

REVISED TECHNICAL MEMORANDUM

DATE: March 29, 2021
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SUBJECT: Technical Memo #2: Evaluation Criteria
CC: Michael Duncan, ODOT
PROJECT NAME: Clatsop County TEFIP

This memorandum describes evaluation and prioritization criteria that will guide the development and selection of trail and evacuation route alternatives, amenities, and priorities for implementation. Additionally, high-level trail typologies are described to provide context for these criteria. Two related, but different sets of criteria are included to help first with the initial evaluation of trail alternatives and amenities, then prioritizing projects.

GOALS AND OBJECTIVES

The following details the project goals and objectives, as described in Technical Memorandum #1. These goals and objectives inform the evaluation and prioritization criteria described in this memorandum.

Project Goals

- **Safety:** Reduce risk to the community from a tsunami event by increasing convenient and accessible evacuation routes that connect at-risk communities to safe areas
- **Connections:** Expand the connected network of hardened evacuation facilities that can also provide year-round recreational benefits
- **Equity:** Reduce transportation-related disparities and barriers for communities at risk
- **Collaboration:** Continue cooperation and collaboration among partners to implement and maintain a coordinated evacuation trails network and tsunami wayfinding signage for Clatsop County

Core Objectives

- Assessment
 - Assess tsunami risk and vulnerability of the County's transportation infrastructure
 - Determine evacuation needs
 - Evaluate existing evacuation facilities
- Improvements
 - Identify and prioritize needed improvements to trails that serve as evacuation facilities, including evacuation route right-of-way dedications and reservation
 - Prioritize trail options that provide dual use and year-round benefits
 - Identify design considerations, constraints, and recommendations for tsunami evacuation facilities
 - Identify development standards for tsunami evacuation facilities

- Implementation
 - Develop an implementation strategy to prioritize and phase trail improvements
 - Refine and prioritize mitigation strategies found in current community resilience plans (Clatsop County Comprehensive Plan, the Multi-Jurisdictional Natural Hazards Mitigation Plan, and the Tsunami Wayfinding Signage program)
- Engagement
 - Develop and implement a robust community engagement process

EVALUATION CRITERIA

Evaluation criteria in Table 1 are based on the refined project objectives and will be used to evaluate and screen trail concepts, design and amenities determined later in the project. Each criterion will be evaluated using a “Consumer Reports” scale as follows:

- Project/alternative meets or fully addresses the criterion
- Project/alternative partially meets or addresses the criterion
- Project/alternative does not meet or has negative impacts with respect to the criterion

N/A Not applicable

These criteria will be applied to screen out those alternatives that should not move forward in the process. Additionally, weighting of the criteria is proposed in the table; weighting indicates how some criteria will be emphasized in the screening process.

Table 1. Screening Criteria

Subject	Criteria	Measure	Weighting
User experience	Provides the most comfortable and enjoyable user experience	Degree of separation from auto traffic and/or recreational value	
Safety and security	Provides a clear tsunami evacuation benefit	Follows existing evacuation route or facilitates new/enhanced evacuation connection; and/or project increases access to existing assembly areas	3x
Multimodal connectivity	Increases connectivity of the multimodal network	Increases network connectivity	
Planning, land use, and regulatory impacts	Aligns with the existing County land use plans	Project is compatible with the Comprehensive Plan and TSP	
Property ownership impacts	Minimizes impacts to private property owners	Project would rely on existing ROW and/or require minimal or no new ROW or easements	
Directness of travel	Supports directness of evacuation routes	Supports directness of evacuation routes or increases connectivity of the evacuation	

Subject	Criteria	Measure	Weighting
		network so as to reduce evacuation clearance times	
Cost and funding availability	Relative cost and likelihood of funding with grants	Project is low-cost relative to benefit provided and/or has a high likelihood of being funded through grants	
Infrastructure hardening	Increases the resiliency of the existing infrastructure system	Project would increase infrastructure resiliency, including hardening of other transportation system features	
Phasing opportunities	Project may be phased so as to facilitate incremental benefit	Project could be phased to implement useable segment/elements incrementally (or not)	
Accessibility	Facilitates connections for people with physical disabilities	Project is ADA accessible (or not)	2x
Populations served	Enhances evacuation routes or connections for unincorporated communities	Project would provide an evacuation/recreation benefit to a relatively large number of people, and/or to vulnerable populations ¹	2x

Notes:

¹ "Vulnerable populations" includes Environmental Justice and Title VI communities, including those that are racial or ethnic minorities, have disabilities, are younger (<18) or older (>65) adults, do not have access to a car, are low income, or have limited English proficiency

Prioritization Criteria

Once trail, amenities, and design alternatives have been developed and screened, the project team will prioritize investments based on the criteria in Table 2. These criteria are based on the project goals and objectives. Projects will be prioritized by timeframe for implementation, with near-term corresponding to higher priority and more easily implemented projects, with long-term corresponding to more costly and difficult to implement projects.

Table 2. Prioritization Criteria

Subject	Criteria
Timeframe for implementation	<p>Relative implementation timeframe, based on ability to fund, design, permit, and implement the project:</p> <ul style="list-style-type: none"> • Near-term (0-5 years) • Medium-term (5-10 years) • Long-term (10+ years)
Feasibility	<p>Relative feasibility, based on assessment of:</p> <ul style="list-style-type: none"> • Public support • Cost • Need for ROW or easements • Environmental/permitting considerations • Engineering complexity • Ability to phase the project

Subject	Criteria
Relative need	Addresses a documented evacuation and/or multimodal connectivity need, based on assessment of gaps in the existing evacuation and multimodal route network and on public/stakeholder feedback
Relative benefit to communities	Provides a high level of benefit, based on assessment of: <ul style="list-style-type: none"> • Degree of need • Evacuation and multimodal connectivity benefit relative to cost • Degree to which vulnerable populations would benefit • Public and stakeholder feedback
Potential for grant funding	Project has a high likelihood of being funded through one or more grant programs

TRAIL AND EVACUATION ROUTE TYPOLOGIES

Designated or marked tsunami evacuation routes in Clatsop County are generally public streets (see Technical Memorandum #3 for details on existing evacuation routes) that are accessible by motor vehicle. People are advised to evacuate on-foot during a tsunami emergency. The Clatsop County TEFIP is focused on opportunities for leveraging the existing trail and transportation network as evacuation facilities. This section provides an overview of trail and evacuation route typologies that will be considered during development of alternatives and the draft TEFIP to provide context for the evaluation and prioritization criteria. These typologies do not represent the entire universe of potential design solutions that may be considered during the process, but represent the main types that are expected to be considered.

Shared-use (Multi-use) Paths

Shared-use paths are hard-surface paths that accommodate a variety of users – those walking, hiking, cycling, or people who use mobility devices. These paths are generally designed to accommodate people using mobility devices (wheelchairs, canes, etc.) and the maximum grade prescribed is 5%. They may have a minimum width of 8' in areas where low usage is expected, though 10' to 12' is standard. If the path is not intended for use by people with physical disabilities, grades may exceed 5% for short distances (500 feet or less) in order to still be useable by cyclists. Hard surface, shared-use paths represent the greatest level of trail investment. These paths accommodate nearly everyone, though are the costliest to construct.

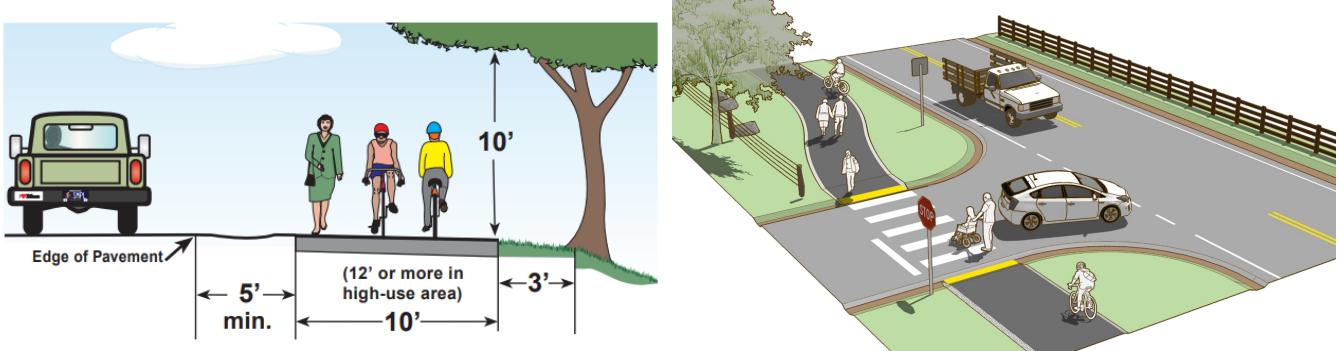


Figure 1. Shared use path design standards. The Oregon Department of Transportation's (ODOT) dimensional standards for shared paths (left image) and plan-view diagram of shared-path (right image). *Images courtesy ODOT and Federal Highway Administration (FHWA).*



Figure 2. Shared-use Path Examples. The Seaside Promenade (left) is an example of a hard surface shared-use path that provides opportunities for both people walking and cycling. The Banks-Vernonia Trail (right) is an example of a shared-use paved path that follows an old railroad grade. *Photos courtesy Google and Oregon State Parks.*

Shared Roadways

Many Clatsop County existing evacuation routes are along public roadways. Modest improvements to these routes could facilitate safe and comfortable bicycle and pedestrian access, enhancing the recreation value of these roadways. Many existing evacuation routes, since they often dead-end, also have low vehicle traffic, making them good candidates for shared-roadway treatments.

"Shared roadways" can take many forms, but typically have striping or other roadway markings to delineate space for people walking and cycling from auto traffic. They also have signage (warning and wayfinding) and may have traffic-calming infrastructure, such as speed bumps, chicanes, etc. Shared roadways can also provide connections between segments of off-road path. Shared roadways do not provide the high degree of separation between users that a shared-path provides, but because they generally have low traffic, a comfortable experience can be provided for people walking and cycling with minimal or modest investment.



Figure 3. Shared Roadway Examples. Example of shared roadway treatments in Detroit, Oregon (left image). Separation is provided through roadway markings and warning signage alerts drivers to the presence of people walking and cycling. A “bicycle boulevard” (right image) is another example of a shared roadway where sharrows indicate priority for cyclists and can aid wayfinding as well. *Photos courtesy FHWA.*

Recreational Trails

The United States Forest Service’s (USFS) trail typologies provide a useful framework for considering trails that are primarily used for recreation and that could serve as evacuation routes. It is important to note that soft surface trails are not generally accessible by people with physical disabilities, except for some “class 5” trails which may have hardened surfaces and meet grade requirements. This framework is useful for considering the potential utility of existing recreational trails for tsunami evacuation in Clatsop County, as well as potential improvements to these trails.

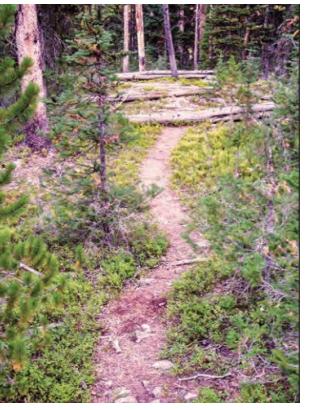
Table 3. Recreational Trail Class Matrix

Trail Attributes	Class 1 Minimally Developed	Class 2 Moderately Developed	Class 3 Developed	Class 4 Highly Developed	Class 5 Fully Developed
Tread and Traffic Flow	<ul style="list-style-type: none"> • Tread intermittent and often indistinct • May require route finding • Single lane with no allowances constructed for passing • Predominantly native materials 	<ul style="list-style-type: none"> • Tread continuous and discernible, but narrow and rough • Single lane with minor allowances constructed for passing • Typically native materials 	<ul style="list-style-type: none"> • Tread continuous and obvious • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Native or imported materials 	<ul style="list-style-type: none"> • Tread wide and relatively smooth with few irregularities • Single lane, with allowances for passing where required by traffic volumes • Double lane where traffic volumes are high and passing is frequent • Native or imported materials • May be hardened 	<ul style="list-style-type: none"> • Tread wide, firm, stable, and generally uniform • Single lane, with frequent turnouts where traffic volumes are low to moderate • Double lane where traffic volumes are moderate to high • Commonly hardened with asphalt or other imported material
Obstacles	<ul style="list-style-type: none"> • Obstacles common, naturally 	<ul style="list-style-type: none"> • Obstacles may be common, 	<ul style="list-style-type: none"> • Obstacles may be common, but not 	<ul style="list-style-type: none"> • Obstacles infrequent and insubstantial 	<ul style="list-style-type: none"> • Obstacles not present

Trail Attributes	Class 1 Minimally Developed	Class 2 Moderately Developed	Class 3 Developed	Class 4 Highly Developed	Class 5 Fully Developed
	<p>occurring, often substantial and intended to provide increased challenge</p> <ul style="list-style-type: none"> • Narrow passages; brush, steep grades, rocks and logs present 	<p>substantial, and intended to provide increased challenge</p> <ul style="list-style-type: none"> • Blockages cleared to define route and protect resources • Vegetation may encroach into trailway 	<p>substantial or intended to provide challenge</p> <ul style="list-style-type: none"> • Vegetation cleared outside of trailway 	<ul style="list-style-type: none"> • Vegetation cleared outside of trailway 	<ul style="list-style-type: none"> • Grades typically < 8%

Source: United States Forest Service (USFS)

Table 4. Recreational Trails Examples

Class	Example
Class 1: Minimally Developed	 
Class 2: Moderately Developed	 

Class	Example
Class 3: Developed	 
Class 4: Highly Developed	 
Class 5: Fully Developed	 