

Historic Columbia River Highway Congestion and Transportation Safety Improvement Plan

Technical Memorandum 4: Alternatives Evaluation **REVISED** **DRAFT**

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Introduction

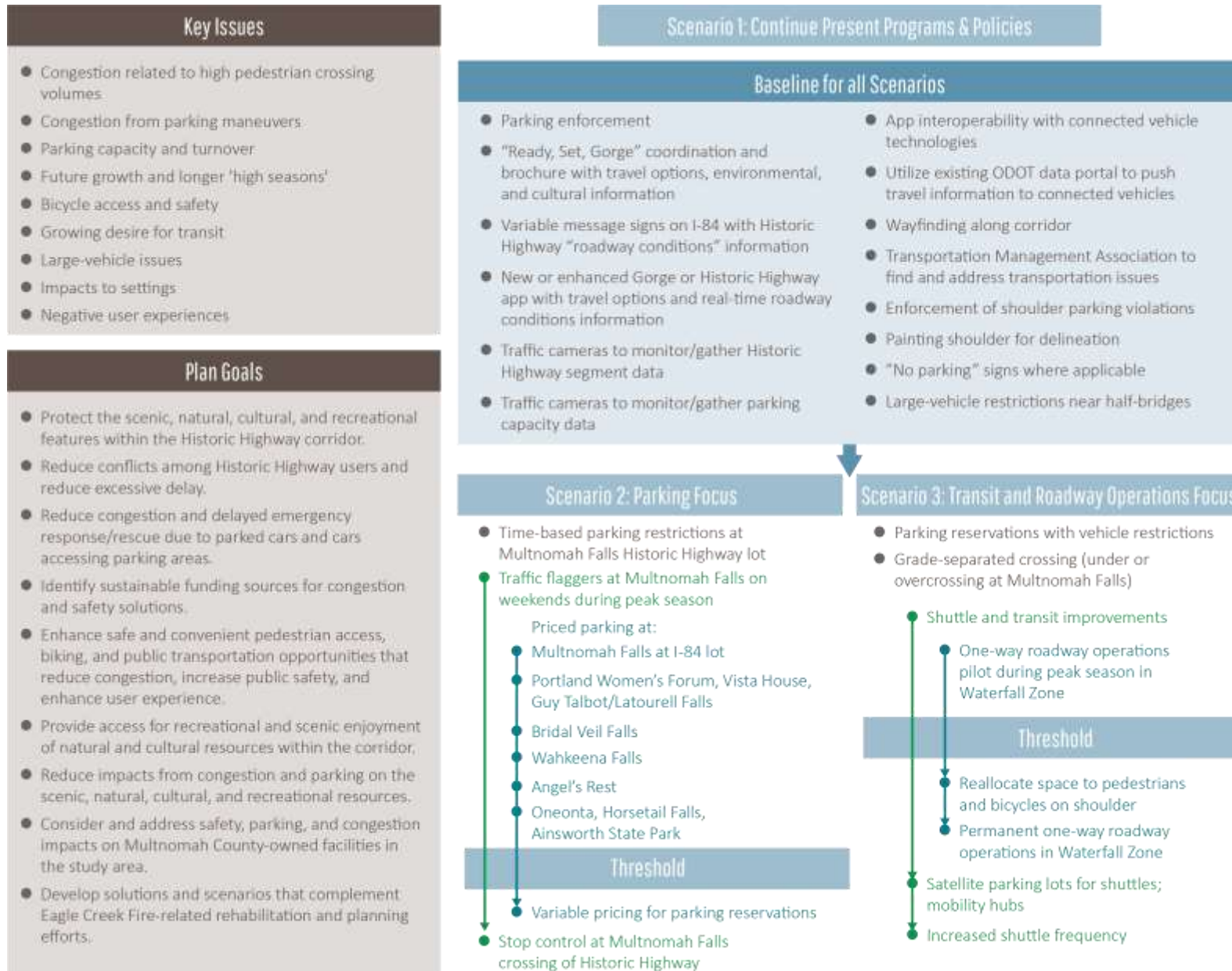
This Historic Columbia River Highway Congestion and Safety Improvement Plan: Alternatives Evaluation technical memorandum presents the results of the scenarios evaluation. In previous project phases, the project team, in partnership with the Project Management Team and stakeholder input, crafted three scenarios (Figure 1) with bundles of congestion mitigation and safety improvement tools. Each scenario represents a different management approach to addressing congestion, safety issues, and a poor user experience on the Historic Highway. This memo evaluates scenarios, based on evaluation criteria, to illuminate tradeoffs between different alternatives. The criteria assess the ability of each tool to meet related Plan goals. The evaluation results will inform the recommended group of tools should move forward for implementation.

This memo begins with an overview of the methodology and key findings from the evaluation. Table 1 summarizes the results with ratings and differentiating factors. This memo also includes a recommendation of tools to advance for discussion with the Project Leadership Team. Appendix A includes an overview of the three scenarios evaluated. Appendix B provides a deeper discussion of how each scenario fares against each Plan goal and criterion. Appendix C includes a table with the full evaluation results, including a rating for each of the twenty-five evaluation measures for the nine Plan goals. Finally, Appendix D includes the Management Toolkit that provides further details on many of the recommendations included in this memo.

Methodology

The project team developed an initial set of evaluation criteria to support each goal, and agency staff and leadership helped to refine the criteria. The final evaluation criteria reflect the Plan goals endorsed by the Project's Leadership and Management Teams. The criteria measure both quantitative and qualitative changes within the project study area. The project team evaluated each scenario based on these criteria to assess how well each achieves Plan goals.

Figure 1. Tool Scenario Bundles



The project team considered each Plan goal and criterion, and evaluated how Scenarios 1, 2, and 3 would impact or meet the goal. Some goals were broken into multiple criteria to isolate the impacts. The team evaluated the three scenarios against each criterion, and the results were combined to a rating of high, medium, or low for each goal. In some cases, the team estimated that the scenario would have no impact or would result in no change to the project goal. The Key Findings section presents the summarized assessment of each scenario against the project goals. Appendix B, Criteria and Measures Discussion, discusses each goal and criterion in detail, daylighting where scenarios perform similarly or provide demonstrable differences. The evaluation process did not generate a score to pick a “winning” scenario. Instead, the evaluation is intended as a decision-making tool to guide recommendations by unveiling opportunities and constraints of different combinations of safety and congestion mitigation tools.

Key Findings

Table 1 summarizes the evaluation results from each scenario and highlights key considerations for those scores. More detailed analysis is included in the criteria and measures discussion in Appendix B. In general, each scenario includes tools and strategies that protect the scenic, natural, cultural, and recreational features within the Historic Highway corridor. Although the project team explored a wide-ranging list of congestion mitigation, safety improvement, and user experience improvement tools in previous project phases, the team advanced only tools appropriate for the context of a National Scenic Area. In addition, the team focused on evaluating tools directly related to the critical issues that contribute to congestion, safety and diminished user experience on the Historic Highway. The narrowed approach led to smaller variation in performance amongst scenarios, since the team did not analyze potentially harmful tools, and chose targeted strategies for evaluation. Although all scenarios performed well, the following are key findings from the evaluation:

- Formalizing or expanding existing successful programs and strategies such as placing a traffic flagger at the Multnomah Falls Historic Highway parking lot, parking enforcement, and the use of variable messaging signs could further improve traffic operations and user experience on the corridor.
- Priced parking strategies could help to accelerate turnover and could help to even out demand when paired with reservations. Priced parking would create a revenue stream to fund parking management activities and potentially other activities to improve access and mobility in the corridor including transit service.
- Expanded transit service could provide alternatives to driving to access Multnomah Falls via the Interstate 84 parking lot. Introduction of a shuttle service operating on the Historic Highway would expand access to several destinations and provide alternatives to paid, reservation, or shoulder parking along the Historic Highway.
- Managing pedestrian crossings with a traffic flagger or stop-control device, would reduce conflicts among Historic Highway users, improve safety for pedestrians, and improve mobility for vehicles.
- Roadway operation changes such as a one-way configuration could complement fire-recovery rehabilitation efforts, support vehicle mobility, and generate opportunities for better modal separation through shoulder widening for bicycles and pedestrians.

Table 1. Scenarios Summary Findings

Plan Goal	Criteria	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies	Considerations
<p>Protect the scenic, natural, cultural, and recreational features within the Historic Highway corridor.</p> <p><i>Note: this plan goal is a minimum for any solution to address congestion and safety concerns along the Historic Highway. Any solution must meet NSA goals.</i></p>	<p>1. To what extent does the scenario impact scenic, natural, cultural, and recreational features along the Historic Highway?</p> <ul style="list-style-type: none"> • Impervious surface • Impacts on key viewing areas, features • Tree canopy • Cultural and historic resources 	Medium	Medium	Medium	<ul style="list-style-type: none"> • There is little differentiation among scenarios as it measures changes to impervious surface, tree canopy, key viewing areas, or known cultural resources. • Scenarios 2 and 3 are more likely to ease congestion and reduce vehicle queuing, which could have positive impacts on resources along the Historic Highway.
<p>Reduce conflicts among Historic Highway users and reduce excessive delay.</p>	<p>2. To what extent does the scenario reduce conflicts among roadway users, including vehicles, bicyclists, and pedestrians accessing key areas?</p> <ul style="list-style-type: none"> • Design practices • Reduces delay 	Low	Medium	High	<ul style="list-style-type: none"> • Scenario 2 would reduce conflicts through addressing conflict points with pedestrian crossings via flaggers or a stop-controlled traffic device. • Scenarios 2 and 3 would each manage parking through pricing, which could help reduce conflicts from queued vehicles and parking maneuvers. • Scenario 3 would significantly reduce conflicts between crossing pedestrians and queued vehicles by proposing a grade-separated crossing. • Changes in roadway operations in Scenario 3 could reduce conflicts by creating a wider shoulder for bicycles and people walking along the roadway.

Plan Goal	Criteria	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies	Considerations
Reduce congestion, illegally parked cars, and delayed emergency response/rescue due to parked cars and cars accessing parking areas.	3. To what extent does the scenario support alternatives to accessing sites along the Historic Highway beyond personal motor vehicles? <ul style="list-style-type: none"> • New transit service • Bicycle facilities 	Medium	Low	High	<ul style="list-style-type: none"> • Scenario 1 includes an expanded Columbia Gorge Express service that could bring people to the Multnomah Falls I-84 lot. • Scenario 2 does not introduce new travel options to visit the Historic Highway without a vehicle. • Scenario 3 introduces a shuttle service; and the potential to allocate more shoulder space to bicycles and pedestrians walking could encourage more people to move between the falls and trailheads outside of a vehicle.
	4. To what extent does the scenario expand alternatives to illegal parking when existing lot capacity is fully utilized? <ul style="list-style-type: none"> • Alternative to parking on shoulders • Parking compliance • Parking turnover rates 	Low	Medium	High	<ul style="list-style-type: none"> • Scenario 2 does not provide alternatives to full parking areas, but would implement tools to even out parking demand through reservations and provide incentives for turnover through variable pricing. • Scenario 3 offers alternatives that include shuttles and expanded satellite parking lots. • Scenario 3 would also implement parking reservations and variable parking to even out demand and accelerate stall turnover.
Identify sustainable funding sources.	5. To what extent does the scenario create funding streams or qualify for existing funding sources? <ul style="list-style-type: none"> • New revenue streams • Funding eligibility • Coordination with Washington State 	Low	High	High	<ul style="list-style-type: none"> • Scenario 1 would generate increased transit fare collection through expanded service. • Scenarios 2 and 3 would create funding streams through priced parking and the formation of a Transportation Management Association to collect, manage, and apply for funding opportunities. • Scenario 3 would create a new revenue stream through the introduction of a shuttle service.

Plan Goal	Criteria	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies	Considerations
<p>Enhance safe and convenient biking and public transportation opportunities that reduce congestion, increase public safety, and enhance user experience.</p>	<p>6. To what extent does the scenario create safer and more convenient conditions for all users?</p> <ul style="list-style-type: none"> • New bike parking • Sites served by public transit • Marked crossings • Safety or wayfinding signs 	<p>Medium</p>	<p>Medium</p>	<p>High</p>	<ul style="list-style-type: none"> • Scenario 1 would expand Columbia Gorge Express service with additional service hours and stops, serving the Multnomah Falls parking lot on I-84. • Scenarios 2 and 3 would each improve pedestrian safety through a flagger or stop-controlled traffic device in Scenario 2 and a grade-separated crossing in Scenario 3. • Scenario 3 would have significantly more opportunity to enhance access to recreational sites by introducing shuttle access to the Historic Highway. Transit improvements and expanded park-and-ride facilities would support increased ridership. • Scenario 3 would improve the safety of those bicycling or walking along the roadway by allowing for a wider shoulder under a one-way roadway configuration.
<p>Provide access for legal recreational and scenic enjoyment of natural and cultural resources adjacent to the corridor.</p>	<p>7. To what extent does the scenario allow more people to access the Historic Highway without increasing congestion and delay on the roadway?</p> <ul style="list-style-type: none"> • Improvement for all modes • New park-and-ride stalls 	<p>Low</p>	<p>Medium</p>	<p>High</p>	<ul style="list-style-type: none"> • Scenarios 2 and 3 each address delay and congestion associated with pedestrian crossings and parking maneuvers, which would allow more people to move along the roadway without adding significant additional delay. • Scenario 3 would add transit improvements and shuttles, increasing the person trips on the roadways without the introduction of additional private vehicles to the corridor.

Plan Goal	Criteria	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies	Considerations
Reduce impacts from congestion and parking on the scenic, natural, cultural, and recreational resources.	<p>8. To what extent does the scenario improve conditions or lessen impacts on the scenic, natural, cultural, and recreational resources?</p> <ul style="list-style-type: none"> • Idling and parked vehicles on Historic Highway • Parking on highway shoulder 	No change	Medium	High	<ul style="list-style-type: none"> • Scenarios 2 and 3 each include tools to address idling associated with pedestrian crossings and parking maneuvers. • Transit improvements and the introduction of a shuttle in Scenario 3 could reduce the number of private vehicles on the Historic Highway, improving conditions for scenic and natural resources through reduced queuing, idling, and need for parking. • A conversion to a one-way operation could also improve condition of scenic and recreational resources if vehicles can pass queued cars waiting to turn into parking lots.
Consider and address safety, parking, and congestion impacts on Multnomah County-owned facilities.	<p>9. To what extent does the scenario create negative impacts on surrounding Multnomah County facilities through high levels of spillover traffic and illegal parking?</p> <ul style="list-style-type: none"> • Traffic diversion 	No change	No change	Low	<ul style="list-style-type: none"> • Scenarios 1 and 2 should create no added traffic diversion to County facilities and should move toward addressing parking issues. • Under Scenario 3, diversion would be low if the one-way operations are restricted to the segment between Bridal Veil Road and Ainsworth State Park because there are no parallel County-owned routes. However, if the one-way operation were extended farther west, traffic diversion to facilities such as Larch Mountain Road may occur. Scenario 3 does not address parking issues on County facilities as explicitly as Scenarios 1 and 2.

Plan Goal	Criteria	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies	Considerations
Develop solutions and scenarios that complement Eagle Creek Fire-related rehabilitation and planning efforts.	<p>10. To what extent does the scenario complement specific fire-related rehabilitation efforts?</p> <ul style="list-style-type: none"> Integration with rehabilitation efforts 	No change	Medium	Medium	<ul style="list-style-type: none"> Scenarios 2 and 3 could complement fire-related efforts through the formation of a Transportation Management Association working with USFS and ODOT to provide clear, timely information about the status of restoration and ways to mitigate user impacts as rehabilitation efforts continue. Scenario 3 proposes a one-way configuration that could be piloted during fire-related efforts. Transit improvements and shuttles could support fire-related rehabilitation efforts if agencies needed to restrict private vehicles during specific rehabilitation efforts.

Draft Recommendation and Next Steps

The consultant team recommends that the Project Leadership Team consider a **combination of tools from each scenario** to best achieve the vision agreed to by the partner agencies and reviewed with the public and stakeholders for the Historic Highway. The consultant team recommends a process that establishes performance measures for the tools, monitors tool implementation, and reports on their effectiveness. Technical Memorandum 5 (Implementation Strategies) will outline phasing and implementation strategies for tool recommendations in more detail, based on PLT comments at PLT meeting #3 on June 13, 2018. Implementation strategies will include timing, roles and responsibilities, planning-level costs, and specific locations for implementation.

The project team recommends tools and strategies that fall within four general categories. The first category includes baseline tools and strategies that recommend technology for data collection and sharing travel information. Baseline strategies also build upon successful existing strategies such as the “Ready, Set, GOrgE” campaign, variable message sign deployment, and wayfinding. The next category focuses on parking-oriented strategies that use enforcement, reservations, and pricing. Transit strategies include introducing a shuttle on the Historic Highway, creating shuttle stops, park-and-rides, and coordinating with the Columbia Gorge Express. The final category includes strategies related to pedestrian crossings, congestion management near Multnomah Falls, and supporting the one-way roadway pilot project following the Historic Highway re-opening.

Baseline Tools and Strategies

- Implement the shared baseline tools that lay the foundation for performance monitoring by installing technology to track vehicle volumes and parking utilization. In this vein, transforming data into useful information on current roadway and parking conditions along with travel alternatives is a critical step to managing how and when people access the Historic Highway.
 - Install traffic cameras at key locations to monitor pinch points and vehicle flow on Historic Highway segments. Recommended locations:
 - Entrance portals to the Waterfall Zone: (1) Historic Highway east of Bridal Veil Road, (2) Historic Highway west of I-84/Ainsworth State Park interchange
 - Pedestrian crossing/lot entrance at Multnomah Falls Lodge
 - Wahkeena Falls Trailhead
 - Install traffic cameras at the Multnomah Falls Historic Highway parking lot and at Wahkeena Falls to monitor and collect information on parking utilization
 - Use traffic count tubes or cameras at Vista House at Crown Point and at Ainsworth State Park to collect volume data about user numbers, time of day, and day of week trends.
 - Purchase origin-destination data to monitor vehicle user behavior on the Historic Highway including how many vehicles stop, how often, where, or if they drive the full corridor at once
- Utilize ODOT’s existing data portal to push information to connected vehicles and provide similar real-time information to a downloadable app, which will allow visitors to make decisions to avoid peak travel times, select less congested destinations, or use options other than their private vehicle.
 - Create a one-stop data app that can host information about travel options, current conditions, allow users to make parking reservations or discover best times to visit popular attractions prior to arriving in the Gorge/Historic Highway corridor

- Share information on travel conditions and alternatives via connected vehicles wireless connected cloud computing
- Pursue formation of a Transportation Management Association. A Transportation Management Association is a non-profit, member-controlled organization that provides transportation services in an area.
 - TMA members should consist of agencies, local area businesses and non-profits to support a staff implementing transportation programs and projects.
 - TMA services should include deploying demand management tools such as encouragement programs; organizing volunteers; promoting travel options and consistent branding; applying for grants; and collecting, managing, and distributing fees from parking or other revenue streams.
- Continue with the “Ready, Set, GOrges” campaign
 - Continue a shared marketing strategy with “Ready, Set, GOrges” to inform users of new travel options and parking requirements
- Continue and expand deployment of variable messaging signs.
 - Deploy permanent variable message signs on I-84 to warn travelers about trail closures, lane closures, heavy congestion or full parking areas. Variable message signs should be located at decision points where drivers might exit I-84 to access this Historic Highway, such as Crown Point Highway, Corbett Hill Road, Bridal Veil Road, and Ainsworth State Park eastbound; and Ainsworth State Park and Bridal Veil Road westbound.
- Create a Visitor Information Center outside (or just inside) of the National Scenic Area to provide a one-stop location where visitors can park, board shuttles, determine where parking is available, pay for parking/reserve a parking spot, and get information on how to access destinations throughout the Columbia River Gorge Scenic Area.
- Install additional wayfinding signs. Wayfinding can help improve user experience and reduce out-of-direction travel with more information. Appropriate locations for wayfinding include approaches to the Historic Highway from I-84 interchange locations (e.g., Bridal Veil Road approach to Angel’s Rest trailhead).
 - Add wayfinding signs that feature attraction names and mileage from the signposts at key decision points and attractions (i.e., Angel’s Rest trailhead, Wahkeena Falls, Oneonta Gorge)
 - Add wayfinding that alerts users of entrance station, restricted lane use, and last opportunity to turn around
- Improve shoulder or lane delineation in the western sections of the Historic Highway. Clear, bold striping may help prevent parked vehicles from infringing on the travel lane, slowing through traffic and reducing space for people walking.
 - For one-way roadway operation scenario between the last private residence at Bridal Veil to Ainsworth State Park, implement lane delineation or markings for vehicle restrictions, but have markings for where people should walk and bicycles should ride, encouraging user separation. Bicyclists and pedestrians will be able to travel both directions in this configuration; only vehicles would be restricted to eastbound.



Figure 2. Proposed Angled Parking east of Multnomah Creek

- Consider reconfiguring head-in parking east of Multnomah Creek to angle parking with curb separation from the Historic Highway to reduce conflicts related to parking maneuvers and vehicles backing onto highway.
- Restrict large vehicles between Larch Mountain Road and Ainsworth State Park to remove conditions where large vehicles traveling in opposite directions cannot pass on the roadway on the narrow viaducts east and west of Multnomah Falls and where vehicles are unable to navigate sharp curves without crossing the center line. Ensure successful implementation through clear communication (such a signage and visitor information) as well as enforcement.
- Reduce vehicle speed limits to be consistent with the Historic nature of the roadway and decrease speed differentials between pedestrians and cyclists sharing the roadway.

Parking-oriented Strategies

- Expand parking enforcement in coordination with signage and striping that formalizes where parking is and is not permitted on shoulders, and whether parking is parallel, head-in, or angle.
 - Increase parking enforcement through ticketing for illegal parking, failure to pay for parking throughout the corridor
- Implement priced parking to manage demand and reduce congestion-driven parking maneuvers. Paid parking at trailhead lots with pay kiosks and longer stays could be priced to incentivize quicker turnover through increasing per-hour costs the longer the stay. Alternatively, parking prices could be based on peak demands, with higher prices on weekends and lower prices during lower demand times. Both approaches could be tested. Changes to parking management would be rolled out with other tools that provide information to travelers through apps, websites, and variable message signs on I-84. Consider equity concerns with implementing parking pricing and how to ensure lower-income visitors are not priced out.

- Implement paid parking in the I-84 lot for Multnomah Falls; ensure that it is more expensive to park than to take the shuttle.
- Parking could be priced more expensively at high-demand destinations. Prices could also gradually become higher per hour to encourage faster turnover
- Pricing could fluctuate to reflect demand, with higher prices on weekends and holidays, and lower prices during off-peak demand
- Utilize Benson Lake State Park as parking overflow for Multnomah Falls. This would require an ADA-accessible path to travel from Benson State Park to Multnomah Falls, located between I-84 and the Railroad tracks. Build appropriate fencing and walkways to keep visitors from trespassing on the railroad tracks.

Transit Strategies

- Implement transit improvements in coordination with the Columbia Gorge Express expansion plans currently underway.
 - Coordinate with the Columbia Gorge Express to provide full schedule and travel information in all information sharing campaigns and tools
 - Support funding for improved long-term sustainable transit service
- Once vehicle demand reaches a specific trigger for congestion and parking (to be determined), introduce a shuttle service. The service should be paired with satellite park-and-ride lots to transport travelers between recreational attractions on the Historic Highway.
 - Implement a shuttle to operate on the Historic Highway, stopping at popular attractions
 - Introduce concurrently with parking changes and site capacity (determine the optimal level of service based on capacity, user experience) so that the shuttle does not get stuck in vehicle congestion, and destinations sites are not overloaded. Balance parking removal with the additional visitors the shuttle could accommodate to ensure no net increase in visitors to each site.
 - Determine pricing for shuttle service
 - If shuttle service reaches a capacity threshold, consider pre-reservations requirements to ride.
 - Utilize park and ride locations at each end of study area in Corbett and Cascade Locks, and potential future sites at the Bridal Veil Mill Site and Ainsworth Interchange; talk with public agencies (e.g. school districts) that may have excess parking capacity during the summer season.
 - Consider creating a park and ride off Exit 17 on I-84 at the ODOT-owned property along Jordan Road.
 - Remove parking spaces to create shuttle stops and dwell areas at popular attractions. Consider pedestrian circulation when siting shuttle stops as users may need to cross the Historic Highway.
 - Coordinate with the Columbia Gorge Express to allow transfers between services
 - Coordinate with private transit operators

Pedestrian Access and Congestion Relief Strategies

- Implementing tools to address congestion and safety issues at the Historic Highway pedestrian crossing at Multnomah Falls. Formalize a traffic team program to place staff at the crossing during peak-season weekends and other likely busy days.
 - Between Memorial Day and Labor Day, place traffic teams at the Historic Highway pedestrian crossing at Multnomah Falls between 10 a.m. – 5 p.m. on weekends to manage pedestrians and vehicle movements. Initial monitoring could help determine whether shifts could be shortened, or if traffic team members are needed on shoulder weekdays
 - Implement the recommendations from the current FLAP grant from the USFS to address pedestrian circulation on the Multnomah Falls Historic Highway

When traffic and congestion requires flaggers more than 5 days a week for more than two hours each day, add a stop-controlled crossing at the crosswalk. Specific traffic control would be determined by the State Traffic Engineer and could include a full signal.

- Prioritize tools and strategies that support fire-related rehabilitation efforts in coordination with fire recovery efforts. One strategy is the phased reopening demonstration in the Waterfall Zone. Implement the limited lane opening, which would create one-way roadway operations when the Historic Highway can be opened, and gather traffic data to assess one-way operations impact on mobility, safety, and user experience.
 - Add an entrance station where one-way roadway operation begins. Use the OPRD trailer to inform users and monitor the entrance point
 - Use traffic cameras to read license plates and issue tickets to non-compliant vehicles (e.g. – traveling in the wrong direction, oversized vehicles)
 - Add lane delineation or markings for vehicle restrictions, and use markings for where people should walk and bicycles should ride to encourage user separation

The Project Management and Project Leadership Teams will vet and refine recommendations. The Project Leadership Team will consider feedback gathered from stakeholder workshops and the online open house when refining the recommendations. Once the full project team has refined the tool recommendations, the team will further detail implementation strategies, timing, and potential funding mechanisms in the Implementation Strategies project phase (Figure 3).



Figure 3. Process and Next Steps

Appendix A: Scenarios Overview

The scenarios represent packages of tools that include projects and programs as potential solutions to address the critical issues on the Historic Highway that contribute to congestion, safety issues, and poor user experience. The scenarios do not preclude strategies that ODOT and partners are piloting for the reopening of the Historic Highway post-Eagle Creek fires.

The following three scenarios represent different potential management approaches to the Historic Highway. Scenario 1 is a continuation of the policies and programs that agency partners currently implement. Scenarios 2 and 3 each share a set of baseline tools, with differing emphasis on tools focused on parking management or transit expansion. Scenarios 2 and 3 have two phases, with the latter phase representing a greater level of investment or intervention associated with the scenario tools (Figure A-1).

Scenario 1 – Continue Present Programs and Policies

Scenario 1 would maintain the current programming approach and assumes that all activities and programs that agency partners administer today will continue to operate in the future. Today, ODOT, USFS, the County, Oregon Parks and Recreation, and Friends of the Columbia River Gorge coordinate to manage visitors to the Historic Highway through the following programs:

- **Columbia Gorge Express Bus Operations.** Continue with stops at the Gateway Transit Center, Rooster Rock, and Multnomah Falls (A-12). Implement planned Columbia Gorge Express expansion to add weekday service and service to Hood River and Cascade Locks with potential additional stops between Portland and Hood River (A-10). Continue to allow on-line ticket purchases and online transit tracker ability (A-8, A-14). Continue to allow commercial tour bus use to shift visitor trips from single occupant vehicles to larger capacity vehicles (A-30).
- **Control Gate Access.** Continue access gate operation at Multnomah Falls parking off I-84 when the lot has reached capacity. Continue staffing the westbound entrance to close the I-84 lot when the eastbound gates are closed to reduce potential queues on I-84 (A-4, A-15, A-19).
- **Real-time Roadway Information.** Continue using variable messaging signs on I-84 to alert travelers to full parking areas. Continue using variable messaging signs on I-84 to alert travelers to crashes, construction, or other roadway information that may affect their trip (A-7, A-22). Continue providing lot-capacity information and camera at the I-84 lot on tripcheck.com to provide information to the traveling public about parking availability at the lot.
- **Travel Information.** Continue “Ready, Set, Gorge” campaign to provide travel information to visitors, including up-to-date maps, pamphlets, website, and other travel information (A-31).
- **Volunteer Parking Assistance and Information.** Partner with “Friends Groups” volunteers, when available, to provide visitor and parking assistance information (A-11).
- **Multimodal Access.** Provide parking at established lots near trails and landmarks, and promote transit, bicycling, and other alternative modes of transportation (A-21). Establish bike hubs in the Gorge, towns to trails, and other programs to enhance multimodal access.

Scenarios 2 and 3 Baseline

Some lower-cost, near-term projects and programs could be implemented, regardless of implementation of other higher-cost projects. Some baseline tools are a necessary step to implementing other tools in the scenario, such as data collection and monitoring. The baseline tools focus on providing information (for example, travel options brochures, web applications, variable message signs) and collecting data (using traffic cameras to monitor parking or roadway segments). The baseline also includes tools to encourage parking compliance (additional paint delineation and signage), including

enforcement. Finally, the baseline tools address known challenges generated by the presence of large vehicles operating on the viaducts by restricting where large vehicles can operate on the Historic Highway.

- **Parking enforcement.** Continue and expand enforcement of restricted parking areas. Enforce proposed paid parking approach (A-15, A-19).
- **“Ready, Set, GOrgE” coordination and brochure with travel options, environmental, and cultural information.** Continue a shared marketing strategy with “Ready, Set, GOrgE” to inform users of new travel options and parking requirements (A-31). Support and raise awareness of existing tour bus operators and promoting bicycle and pedestrian travel (A-26, A-29, A-30).
- **Variable message signs on I-84 with Historic Highway “roadway conditions” information.** Deploy variable message signs on I-84 to warn travelers about trail closures, lane closures, heavy congestion, or full parking areas. Variable message signs should be located at decision points where drivers might exit I-84 to access the Historic Highway (A-7).
- **New or enhanced Gorge or Historic Highway app with travel options and real-time roadway conditions information.** Create a one-stop data app to host information about travel options, describe current conditions, allow users to make parking reservations, and discover best times to visit popular attractions prior to arriving in the Gorge/Historic Highway corridor. (A-3, A-27)
- **Traffic cameras to monitor/gather Historic Highway segment data.** Install traffic cameras near Vista House, within the Waterfall Zone, and near Ainsworth to capture vehicle volumes and discern how many vehicles drive the entire corridor (A-22).
- **Traffic cameras to monitor/gather parking capacity data.** Install traffic cameras at the Multnomah Falls Historic Highway parking lot and at Wahkeena Falls to monitor and collect information on parking utilization. (A-6)
- **Utilize existing ODOT data portal to push travel information to connected vehicles. Create app interoperability.** Share information on travel conditions and alternatives via connected vehicles wirelessly connected cloud computing.
- **Transportation Management Association.** Pursue formation of a Transportation Management Association. A Transportation Management Association is a non-profit, member-controlled organization that provides transportation services in an area. (A-35)
- **Enforcement of shoulder parking violations.** Expand parking enforcement in coordination with signage and striping that formalizes where parking is and is not permitted on shoulders. (A-19)
- **Painting shoulder for delineation.** Strongly delineate parallel, head-in, or angle parking where appropriate through striping and pavement markings.
- **“No parking” signs where applicable.** Install signs where new restrictions are implemented.
- **Large-vehicle restrictions between Bridal Veil and Ainsworth State Park.** Remove conditions where large vehicles traveling in opposite directions cannot pass on the roadway, including the narrow viaducts east and west of Multnomah Falls, to improve safety and mobility. (A-24)
- **Add gates on the westbound Multnomah Falls Entrance at I-84 exit 31.** Adding gates would help reduce congestion-related backups onto I-84 for the westbound entrance to the I-84 Multnomah Falls Lot. (A-4)

Scenario 2 – Focus on Parking Strategies

Scenario 2 focuses on addressing safety, congestion, and user frustration generated by parking-related delay issues at trailheads and parking lots, and delays along the roadway from pedestrians crossing the Historic Highway at Multnomah Falls and other high-traffic areas. There are two primary solutions included in Scenario 2:

- **Traffic control at Multnomah Falls.** In Scenario 2, traffic flaggers would help to control pedestrian crossings and vehicle movements on the Historic Highway at Multnomah Falls during busy, seasonal weekends. When the need for flaggers on weekends exceeds spring and summer seasonal peaks,

the threshold would be met, and a higher-intensity project would be needed – installing a traffic-control device at the Multnomah Falls crossing. A concurrent Federal Highway Administration study is evaluating alternatives for Multnomah Falls Lodge pedestrian access and circulation. (A-11)

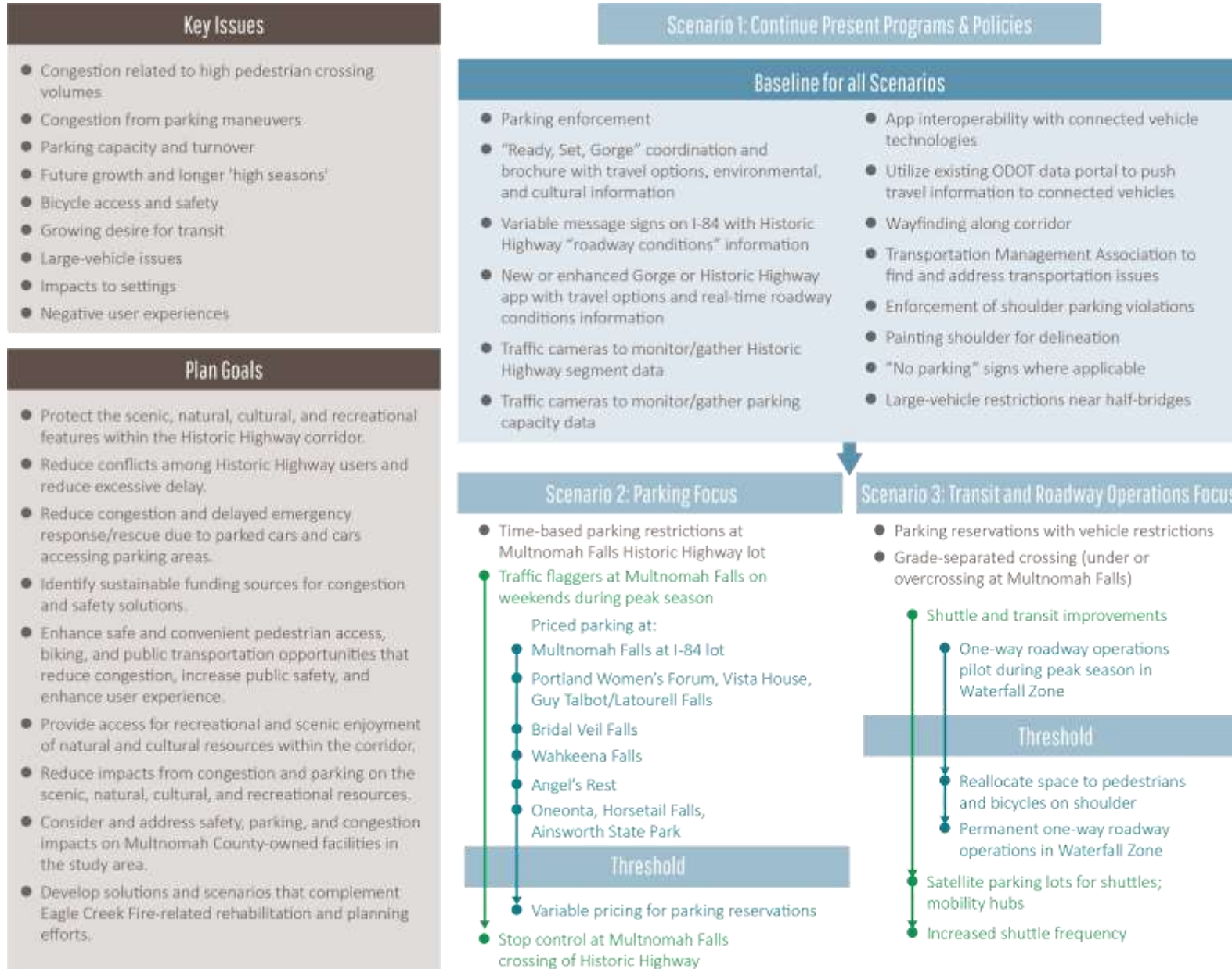
- **Priced parking.** To address congestion and user frustration from low parking turnover rates, Scenario 2 introduces priced parking for each of the study area parking lots: Portland Women’s Forum, Vista House, Bridal Veil State Park, Latourell Falls, Wahkeena Falls, Multnomah Falls I-84 lot, Oneonta Gorge, Horsetail Falls, Angels Rest, and Ainsworth State Park. Parking prices could vary based on location, season, and time of day. For example, parking could be more expensive on a summer Saturday than a fall weekday. (A-28) The revenues from parking could be managed by the Transportation Management Association (A-35) in the baseline for both scenarios, and reinvest the receipts into transit and other upgrades along the corridor.

Scenario 3 – Focus on Transit Strategies

Scenario 3 focuses on addressing congestion and safety issues through operational changes to the roadway, reallocation of space within the existing right-of-way, investment in transit improvements, and the introduction of a circulator shuttle. There are four primary solutions included in Scenario 3:

- **One-way pilot project in the Waterfall Corridor.** ODOT is exploring piloting one-way operations within the Waterfall Corridor. ODOT would monitor roadway operations and travel times, comparing them to typical, two-way conditions. If the one-way operations result in significant improvements to the roadway operation with less delay, reliable travel times, and fewer conflicts, the threshold would be met, and the following project would be considered: moving to a seasonal or permanent, one-way operation within the Waterfall Corridor on the Historic Highway. Once implemented as a one-way roadway, ODOT could expand or improve safety and access for bicycles or pedestrians walking along the roadway between trailheads by using the space from the repurposed lane to restripe the fog lines, creating wider shoulders.
- **Circulator shuttle.** Scenario 3 projects include transit improvements and the introduction of a circulator shuttle that could carry users between park-and-ride locations, trailheads, and other scenic destinations. When ridership reaches a certain threshold, additional improvements would include increased frequencies for shuttles, satellite parking lots for park-and-ride shuttle service, and the introduction of mobility hubs. Satellite parking lots could use under-utilized parking areas such as Troutdale Outlet Mall, Corbett Elementary School, Bridal Veil Mill Site, Ainsworth interchange, Cascade Locks Elementary School, Cascade Locks Marine Park, or others. (A-9, A-10, A-12, A-25)

Figure A-1. Scenarios Overview



Appendix B: Criteria and Measures Discussion

The project team evaluated each scenario using the criterion that measures how well the tools meet project goals. This section discusses the commonalities and tradeoffs as uncovered by the evaluation.

Goal 1 – Criterion: To what extent does the scenario impact scenic, natural, cultural, and recreational features along the Historic Highway?

Scenario 1

Existing programs and policies would have low impacts on scenic, natural, cultural, and recreational resources, and is rated “medium” to protect these features within the Historic Highway corridor. Current programming would not change impervious surface, create new impacts on key viewing areas, scenic and or recreational features through new structures or other infrastructure. Scenario 1 would not change the tree canopy; nor would it impact known cultural resources.

However, without intervention and under the continuation of existing programs and policies, the Historic Highway would continue to see increases in visitors driving to the area, contributing to congestion and poor user experience. Heavy congestion and queuing vehicles results in exhaust, noise, and a long line of vehicles obstructing views, which impacts the natural and scenic character of the Historic Highway.

Baseline Tools for Scenarios 2 and 3

Baseline tools are common to Scenarios 2 and 3 (Figure B-1). Many baseline strategies would have no physical impact on the scenic, natural, cultural, and recreational features along the Historic Highway, but could shift travel behaviors in a way that encourages visitors to utilize other travel options and visit during less busy periods. A shift toward other travel modes and away from peak times could have a positive effect on the scenic, natural, cultural, and recreational features by lessening congestion and its associated impacts. These baseline strategies include the “Ready, Set, Gorge” brochure coordination, a new or enhanced travel app with travel options and real-time roadway conditions, use of traffic cameras to collect travel information, and use of variable message signs to provide real-time travel information.

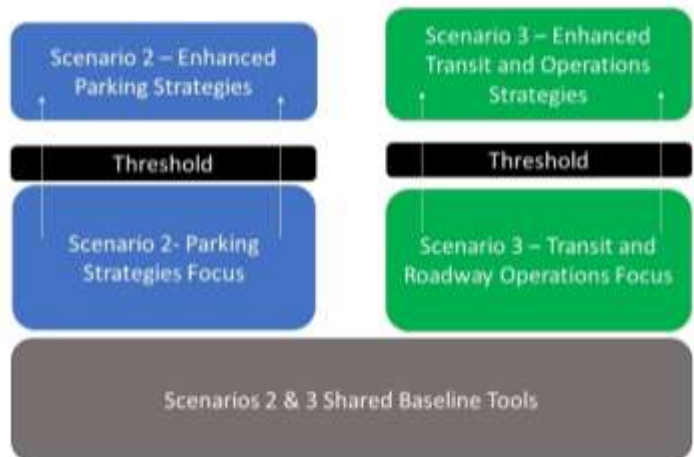
Parking strategies and enforcement have the potential to mitigate illegal parking along the roadway, limiting damage and encroachment from proximity to natural and cultural resources, as well as sight-line obstructions on the roadway.

Some baseline tools would add additional non-natural features to the Historic Highway such as traffic cameras, wayfinding, or “No parking” signs. New signs installed would follow National Scenic Area guidelines.

Scenario 2

A focus on parking strategies would likely not create new impacts on scenic, natural, cultural, and recreational resources. This scenario would not change impervious surface, create impacts on key viewing areas or scenic and recreational features, change the tree canopy, nor change proximity to

Figure B-1. Tools in the Baseline Could Be Implemented in the Near Term for both Scenarios 2 and 3



known cultural resources. Parking management through time-based reservations could help even out visitor trips, easing congestion and queuing related to parking maneuvers. In addition, pedestrian traffic management conducted by traffic flaggers, and then via traffic signal, could also help to ease congestion and queuing related to high pedestrian crossing volumes.

Scenario 3

The introduction of a circulator shuttle or transit improvements could reduce vehicle use by offering travel alternatives along the Historic Highway. Like Scenario 2, parking reservations with variable pricing could help even out visitor trips, easing congestion and queuing related to parking maneuvers. Paid parking and transit and circulator options may mitigate illegal parking along the roadway, limiting damage and encroachment from proximity to natural and cultural resources.

The introduction of satellite parking lots for shuttles and mobility hubs would likely operate on existing surface parking lots in neighboring communities such as Cascade Locks or Corbett.

Goal 2 – Criterion: To what extent does the scenario reduce conflicts among roadway users, including vehicles, bicyclists, and pedestrians accessing key areas?

Scenario 1

Currently, to reduce conflicts among roadway users, Scenario 1 includes transit, bicycling, and other alternative modes of transportation. To promote the use of transit, Scenario 1 continues the operation of the Columbia Gorge Express and intends to expand services to include weekdays and connections to Hood River with potential additional stops between Portland and Hood River.

Baseline Tools for Scenarios 2 and 3

To reduce conflicts among roadway users, baseline tools included in Scenarios 2 and 3 would provide additional parking enforcement and striping to delineate the shoulders from the roadway. With the added enforcement and clearer delineation, parked vehicles would encroach on the Historic Highway's travel lanes less frequently, causing less friction with motor vehicle traffic and reducing conflicts between motor vehicles and people biking and walking.

Improved delineation and enforcement should reduce delay related to parking maneuvers along the Historic Highway. Additional tools that are likely to reduce delay include the provision of travel-time information for roadway users through variable message signage and mobile applications. Variable message signs placed along I-84 would provide roadway users with roadway condition information, which may influence route and destination decisions en-route. With the new and enhanced Gorge and Historic Highway apps, users could gain similar information from any location via a smart phone or, potentially, a connected vehicle. This technology may influence visitors to select different visiting times or destinations, thereby potentially reducing delay.

Scenario 2

In addition to the baseline tools provided for Scenarios 2 and 3, Scenario 2 includes varying levels of enhanced crossing control and paid parking treatments to reduce both roadway user conflicts and delay. To reduce delay and conflicts between motor vehicles and pedestrians, a flagger could be placed at Multnomah Falls on peak-demand days to control and maintain both pedestrian and motor vehicle flow and safety, directing drivers to continue along the Historic Highway when the Multnomah Falls lot is full. Furthermore, bicycle delay and conflicts would be reduced, as people biking tend to ride with traffic through the Waterfall Zone and experience the same delays as motor vehicles in this area. Lastly, this tool would provide safer crossing opportunities for pedestrians. When the need for flaggers on weekends exceeds spring and summer seasonal peaks, the threshold will have been met to provide a more permanent solution – the installation of a controlled pedestrian crossing. This later-phase treatment is expected to provide safety benefits like those provided by the flaggers, but on a year-round basis.

Parking maneuvers are a major contributor to delays along the Historic Highway. When paid parking reaches a specific threshold, variable-priced parking would be implemented at the waterfall lots via parking meters.¹ Variable-priced parking charges visitors more to park during the busiest hours and days. Pricing could incrementally grow per hour to encourage shorter stays and quicker stall turnover. With variable-priced parking lots, visitors may be influenced to visit at alternative hours or visit less congested areas.

Scenario 3

In addition to the baseline tools provided for Scenarios 2 and 3, Scenario 3 includes different approaches to parking management, and varying levels of transit implementation and roadway reconfiguration. A pilot program designating the Historic Highway as a one-way facility would be implemented in peak season, moving to permanent or seasonal one-way operation with space for people walking and biking. The one-way operation would reduce the number of potential conflict points, and dedicated space for vulnerable roadway users would help reduce conflicts as well.

Scenario 3 includes new shuttle services along the Historic Highway. The shuttle service would provide an alternative to single-occupant vehicles, with stops at each visitor attraction in the Waterfall Zone. New shuttle service, along with improved Columbia Gorge Express service, should reduce the number of motor vehicles traveling through the corridor, thereby reducing conflicts among users.

Like Scenario 2, parking reservations and variable pricing tools would also be implemented in Scenario 3, but on a quicker timeline, with comparable reductions in delay expected.

Goal 3 – Criterion 1: To what extent does the scenario support alternatives to accessing sites along the Historic Highway beyond personal motor vehicles?

Goal 3 – Criterion 2: To what extent does the scenario expand alternatives to illegal parking when existing lot capacity is fully utilized?

Scenario 1:

Existing programs and policies would have a low impact in reducing congestion, illegally parked cars, and delayed emergency response/rescue due to parked cars and cars accessing parking areas. Continuation with Columbia Gorge Express operations, and expansion to add service to Hood River with potential additional stops between Portland and Hood River, supports expanded transit access to Multnomah Falls via I-84. Scenario 1 would not introduce new alternatives to driving to, and parking at Historic Highway attractions.

Baseline Tools for Scenarios 2 and 3

The baseline tools primarily support alternatives to access sites and illegal parking through improving information on transportation alternatives. The “Ready, Set, Gorge” brochure and a new or enhanced Gorge or Historic Highway app would both offer information on ways to access sites without a personal vehicle. More visitors using alternatives to private vehicles would relieve pressure on existing parking facilities.

Scenario 2

A focus on parking strategies would meet the project goal of reducing congestion, illegally parked cars, and delayed emergency response/rescue due to parked cars and cars accessing parking areas. Scenario 2, however, does not include tools that support alternatives to accessing sites along the Historic Highway or provide parking alternatives to existing lots.

¹ A threshold of 85 percent of reservations booked for more than 50 percent of the weekends must be met to implement this tool.

Scenario 3

Scenario 3's focus on transit and roadway operations would support the goal to reduce congestion, illegally parked cars, and delayed emergency response/rescue due to parked cars and cars accessing parking areas. This scenario rates "high" in supporting alternatives to accessing Historic Highway sites by personal motor vehicle. Introduction of a circulator shuttle would add new transit round trips and accommodate a significant number of visitors to popular recreational destinations, carrying users between park-and-ride locations, trailheads, and other scenic areas. Additional improvements could increase frequencies for shuttles, provide satellite parking lots for park-and-ride shuttle service, and accommodate mobility hubs. In addition, implementation of one-way roadway travel through the Waterfall Zone could allow for reduced congestion and improve facilities for bicycles or pedestrians by restriping the fog lines to create a wider shoulder.

This scenario also expands alternatives to illegal parking when existing lot capacity is fully utilized. Introduction of a circulator shuttle would add to person-trip capacity to the corridor, creating a practical alternative to vehicle parking on the highway shoulder. Potential implementation of one-way roadway travel through the Waterfall Zone could allow restriping of the fog lines to demarcate the edge of the travel lane. Parking pricing could help smooth demand for vehicles accessing parking areas and accelerate parking turnover rates.

Goal 4 – Criterion: To what extent does the scenario create funding streams or qualify for existing funding sources?

Scenario 1

Scenario 1 represents no change to current funding viability. Outside of transit ticket sales from the Columbia Gorge Express, this scenario would not directly address new funding streams. Current programs may qualify for additional local, state, or federal grants; however, present programs and policies are limited and are not slated to create new funding streams. Similarly, the scenario presents limited opportunities to work with Washington State agencies to secure funding beyond the coordination that happens today.

Baseline Tools for Scenarios 2 and 3

The introduction of a Transportation Management Association sets the foundation for and ability to collect and manage funding streams generated by tools in Scenarios 2 and 3. The Transportation Management Association may have staff capacity to apply for grants, or create business sponsorships to generate funding to implement other transportation programs in the National Scenic Area.

Scenario 2

The parking strategies in Scenario 2 have high potential to create new funding streams. Parking tickets from non-adherence to time-based reservations at Multnomah Falls, Angel's Rest, Wahkeena Falls, and Bridal Veil Falls could generate revenue. Priced parking under Scenario 2 could create a funding stream to support parking management, enforcement, and potentially other related activities. Parking program implementation may be eligible for local, state, or federal grants related to transportation demand management, travel options grants, and the Oregon Sustainable Transportation Initiative.

In addition, there is potential to coordinate with Washington State agencies on parking management strategies for the National Scenic Area. Popular Gorge destinations in Washington, such as Dog Mountain, face similar issues with overflow parking along the Highway 14/Lewis and Clark Highway shoulder. In summer 2018, USFS piloted a weekend Dog Mountain trail system permit, similar in nature to advance registration for parking spots. Other scenic and recreation areas, such as Muir Woods National Monument in California, have contracted with service providers to oversee parking reservation and management. Oregon and Washington could partner to apply for grants to pilot variable-price parking on each side of the river.

Scenario 3

Tools that include transit and priced parking have high potential to create new funding streams. Introduction of a circulator shuttle could generate income through ticket sales. Transit service may be eligible for support from local and state sources, as well as Federal Transit Administration Formula Funds distributed to ODOT for certain types of public transportation service.

Goal 5 – Criterion: To what extent does the scenario create safer and more convenient conditions for all users?

Scenario 1

Expansion of Columbia Gorge Express service may create more access to recreational sites from I-84; otherwise, Scenario 1 would create little new impacts on current conditions on the Historic Highway. As visitor numbers continue to grow, congestion may grow; and user experience could decline under current programs and policies.

Baseline Tools for Scenarios 2 and 3

Baseline tools for Scenarios 2 and 3, such as enforcement of shoulder parking violations, wayfinding along the corridor, painting the shoulder for delineation, and large-vehicle restrictions near the viaducts, would help create safer and more convenient conditions for all users, particularly those walking and biking along the Historic Highway. Other strategies, such as “Ready, Set, Gorge,” the advent of a Gorge or Historic Highway app, variable message signs with real-time traffic information, and implementation of the Transportation Management Association, could create more convenient travel conditions through access to information.

Scenario 2

The parking strategies in Scenario 2 have high potential to create safer and more convenient conditions for all users. Implementation of traffic flaggers at Multnomah Falls on weekends during peak season would help improve safety for pedestrians and better mitigate congestion from parking maneuvers. After thresholds have been met, a signal or other stop-controlled device would create safe conditions by stopping vehicles for pedestrian crossings.

Priced parking could also create a more reliable parking system with potential to mitigate congestion issues around parking maneuvers and conflicts with pedestrian movements.

Scenario 3

Transit and roadway operational improvements have high potential to create safer and more convenient conditions for all users. Introduction of a circulator shuttle could carry users between park-and-ride locations, trailheads, and other scenic destinations currently not served by the Columbia Gorge Express. A change to one-way roadway operations within the Waterfall Zone could improve safety and access for bicycles or pedestrians walking along the roadway between trailheads by restriping the fog lines to create a wider shoulder and delineating the travel lanes.

Goal 6 – Criterion: To what extent does the scenario allow more people to access the Historic Highway without increasing congestion and delay on the roadway?

Scenario 1

Scenario 1 has low potential to enable more people to access the Historic Highway without increasing congestion and delay on the roadway. The exception is the planned Columbia Gorge Express service expansion to add weekday service and service to Hood River. The expanded service area and run would allow more people to access the Historic Highway without increasing congestion and delay. Outside of this, however, current programs and policies are not geared toward offering alternatives to private vehicles.

Baseline Tools for Scenarios 2 and 3

These baseline strategies have moderate potential to bring more people to the Historic Highway without increasing congestion. Tools focused on providing information about alternative travel options or encouraging trips during off-peak days or seasons could help to shift travel behaviors. These include the “Ready, Set, Gorge” brochure coordination, a new or enhanced travel app with travel options, and real-time roadway conditions.

Enforcement of shoulder parking violations, placing “No parking” signs where applicable, and implementing large-vehicle restrictions near the viaducts could have an impact on improving roadway operations and traffic flow, allowing more people to access the Historic Highway without increasing delay. Lastly, the creation of a Transportation Management Association could also manage visitor information and provide dedicated staff to work on mitigating traffic congestion and implementing tools in Scenarios 2 and 3. The baseline tools, however, do not invest in added capacity in non-private vehicle travel modes.

Scenario 2

Providing traffic flaggers at Multnomah Falls on weekends during peak season would help improve the access and maneuvers of both pedestrians and motor vehicles. Priced parking at Multnomah Falls, Angel’s Rest, Wahkeena Falls, Bridal Veils, and other destinations along the corridor would create a more reliable experience for those parking vehicles. Implementing variable pricing has the potential to encourage shorter stays and accelerated vehicle turnover, enabling more people to access the corridor.

Scenario 3

Tools focused on expanding transit service, introducing shuttles, and adjusting roadway operations have high potential to allow more people to access the Historic Highway without increasing congestion and delay on the roadway. Shuttle and transit improvements would accommodate a significant number of additional visitors to popular recreational destinations along the corridor, mitigating additional congestion and delay from individual vehicles. A circulator shuttle could carry users between park-and-ride locations, trailheads, and other scenic destinations. Additional improvements could increase frequencies for shuttles, provide satellite parking lots for park-and-ride shuttle service available to Columbia Gorge Express riders, and introduce mobility hubs. Implementation of one-way roadway travel through the Waterfall Zone could improve safety and access for bicycles or pedestrians walking along the roadway between trailheads by restriping the fog lines to create a wider shoulder. The more comfortable conditions could encourage more people to access sites by these modes.

Goal 7 – Criterion: To what extent does the scenario improve conditions or lessen impacts on the scenic, natural, cultural, and recreational resources?

Scenario 1

Currently, to reduce the amount of idling and parked vehicles along the Historic Highway, Scenario 1 uses variable message signing along I-84 and the access gate at Multnomah Falls to alert drivers when parking areas have reached capacity, which can help reduce circling and idling. Furthermore, Scenario 1 also partners with “Friends Groups” volunteers to provide visitor information and parking assistance management to reduce parking conflicts and provide travelers with accurate parking information.

Baseline Tools for Scenarios 2 and 3

Parking delineation and enforcement under the baseline tools for Scenarios 2 and 3 would reduce the amount of idling and parked vehicles along the Historic Highway. Parking enforcement and implementation of “No parking” signs would prevent cars from parking illegally along the shoulders of the Historic Highway, reducing the total number of vehicles parked and reducing motor vehicle impacts on the natural and scenic environment (the adjacent hillsides and plants). Traffic cameras, variable

message signs, and traveler information pushed to smart phones and connected vehicles should help reduce the number of vehicles accessing the Historic Highway during congested times, when there is the most idling.

Scenario 2

In addition to the baseline tools for Scenarios 2 and 3, with Scenario 2, there is a higher potential to reduce the amount of idling through the implementation of priced parking at popular tourist destinations.

Scenario 2 would also implement variable pricing at Waterfall Zone corridor lots as parking and congestion levels increase, and when a capacity threshold has been met.² The variable pricing tool has the potential to reduce the number of idling vehicles by better managing the predictability of parking availability. Lastly, with the variable pricing tool, visitors may choose to take alternative forms of transportation to avoid paying higher fees for parking during peak hours, which may lead to a reduction in the number of overall idling and parked cars.

Scenario 3

In addition to the tools included in the baseline tools for Scenarios 2 and 3, Scenario 3 would benefit from similar reduction in idling and circulation as seen in Scenario 2, and includes other elements that could positively impact idling and parking issues. The initial one-way pilot reconfiguration and seasonal or long-term improvement should reduce the overall number of vehicles on the highway, and further reduce idling by eliminating turning movement delays related to a lack of gaps in oncoming traffic.

Scenario 3 would also provide visitors with convenient alternatives to driving via a new shuttle service and enhancements to Columbia Gorge Express service, and increase the aesthetics of traversing the corridor. Furthermore, as a one-way facility, remaining roadway space could be designated for biking and walking in the long term, allowing visitors another alternative to driving. The one-way roadway reconfiguration would also provide the opportunity to further demarcate and sign the shoulders for parking in a way that further protects the adjacent hillside and foliage.

Goal 8 – Criterion: To what extent does the scenario create negative impacts on surrounding Multnomah County facilities through high levels of spillover traffic and illegal parking?

Scenario 1

Scenario 1 would continue the existing programs and configuration, and would have no influence on the level of traffic diversion to County-owned facilities that connect to the Historic Highway.

Baseline Tools for Scenarios 2 and 3

Strategies in the baseline tools for Scenarios 2 and 3 such as enhanced traveler information and wayfinding should improve navigability and traffic flow on the Historic Highway, and should have no influence on the level of traffic diversion to County-owned facilities that connect to the Historic Highway.

Scenario 2

This scenario should also improve traffic flow on the Historic Highway, as it includes all strategies in the baseline tools for Scenarios 2 and 3 and further includes parking management strategies that would reduce the number of vehicles traveling through the area searching for parking. Overall, Scenario 2 should have little to no impact on traffic diversion to County-owned facilities.

² A threshold of 85 percent of reservations booked for more than 50 percent of the weekends must be met to implement this tool.

Scenario 3

This scenario does have the potential to increase the level of traffic diversion to County-owned facilities that connect to the Historic Highway. This depends on whether, over the long term, the one-way configuration extends west of Bridal Veil Road. If the one-way operation were restricted to the segment between Bridal Veil Road and Ainsworth State Park, diversion to County-owned facilities would be unlikely because there are no parallel County-owned routes. If the reconfiguration were extended west, however, traffic diversion to facilities such as Larch Mountain Road may occur.

Goal 9 – Criterion: To what extent does the scenario complement specific fire-related rehabilitation efforts?

Scenario 1

Present programs and policies would not complement fire-related rehabilitation efforts. Current programming such as the control of gate access, use of variable messaging signs on I-84, and promotion of travel information through the “Ready, Set, Gorge” campaign would continue. Current programming is not likely to impact the ability of USFS to reliably access trails and recreational facilities for rebuilding purposes.

Baseline Tools for Scenarios 2 and 3

Tools that enable data collection, such as traffic cameras, could complement fire-related rehabilitation efforts as they pilot new, one-way roadway operations. Variable message signs, a Gorge or Historic Highway app, and app interoperability could support fire-related rehabilitation efforts by advising travelers to changes in roadway operations. The creation of a Transportation Management Association could provide significant assistance in supporting rehabilitation efforts. The Transportation Management Association would serve a key role in both broadcasting the variety of transportation options available to recreational users and working with USFS to provide clear, timely information about the status of restoration and ways to mitigate user impacts as rehabilitation efforts continue. It could also help carry forward successful pilot projects.

Scenario 2

Implementation of traffic flaggers at Multnomah Falls would help improve the access and maneuvers of both pedestrians and motor vehicles, and create a more reliable environment for ongoing restoration work. In addition, priced parking and enforcement at key destinations along the Historic Highway would create a more reliable experience for vehicle parking, and have the potential to generate greater vehicle turnover, especially through implementation of variable pricing. As restoration work continues at key destinations along the Historic Highway corridor, these strategies could mitigate vehicle congestion, queues, and overflow parking along the shoulder. As of spring 2018, Wahkeena Falls, Angel’s Rest, and Bridal Veil Falls are closed indefinitely, which could place greater demand on parking facilities at Multnomah Falls and Gorge destinations farther west.

Scenario 3

Transit and roadway operation tools could complement specific fire-related rehabilitation efforts. Circulator shuttle and transit improvements could carry visitors to popular recreational destinations along the corridor if vehicle restrictions were needed to accommodate any rehabilitation work. Additional improvements such as satellite parking lots, shuttle service, and mobility hubs could encourage people to visit the Historic Highway without their private vehicle. Such strategies could help mitigate congestion and delay from individual vehicles, as well as overflow parking on Historic Highway shoulders.

Scenario 3 recommends a one-way roadway operational pilot that complements the fire-related pilot under consideration. Overall, Scenario 3 complements fire-related rehabilitation efforts through providing the USFS with more reliable access to servicing trails and rebuilding recreational facilities.

Appendix C: Scenario Evaluation Results

Project Goal	Criterion	Evaluation Measures	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies
Protect the scenic, natural, cultural, and recreational features within the Historic Highway corridor.	1. To what extent does the scenario impact scenic, natural, cultural, and recreational features along the Historic Highway?	Change (measured in acreage) in impervious surface	No change	No change	No change
		Qualitative assessment of positive or negative impacts on key viewing areas or scenic or recreational features	No change	Medium	High
		Change (measured in square feet) in tree canopy	No change	No change	Low
		Proximity to known cultural resources	No change	No change	Low
Reduce conflicts among Historic Highway users and reduce excessive delay.	2. To what extent does the scenario reduce conflicts among roadway users, including vehicles, bicyclists, and pedestrians accessing key areas?	Implements best practices in design or use patterns to reduce conflicts among roadway users	No change	Medium	High
		Reduces delay for roadway users	No change	Medium	High
Reduce congestion, illegally parked cars, and delayed emergency response/rescue due to parked cars and cars accessing parking areas.	3. To what extent does the scenario support alternatives to accessing sites along the Historic Highway beyond personal motor vehicles?	Level of new transit service (number of new round trips)	Low	Low	High
		New linear footage of bicycle facilities	Low	Low	High
	4. To what extent does the scenario expand alternatives to illegal parking when existing lot capacity is fully utilized?	Number of alternatives to parking on Historic Highway shoulders	Low	Low	High
		Potential to increase parking compliance (e.g., increased parking enforcement, painting fog lines to demarcate edge of travel lane)	Low	High	High
		Increased parking turnover rates	Low	High	High
Identify sustainable funding sources.	5. To what extent does the scenario create funding streams or qualify for existing funding sources?	Level of creation of new funding streams (e.g., transit ticket sales, parking fees)	Low	High	High
		Degree to which the scenario would be eligible for local, state, or federal grants, or has an existing funding stream	Low	Medium	Medium
		Does the strategy coordinate with Washington State agencies to secure funding?	Low	Low	Low
Enhance safe and convenient biking and public transportation opportunities that reduce congestion, increase public safety, and enhance user experience.	6. To what extent does the scenario create safer and more convenient conditions for all users.	Amount of new bike parking	Low	Low	Medium
		Number of new sites served by public transit	Low	Low	High
		Number of new marked crossings	Low	Medium	Medium
		Number of signs to increase safety or wayfinding	Low	Medium	Medium
		Programs or policies encourage higher vehicle-occupancy rates (such as carpools, shuttles)	Low	Low	Medium
Provide access for legal recreational and scenic enjoyment of natural and cultural resources adjacent to the corridor.	7. To what extent does the scenario allow people to access the Historic Highway without increasing congestion and delay on the roadway?	Level of improvement of in all modes of travel to access recreation destinations	Low	High	High
		Number of new park-and-ride stalls available to Columbia Gorge Express riders	Low	Medium	High
Reduce impacts from congestion and parking on the	8. To what extent does the scenario improve conditions, or lessen impacts on	Level of reduction of idling and parked vehicles on the Historic Highway	No change	Medium	High

Project Goal	Criterion	Evaluation Measures	Scenario 1 – Continue Present Programs and Policies	Scenario 2 – Focus on Parking Strategies	Scenario 3 – Focus on Transit Strategies
scenic, natural, cultural, and recreational resources.	the scenic, natural, cultural, and recreational resources?	Reduction in cars parked on the highway shoulder, impacting adjacent hillsides and plants	No change	Medium	Medium
Consider and address safety, parking, and congestion impacts on Multnomah County-owned facilities.	9. To what extent does the scenario create negative impacts on surrounding Multnomah County facilities through high levels of spillover traffic and illegal parking?	Level of diversion to Multnomah County-owned facilities that connect to the Historic Highway	No change	No change	Low
Develop solutions and scenarios that complement Eagle Creek Fire-related rehabilitation and planning efforts.	10. To what extent does the scenario complement specific fire-related rehabilitation efforts?	Qualitative assessment of level of integration with fire-related rehabilitation efforts	Low	Medium	High

Appendix D. Management Toolkit