon Beach Chamber of Commerce building May require conversion of bus bay to shared mobility space, and possible repurposing of one or two parking spots adjacent to the tennis courts Could be used as part of a broader parking/TDM strategy
T-3	Midtown Mini Mobility Hub	Coolidge Avenue and S Hemlock Street at existing bus stop and public parking area	Mini mobility hub to bring together transit, biking, micro-mobility, EVs, and potentially TNCs	<ul style="list-style-type: none"> May require conversion of a few parking spaces to shared mobility space and loading areas Could be used as part of a broader parking/TDM strategy

⁷ All improvements will be ADA-compliant

ID	Name	Location	Description	Considerations
T-4	Tolovana Beach Mini Mobility Hub	Tolovana Beach parking area in the northwest corner of the S Hemlock Street/W Warren Way intersection	Mini mobility hub to bring together transit, biking, micro-mobility, EVs, and potentially TNCs	<ul style="list-style-type: none"> • Could include reallocation of a small number of vehicle parking spaces, or reallocation of existing landscaping space • Could be used as part of a broader parking/TDM strategy
TS-1	Increased intercity service	Citywide	<p>Transit service specifically tailored to visitors, with extra service from Friday afternoon through Sunday afternoon</p> <p>Consider improved connections to Portland Metro area, Portland International Airport, Salem</p>	<ul style="list-style-type: none"> • The City could pursue a study with SETD to determine the appropriate level of service • The City could implement a peer partnership program with SETD to coordinate city-funded, SETD-operated services • Incentivize with free or reduced fares, family rates, discounts to local businesses, restaurants, and hotels
TS-2	Frequent service circulator shuttle	Citywide	A frequent service circulator shuttle travels the length of the City to make travel easy without a car	<ul style="list-style-type: none"> • Cannon Beach's linear shape is ideal for a frequent service shuttle • Could also connect with off-site parking • Potential nexus with (PM-10)
TS-3	Employee shuttle	Citywide	<p>Transports employees between their jobs and a transit station or an off-site parking area</p> <p>Reduces the need for employees to drive into the City</p>	<ul style="list-style-type: none"> • Requires coordination with businesses to understand feasibility and service needed • Could be implemented as part of a larger TDM strategy

Cannon Beach Transit Alternatives North Segment

Legend

- Transit improvement



Figure 40. Transit Alternatives: North Segment

Cannon Beach Transit Alternatives South Segment

Legend

- Transit improvement



Figure 41. Transit Alternatives: North Segment

2.6.1 Mobility Hubs

The term *mobility hubs* refers to nodes in the transportation system where people can access a suite of interconnected transportation options. Conventional examples of mobility hubs include transit centers and park-and-ride lots. Mobility hubs can also provide centralized locations for residents and visitors to utilize newer mobility options such as circulator or employer-based shuttles, car and ride sharing services, scooters, and short-term bike rentals. Mobility hubs also facilitate access to existing transit and emergency response systems via features like real-time transit schedules, visible signage, “how-to-ride” information, comfortable waiting areas, and basic amenities like shelter and trash cans (Figure 42).



Figure 42. Mobility Hub examples display electric vehicle charging, bike share, signage, and ride share

The recommended mobility hubs in Cannon Beach incorporate tsunami response and evacuation information such as inundation maps and clear directions for reaching the nearest tsunami safe area via different transportation modes. Mobility hubs should also offer alternative ways to travel by providing elements such as bicycle storage (racks, locks, and covered options), and streamlined connections to safe walking and bicycling routes. Mobility hubs can also include physical space for services like visitor/employee shuttles, pick-up/drop-off areas for carpooling or rideshare, and charging docks for scooters, or electric vehicles (EVs). Other coastal communities, such as Jekyll Island in Georgia, have had success with implementing electric golf cart rentals for visitors wishing to explore town.⁸ Rentals located at mobility hubs could act similarly to a car-share program, providing local transportation around the Downtown area, while still maintaining the village aesthetic. The specific combination of these amenities that is right for Cannon Beach will depend on future analysis and input from the community.

Mobility hubs also provide new opportunities for funding transportation improvements – given their intermodal nature, mobility hubs give rise to public-private-partnership opportunities and funding agreements between multiple agencies and transportation providers. Mobility hubs could even be combined with off-street parking programs to managing parking constraints in Downtown and midtown. Given that mobility hubs are a relatively new concept for most towns and cities, implementing one mobility hub as a pilot project is recommended, in order to determine the appropriate amenities while still preserving the village context. The City should consider N Spruce Street at 2nd Street (near the Chamber of Commerce) as a primary choice for a pilot mobility hub, as

⁸ <http://www.redbugmotors.com/>

this location would be close to Downtown and could be structured to work in tandem with other recommended improvements (Figure 43).



Figure 43. Existing parking stalls on N Spruce and 2nd Street in front of the tennis courts. In the future, these stalls could be used to serve mobility elements like a circulator shuttle and car/bike/ride share options.

2.7 Freight

Table 8 below summarizes the preferred alternative for addressing loading zone needs for delivery trucks in town. No other freight alternatives were identified.

Table 8. Freight Alternatives

ID	Location	Description	Considerations
F-1	Through commercial areas	Designate short term loading zones for delivery trucks to balance the demand for parking with the need for deliveries	<ul style="list-style-type: none"> Loading zones will need clear, consistent markings Requires outreach to businesses

2.8 Transportation Demand Management

Transportation Demand Management (TDM) refers to a set of programs and strategies to encourage the use of walking, bicycling, public transportation, and other means of transportation to reduce driving and single-occupancy vehicle trips. TDM can be implemented for a combination of reasons that include improving mobility (by reducing congestion), improving air quality, and reducing parking demands. Most TDM strategies focus on commuting, however they can also be applied to other contexts, like visitors coming to Cannon Beach.

There are a variety of potential strategies that can apply in Cannon Beach, such as:

- Encouraging transit use with subsidies, discounts, or other incentives.
- Perks to people who do not require parking inside the City.
- Providing bicycle amenities, like bike share, secure parking, and lockers.
- Incentivizing businesses who reduce their employees driving.
- Parking management programs.
- Educational campaigns to alert people of transportation options.
- Competitions or other games, such as Oregon's Get There Challenge, to motivate people to travel by other modes.

TDM efforts are often led by transportation management associations (TMAs) that coordinate programs and advocate for multimodal improvements. TMAs often are funded by business memberships and government grants. Table 9 below describes the preferred TDM strategies for Cannon Beach.

Table 9. TDM Strategies

ID	Description	Considerations
TDM-1	Program to encourage visitors to leave the car at home or in an off-site parking area and arrive by other modes (the "Summer Stay" program)	<ul style="list-style-type: none"> • Incentives can include discounts to hotels, restaurants, and other businesses. • Would require convenient transportation options, such as a shuttle service or a bike share program (which may can be provided through a partnership with hotels and short-term rentals). • Can incentivize intercity transit use by reimbursing or subsidizing the cost of the bus. • Storage options are helpful for people planning to stay for the day or before/after their hotel's check in/out time. • Requires working with the chamber of commerce, hotels, transit, and other businesses. • Requires effective marketing to potential visitors (see TDM-2).
TDM-2	Robust information campaigns to encourage visitors to travel to and within Cannon Beach by modes other than driving	<ul style="list-style-type: none"> • Coordinate with hotels and short-term rental owners to distribute travel options information. May require distribution. • Billboards, posters, or other outdoor signs can share the message. • Marketing literature, such as the North Coast Brochure, can include transportation information.

ID	Description	Considerations
TDM-3	Parking permit program to regulate the number of cars parking on-street	<ul style="list-style-type: none"> • Aims to limit on-street parking by visitors; could grant parking passes to all Cannon Beach residents • A parking permit program could be used in conjunction with other parking strategies to better manage the cars that can park in the City • Can be integrated with parking programs such as timed parking • Parking restrictions must have reinforcement plans to be effective
TDM-4	Publish data on City website of when traffic is busiest based on historical trends	<ul style="list-style-type: none"> • Traffic congestion data can be published on a quarterly basis on City website, with the option to monitor more frequently and incorporate a traffic livestream • Publicizing expected traffic congestion will help people plan their trips to avoid the most congested times. This can help spread the transportation demand on the system and reduce peak congestion • Can be included in tourism brochures, parking maps, and posted online

2.9 Transportation System Management and Operations Strategies

FHWA describes Transportation System Management and Operations (TSMO) as “a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed.”⁹ TSMO is a comprehensive approach that considers the entire transportation system, including all potential modes of travel. TSMO is like TDM in that both techniques aim to improve transportation operation without building more automobile capacity. TSMO can be a cost-effective way to make the current road network work better.

TSMO strategies often focus on reducing delays from traffic crashes and incidents, poor signal timing, construction, and weather, among other things. In Cannon Beach, strategies can focus on delays from parking and visitor circulation with a parking management program and by encouraging less impactful modes like walking and biking. Table 10 below describes the preferred TSMO strategies for Cannon Beach.

⁹ What is Transportation Systems Management and Operations (TSMO)? | Transportation Systems Management and Operations (TSMO) Plans | Organizing and Planning for Operations - FHWA Office of Operations (dot.gov) <https://ops.fhwa.dot.gov/tsmo/>

Table 10. TSMO Strategies

ID	Location	Description	Considerations
TSMO-2	Downtown, Midtown, Tolovana	Parking monitoring program with camera or other system. Helps people driving make informed decisions about parking without the need to circle looking for an available space	<ul style="list-style-type: none"> • Could integrate with TSMO-3 • Could be the same system as TSMO-1 • Can be integrated with parking programs
TSMO-4	Downtown	Curb management program to balance the space needed for parking, deliveries, loading, and other uses	<ul style="list-style-type: none"> • Could be a simple system of consistent signage and street markings • Could integrate new technology with a dynamic system like TSMO-3 • Can be integrated with parking programs

2.10 Emerging Transportation Technologies

Emerging transportation technologies refer to technology-based transportation options such as ridesharing, app-based food delivery, and bike- and scooter-sharing platforms. There are also well-adopted technologies such as Google Maps that influence the way that people travel and make choices within transportation systems. Other mobile applications allow people to purchase on-street parking passes, track a home-based delivery, or purchase a day pass for transit. There are also cutting-edge technologies that are still being developed for widespread use such as autonomous vehicles and drone-based delivery.

Cannon Beach has an opportunity to plan for the impacts of these current and future technologies. The fast pace of technological development has meant that some of these emerging trends have moved into communities not ready for them – leading to reactionary city policies and missed management opportunities. Table 11 below summarizes the preferred strategies to help Cannon Beach take advantage of emerging technologies to support the City’s needs, and to mitigate potential impacts to the village aesthetic.

Table 11. Emerging Transportation Technologies – Alternatives

ID	Description	Considerations
ET-1	Adopt TSP policy and strategy for future investments in scooter and bike share	Scooter and bikeshare could be an effective tool for addressing visitor vehicle traffic through town. Establish TSP policies that would encourage future implementation of scooter and bikeshare programs over the next 5-10 years. Consider the policy groundwork for future implementation that could occur over the next 5-10 years
ET-2	Adopt municipal policy and regulations for scooter and bike share	Developing policy retroactively can be difficult once these programs begin operating in the City Consider where they can ride, allowed to be parked, an equitable pricing structure, and access to their data
ET-3	Invest in EV charging stations to encourage EV use	Build EV charging into newly developed parking areas and mini mobility hubs Incentivize new developments to include EV charging
ET-4	Adopt policy to regulate ride-hailing transportation network companies (TNCs, like Uber and Lyft) before they begin operating in the City	Studies have shown ride-hailing adds to traffic congestion and crashes Developing policy retroactively can be difficult once they begin operating in the City Consider designating loading zones, requiring visible TNC designations on vehicles, and the types of vehicles allowed to operate (such as EVs to reduce air pollution and greenhouse gas emissions)

3 TRANSPORTATION FUNDING PLAN

The funding plan for implementing the preferred transportation alternatives for Cannon Beach is organized into cost-constrained and aspirational projects and programs.

- **Cost-constrained projects** are those for which a planning-level cost estimate was developed and could be paid for with anticipated City revenues over the 20-year planning horizon. Cost-constrained projects also describe high-priority projects recommended for implementation in the near term.
- **Aspirational projects and programs** are those for which cost-estimates were not developed and/or those for which medium- or longer-term implementation is recommended as the City is able to obtain external funds in the future. These projects and programs are cost-unconstrained.

3.1 Existing Transportation Revenues

Table 12 below summarizes the last 5 years of revenues and expenditures of the City's Road Fund – the source of funding used to pay for roadway and transportation projects. Over the last 5 years, the City has had an average of **\$248,000 per year**¹⁰ available to pay for transportation improvements. Assuming transportation revenues remain the same, the City is expected to generate approximately **\$5.0 Million**¹¹ over the next 20 years.

Table 12. Cannon Beach Existing Road Fund (2016 - 2021)

	2017	2018	2019	2020	2021 (Adopted)
Beginning Fund Balance	\$52,200	\$154,883	\$235,927	\$331,560	\$400,000
Revenues	\$877,515	\$924,805	\$792,768	\$925,570	\$675,364
Expenditures	\$774,832	\$843,761	\$697,135	\$784,864	\$1,075,364
Bridge Reserve Fund	\$8,592	\$8,592	\$8,592	\$8,592	\$8,592
Total funds potentially available for capital improvements*	\$163,475	\$244,519	\$340,152	\$480,858	\$8,592

*This represents annual the remaining Road Fund and Bridge Reserve Fund monies that are potentially available for use capital improvement projects.

3.2 Cost-Constrained Alternatives

The total cost of the Cost-Constrained Alternatives is approximately **\$4.9 Million**. Given the City is expected to generate approximately \$5.0 Million over the next 20 years, the following alternatives are considered cost-constrained and are high priorities for local funding and implementation. Table 13 below summarizes the Cost-Constrained Alternatives.

¹⁰ This figure was determined by rounding the 5-year average City transportation fund (\$247,519) to the nearest thousandth.

¹¹ This figure was determined by multiplying City's average road fund revenues over the last 5 years (\$247,519) by 20, rounded to the nearest hundred-thousandth. The result was rounded to the nearest millionth. Values are approximate for planning purposes only.

Table 13. Cost-Constrained Alternatives – Near Term Priorities

ID	Description	Cost Estimate
R-1a	All-way (4-way) stop control – S Hemlock Street at Warren Beach Road	\$7,000
R-4a	All-way (4-way) stop control – N Hemlock Street at 1st Street	\$4,000
R-5a	All-way (4-way) stop control – N Hemlock Street at 2nd Street	\$4,000
R-7b	Hemlock Pedestrian Plaza – 1st Street to 3rd Street	\$168,000
PB-1	Multiuse Trail from 2nd Street to Monroe Street	\$415,000
PB-2	Spruce Pedestrian and Bicycle Route	\$1,104,000
PB-3	S-Curves Multiuse Bypass	\$1,623,000
PB-4	US 101 to Spruce/Haystack Hill Trail	\$656,000
B-1	2nd Street Bicycling Improvements	\$23,000
B-2	1st Street Bicycling Improvements	\$14,000
B-4	Gower Bicycling Improvements	\$14,000
B-6	W Warren Way Bicycling Improvements	\$7,000
C-1	Enhanced crossing at N Hemlock at 2nd Street	\$284,000
C-3	Enhanced crossing at Hemlock Street at Coolidge Avenue	\$150,000
C-4	Enhanced crossing at Sunset Boulevard at Spruce Street	\$139,000
C-9	Enhanced crossing at Hemlock Street between Coos Street and Orford Street	\$149,000
T-1	Bus stop with shelter at north end of City	\$57,000
T-2	Mini mobility hub- N Spruce Street at 2nd Street (near Chamber of Commerce) Mini	\$113,000
Total Cost-Constrained Alternatives		\$4,900,000
Total funds potentially available (2040 planning horizon)		\$5,000,000

3.3 Funding Gap

The total cost to implement the alternatives for which planning level cost estimates are provided is approximately \$8.0 million. The total cost to implement the all cost-constrained, aspirational, and estimated program and policy-based alternatives is approximately **\$10.4 million**.¹²

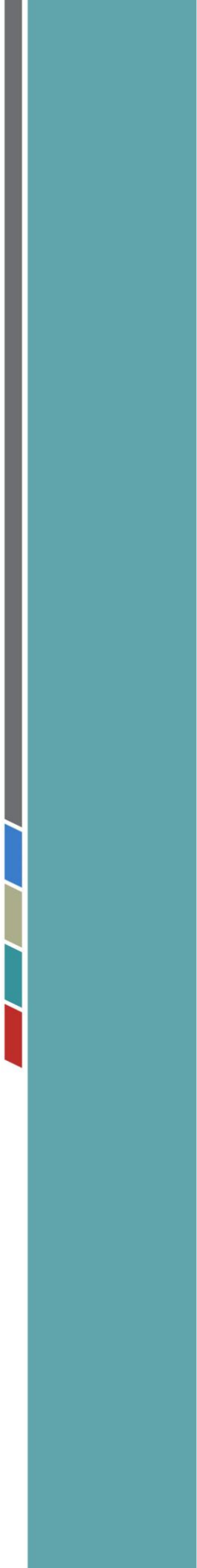
As reported in Table 13 above, the total cost to implement the Cost-Constrained Alternatives is approximately \$4.9 million, which means the total additional cost to implement the aspirational projects is approximately **\$5.5 million**. Given that the City is expected to generate approximately **\$248,000 per year** over the next 20 years, the City would have to raise approximately **\$274,000** per year to close the funding gap required to implement all alternatives.

Appendix A describes a variety of funding of local and grant-based funding sources for the City to consider that are available to fund projects and programs depending on the type of project, the owner of the roadway (state or local), and project cost.

¹² Program and policy-based alternatives report conceptual cost using dollar signs representing an approximate range of less than \$50,000 (\$), between \$50,000 and \$100,000 (\$\$), and more than \$100,000 (\$\$\$). For the purposes of determining the approximate total cost to implement all preferred alternatives, the following assumptions were made: (\$) = \$50,000; (\$\$) = \$100,000; (\$\$\$) = \$200,000.

Appendix A

Funding Alternatives



APPENDIX A

Funding Alternatives

The following section describe a range of funding alternatives that could be available to the City to close the funding gap. Funding alternatives include both local options for raising transportation revenues as well as grant-based programs administered by state, regional, and national entities (Table 14).

Local Funding Options

Revise system development charges (SDCs)

- SDCs, per state law, must be spent only on projects that increase capacity of the system; maintenance or preservation projects generally are not eligible for SDC use.
- The City does not currently charge residential road SDCs but is currently evaluating them.
- According to the League of Oregon Cities' 2020 SDC survey, the average residential SDC fee is \$3,385 in the north Willamette Valley and \$3,439 in the south Willamette Valley, per new residence.
- Non-residential SDCs are much higher, with an average of between \$90,000 and \$100,000 per new non-residential use.

Property taxes and bonds

- A new tax may be levied to pay for a specific improvement package.
- Revenue or general obligation bonds can help finance construction of capital improvement projects by borrowing money and paying it back over time in smaller installments. Bonds are typically backed by new revenue, like an additional property tax levy. Usually, a specific package of improvements is identified, and a levy is put to a local vote, then the revenue stream is bonded.

Tax increment financing

- Declaration of an Urban Renewal Area (URA), based on the conditions described in state statutes, could provide a strategy for funding transportation (and other public improvements) within the defined URA boundary. URAs facilitate “tax increment financing;” in short, property tax receipts are frozen at URA inception and property tax revenue is then distributed via two streams – the frozen base revenue is distributed normally to taxing districts, while the “increment” of increased revenue due to increased property values in the URA is set aside for improvements. As property values increase, the additional tax revenue collected above the frozen base is used for improvement projects in the URA. This revenue stream can be bonded to fund more substantial projects early on.
- An urban renewal area could be defined to use the TIF to pay for improvements in that area.

Transportation maintenance fees

- A transportation maintenance fee (also known as a transportation utility fee, street user fee, or road user fee) is based on use of the transportation system and is collected from residences and businesses. The City currently does not levy a transportation maintenance or utility fee; however, many Oregon jurisdictions levy such a fee to pay for maintenance and operations of city streets. These fees are typically assessed monthly to residents, businesses, and other non-residential uses. Nonresidential fees are typically assessed by type of use, square footage of the building, or number of parking stalls that would be required under city code for a given use.

- Fees vary significantly from city to city. Some cities charge a flat fee regardless of the type of use. The City of Brookings charges \$2.50 per month and the City of Myrtle Creek charges \$3.00 per month per residential or commercial unit. Other cities have different fees for residences versus other uses. The City of Hillsboro charges each single-family home \$3.10 per month, Stayton charges \$1.00 to \$2.00 per month per home, and Oregon City charges \$4.50 per single-family residence. Non-residential fees also vary, with fees ranging from less than \$0.15 to as much as \$20.00 per square foot, depending on the type and intensity of use. The City of Tigard charges \$1.12 per month per non-residential parking stall.
- The City of Cannon Beach could consider charging such a fee to fund a greater share of maintenance costs, thereby freeing resources for capital projects. Fees could be collected to help with transportation maintenance costs.

Transient lodging tax

- A transient lodging tax is charged for people staying in hotels, motels, and other short-term rentals. Under state law, 70 percent of revenues from such taxes must fund programs boosting tourism (ORS 320). The remaining 30 percent can be used for funding City services, including transportation improvements.
- Cannon Beach increased its transient lodging tax from 7 to 8 percent in 2015. This is still lower than other similar coastal cities (Newport's is 9.5 percent, Seaside's is 10 percent, and Astoria's is 11 percent). Total revenue from Cannon Beach's transient lodging tax in 2019 (before impacts from Covid-19) was \$4.6 million. If the City had a 10 percent tax in 2019 and the same economic activity, the tax would have raised an additional \$1.2 million.
- The transient lodging tax could be increased by approximately 20 percent to be in line with other coastal cities.
- Consider how increasing taxes may affect businesses that were impacted by Covid-19.

Local gas tax

- Dozens of Oregon communities levy local gas taxes, the revenues from which are entirely available for use locally. Of those cities that currently assess local gas taxes, most cities the size of Cannon Beach charge between \$0.01 and \$0.03 per gallon. It is difficult to estimate the potential revenue generated by a local gas tax without knowing annual gasoline sales, but based on peer communities' experiences, a \$0.02 local gas tax could generate between \$25,000 and \$75,000 per year, or \$625,000 to \$1.8 million over the next 25 years for transportation purposes.
- A local gas tax can be enacted through legislative action by the city council or by putting the tax to a public vote.

Transportation management associations (TMAs)

- TMAs are non-profit organizations providing transportation services in a particular area, such as a commercial district or neighborhood. They are generally public-private partnerships, consisting of area businesses with local government support. TMAs often support TDM programs, particularly walking and biking encouragement efforts. They are typically funded by a combination of business memberships and government grants.
- A local TMA can help implement and manage TDM and parking programs.
- Funding can come from business memberships or government grants.

Leveraging utility funds

- There are opportunities to coordinate utility maintenance and replacement projects with street projects, including overlays and sidewalk construction. For example, combining a sewer main replacement with a desired overlay and sidewalk project would save the City money on construction costs.
- Transportation projects should coordinate with utility work that impacts roadways to implement at the same time and save money on construction costs.

Grant-Based Funding Options

Table 14 summarizes grant funding opportunities, describes the types of projects in the Cannon Beach TSP that would be eligible, and provides a high-level assessment of the viability of each grant option for funding projects in Cannon Beach. The City should continue to pursue grant funding, with focus on programs with a high likelihood of success, including the Oregon Community Paths Program, Small City Allotments, FEMA Building Resilient Infrastructure and Communities (BRIC), and the Land and Water Conservation Fund.

Table 14. State, Regional, and National Funding Alternatives

Grant Source	Project Eligibility	Match Required	Funding Amount	Considerations
STIP	Many types; generally must be of regional significance	Varies	~\$2 billion statewide	The STIP process is extremely competitive. TSP adoption will facilitate funded improvements in the STIP.
Small City Allotment	Cannon Beach is eligible to submit a single grant application each year for up to \$100,000	No match required	Up to \$100,000 annually	Cannon Beach has been successful in the past and is likely to continue to be successful.
Oregon Community Paths	Paths and trails, generally of regional significance or that fill gaps in a trail network	10 to 30% depending on funding source (federal or state)	\$75,000–750,000 for project refinement \$200,000–\$4,000,000 for construction	<p>Trails projects would need to demonstrate merit in terms of closing gaps or enhancing regional connectivity. To be competitive, projects need to be well defined, ideally link communities together, fill a critical missing link in a corridor, or serve as an element of the larger regional trail network.</p> <p>The Community Paths Program is a new funding program that ties together several pre-existing as well as new funding sources for trails and multimodal pathway improvements.</p> <p>There are two main funding tracks with the Community Paths Program: (1) Project refinement – Furthers planning, environmental or permitting work, and design on projects, but does not fund</p>

				construction explicitly; (2) Construction – Funding for final design and construction of trails projects. These can be state or federal funds.
Safe Routes to School	Projects within a one-mile radius of a school, within a local roadway, and in a jurisdictional plan	20 to 40%	\$60,000–\$2,000,000	<p>House Bill 2017 provided a major funding boost to SRTS funding statewide. By 2023, the program will have \$15 million annually available for construction projects, in addition to about \$2 million annually for programs (non-infrastructure).</p> <p>Projects funded through the program must provide clear benefit in terms of improving cycling and walking to schools. Projects in smaller communities, for elementary and middle schools, and that can demonstrate substantial need are likely to fare best.</p> <p>Low likelihood of success. The Cannon Beach Academy is a relatively small school with few improvements planned near it.</p>
Statewide Transportation Improvement Fund (STIF) discretionary funds	Transit projects that improve transit service, stops, and connections to other communities	Generally 20%	Ranges	High likelihood of success and partnership opportunities with SETD.
Travel Oregon Competitive Grants Program	Community and transportation development projects	10% to 50% depending on funding level and timeline	\$20,000 to \$100,000	TBD – the program was suspended in 2021 to instead fund Covid-19 relief grants, however it may be reinstated in the coming year(s). ¹³
Recreational Trails Program	Wide variety of trail projects in local communities	20% match	\$10,000 to \$150,000 for most projects	Small overall funding pool but could be an opportunity to fund local trail improvements.
FEMA Building Resilient Infrastructure	Projects that reduce or eliminate risk and	25% match	\$1 billion allocated in the 2021 fiscal year;	One of the grant programs is FEMA's Building Resilient Infrastructure and Communities (BRIC). It is a relatively

¹³ More information: <https://industry.traveloregon.com/opportunities/grants/competitive-grants-program/>

and Communities (BRIC)	damage from future natural hazards, which includes both seismic events and hazards related to the climate crisis are eligible.		individual grant levels TBD	<p>new FEMA pre-disaster hazard mitigation program that replaced the former Pre-Disaster Mitigation Grant Program to support states, local communities, tribes, and territories through capability- and capacity-building to reduce the risks they face from disasters and natural hazards.</p> <p>Because of Cannon Beach’s location in an inundation zone and the TSP’s focus on incorporating evacuation routes into the City’s transportation plans, several TSP projects may likely be eligible for funding through this program.</p>
Land and Water Conservation Fund	Projects must be consistent with the Statewide Comprehensive Outdoor Recreation Plan (SCORP), including trails and paths	50% match	Up to \$1.5 Million per project	<p>The Land and Water Conservation Fund (LWCF) is a federally funded grant program administrated by the Oregon Parks and Recreation Department. LWCF grants are available to either acquire land for public outdoor recreation or to develop basic outdoor recreation facilities such as trails and paths.</p> <p>Funding priorities of the LWCF include increased access to state and locally owned outdoor recreation opportunities, which could easily be applied to several TSP multi-use path projects.</p>

STIP = Statewide Transportation Improvement Program

