Technical Memorandum #1: Project Goals and Evaluation Criteria

Dean to Dunes Trail Plan
City of Reedsport/ODOT

FINAL
September 2017
This page is intentionally left blank.
Final Technical Memorandum #1: Project Goals and Evaluation Criteria

Project Information

Project: Dean to Dunes Trail Plan
Prepared for: City of Reedsport
451 Winchester Avenue
Reedsport, OR 97467

Reviewing Agency

Jurisdiction: City of Reedsport
Oregon Department of Transportation

Project Representative

Prepared by: SCJ Alliance
315 West Mill Plain Blvd, Suite 208
Vancouver, WA 98660
503.341.6248
scjalliance.com

Contact: Eric Johnston, PE, Principal
(360) 352-1465

Project Reference: SCJ #762.01, Phase 10

Path: N:\Projects\0762 Oregon Department of Transportation\0762.01 ODOT Transportation Analysis Planning\Phase 10 - Reedsport DDTP\04-Dels\02-TM#1-Goals & Criteria\TM#1 Draft Template.docx
SIGNATURE

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

______________________________
Prepared by: Laura Barker

______________________________
Approved by: Eric Johnston, PE

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Fixing America’s Surface Transportation Act (FAST Act), Federal Transit Administration, and State of Oregon funds.
TABLE OF CONTENTS

1. Introduction .................................................................................................................... 1
   1.1 Purpose ....................................................................................................................... 1
   1.2 Project Goals and Objectives ..................................................................................... 2

2. Study Area ...................................................................................................................... 3
   2.1 Study Area Characteristics ....................................................................................... 3
   2.2 Trail Planning Segments ........................................................................................... 3
      2.2.1 Segment A ........................................................................................................ 7
      2.2.2 Segment B ....................................................................................................... 8
      2.2.3 Segment C ....................................................................................................... 9
      2.2.4 Segment D ....................................................................................................... 9
      2.2.5 Segment E ..................................................................................................... 10
      2.2.6 Segment F ..................................................................................................... 11
      2.2.7 Segment G ..................................................................................................... 12

3. Evaluation of Trail Alternatives ..................................................................................... 15
   3.1 Comparative Evaluation Criteria ............................................................................ 15
   3.2 Evaluation Process .................................................................................................. 18
   3.3 Preferred and Alternative Trail Types .................................................................... 19

4. Next Steps ..................................................................................................................... 21
LIST OF TABLES

Table 1. Preliminary Trail Segments............................................................................................................ 7

LIST OF FIGURES

Figure 1. Dean to Dunes Trail Study Area Map.......................................................................................... 5
Figure 2. Segment A – Looking east along OR 38, with Umpqua River on left and Dean Creek Elk Viewing Area on right ................................................................................................................................. 7
Figure 3. Segment B – Looking west along OR 38 between 4th and 5th Streets ........................................ 8
Figure 4. Segment C – Looking northeast along US 101 between 19th and 20th Streets .......................... 9
Figure 5. Segment D – Looking south along US 101 north of Longwood Drive .................................... 10
Figure 6. Segment E – Looking north along US 101 north of Salmon Harbor Drive, with Winchester Creek estuary and wetlands on right .......................................................................................... 11
Figure 7. Segment F – Looking west along Salmon Harbor Drive at creek crossing .......................... 12
Figure 8. Segment F – Looking west along Salmon Harbor Drive, with Salmon Harbor Marina on right 12
Figure 9. Segment G – Looking south along Salmon Harbor Drive near beach access .......................... 13
Figure 10. Preferred DDTP Trail Cross-section ......................................................................................... 19
1. INTRODUCTION

The City of Reedsport and the surrounding unincorporated areas of Douglas County currently lack adequate bicycle and pedestrian facilities. US 101 and OR 38, the primary means by which bicyclists and pedestrians access the coast from the Reedsport area, are often inadequate to meet this need and are uncomfortable to use. Recent local planning efforts have identified a need to create a balanced transportation system by encouraging a more bicycle- and pedestrian-friendly environment along US 101 and OR 38, and to provide non-motorized connections between activity centers in and around Reedsport.

Reedsport is an economically distressed area with a negative population growth rate. The City is looking at numerous ways to reinvigorate the local economy, including coastal tourism. Despite its coastal location and proximity to a number of recreational opportunities, Reedsport does not have a coastal view and relies on US 101 and OR 38 for tourists to see the ocean and other attractors in the area. The area has seen a significant growth in outdoor enthusiasts in recent years, and the City would like to capitalize on this trend. Providing a safe and convenient multiuse trail would improve tourist opportunities and help invigorate the local tourism economy.

Additionally, even with the recent population and economic decline, Reedsport continues to be the major employment center in the area. People living outside Reedsport are unable to safely and conveniently commute on foot or by bicycle. These commuters would greatly benefit from a multiuse trail providing a safe, off-highway means of non-motorized travel between activity and employment centers in the area.

The intersection of these community needs presents the opportunity to develop an area-wide multiuse trail, providing regional non-motorized connections for commuters and recreational users alike. The City of Reedsport Dean to Dunes Trail Plan (DDTP) will provide the framework for building on this opportunity.

1.1 PURPOSE

The Dean to Dunes Trail Plan will identify a continuous trail extending from the Dean Creek Elk Viewing Area, westward to the City of Reedsport, then southwest to the Oregon Dunes (via the Umpqua South Jetty Beach Access at Salmon Harbor Drive in Winchester Bay, Oregon), for a total distance of approximately ten miles. The DDTP will build on prior trail planning efforts within the City; specifically, the Waterfront and Downtown Plan (2013), the Levee Loop Trail System Plan (2015), and the Pedestrian Safety Study (2015). The DDTP will be adopted as a supporting document to the Reedsport and Douglas County Transportation System Plans (TSP), with references added into each TSP where necessary.

Currently, the only opportunity for bicyclists and pedestrians to access areas in and near the City is on a narrow shoulder along the high-speed highways. Once constructed, the Dean to Dunes Trail will provide a convenient, non-automobile transportation alternative within and external to the community.
1.2 **PROJECT GOALS AND OBJECTIVES**

The DDTP will lay the groundwork for a continuous trail system—including an off-highway trail experience wherever practicable—extending from the Dean Creek Elk Viewing Area west to the City of Reedsport, and from the City southwest to the Oregon Dunes, while connecting to the existing and planned City bicycle and pedestrian system.

To this end, DDTP objectives include:

- Identify a long-term, paved, primarily off-street, continuous multiuse trail alignment.
- Provide a high-quality user experience that capitalizes on the area’s unique aesthetic resources and encourages use by a variety of non-motorized user types and abilities.
- Provide trail alignments, standards, and design elements that ensure the safety and security of all trail users, including the identification of trailheads, access points, and roadway crossings that are well-designed, visible, safe, and convenient.
- Link the trail to key destinations such as residential neighborhoods, employment centers, shopping areas, recreation opportunities, government offices, community services, schools, and other local activity centers.
- Identify alignments that provide, to the extent possible, the most direct route of travel between Dean Creek and the Oregon Dunes.
- Avoid or minimize impacts to environmental and cultural resources.
- Address compliance with applicable federal, state, and local laws, rules, regulations and standards.
- Site future trails in existing publicly-owned or controlled property or rights-of-way, and utilize private property only if no other feasible alternative can be identified.
- Provide preliminary cost estimates, and identify potential sources of funding.
- Implement a phasing plan that maximizes funding opportunities, reduces construction impacts, and identifies interim trail solutions that increase functionality of the non-motorized corridor until a multiuse trail can be fully constructed.
2. **STUDY AREA**

2.1 **STUDY AREA CHARACTERISTICS**

The DDTP study area comprises a corridor paralleling OR 38 and US 101—extending from the Dean Creek Elk Viewing Area, west to the intersection of OR 38/US 101, then southwest to the Oregon Dunes (via the Umpqua South Jetty Beach Access on Salmon Harbor Drive in the unincorporated Winchester Bay community).

The study area is located in the far northwest corner of Douglas County, where the Umpqua River meets the Oregon coast. It’s also in the heart of the Oregon Dunes National Recreation Area, which spans 40 miles along the Oregon coast and has seen a significant growth in tourism in recent years. The City of Reedsport sits at the intersection of OR 38 and US 101 in the center of the study area. The DDTP corridor connects to recreational and employment opportunities both inside and outside the City limits. Development of the DDTP will affect multiple jurisdictions as OR 38 and US 101 rights-of-way are under ODOT jurisdiction, and the corridor affects property under the land use control of both unincorporated Douglas County and the City of Reedsport.

Recreational opportunities in the area abound—from fishing, wildlife viewing, and hiking, to kayaking or canoeing on the Umpqua River, to ATV (All Terrain Vehicle) riding in the dunes. While Reedsport is a coastal city, located just two miles from Winchester Bay at the mouth of the Umpqua River, challenging topography and other geographic constraints lie between Reedsport and the coast. The only connection between the two is a high-speed, two-lane highway, which makes non-motorized transportation in the area difficult.

A variety of environmental conditions exist in the study area. The City of Reedsport is located at sea level, bounded to the north and east by the Umpqua River, and to the south and west by privately owned timber lands with significant topography. Scholfield Creek, a tributary of the Umpqua River, cuts north to south through the center of the City. Sensitive areas of steep slopes and wetlands exist adjacent to OR 38 and US 101 outside the city limits; these areas are described in more detail in Section 2.2 of this memorandum.

See Figure 1 on page 5 for a map of the study area.

2.2 **TRAIL PLANNING SEGMENTS**

For ease of reference, the potential trail alignment has been divided into seven segments starting at the east end of the study area at the Dean Creek Elk Viewing Area and moving west and southward to the Oregon Dunes at Winchester Bay. These trail segments are identified in Table 1.
This page is intentionally left blank.
Figure 1 Dean to Dunes Trail Study Area Map
This page is intentionally left blank.
### Table 1. Preliminary Trail Segments

<table>
<thead>
<tr>
<th>Segment</th>
<th>Start</th>
<th>End</th>
<th>Length (mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Segment A</strong></td>
<td>OR 38 at Dean Creek Elk Viewing Area</td>
<td>OR 38 at Riverfront Way</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Segment B</strong></td>
<td>OR 38 at Riverfront Way</td>
<td>US 101 at 16th Street</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Segment C</strong></td>
<td>US 101 at 16th Street</td>
<td>US 101 at 22nd Street</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Segment D</strong></td>
<td>US 101 at 22nd Street</td>
<td>US 101 at Longwood Drive</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Segment E</strong></td>
<td>US 101 at Longwood Drive</td>
<td>US 101 at Salmon Harbor Drive</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Segment F</strong></td>
<td>US 101 at Salmon Harbor Drive</td>
<td>Salmon Harbor Drive at Discovery Point Lane</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Segment G</strong></td>
<td>Salmon Harbor Drive at Discovery Point Lane</td>
<td>Parking Area, Umpqua South Jetty Beach Access</td>
<td>0.8</td>
</tr>
</tbody>
</table>

#### 2.2.1 Segment A

The project begins at the Dean Creek Elk Viewing Area on OR 38. This segment of the trail will follow the highway into Reedsport, ending at Riverfront Way, a distance of approximately 2.9 miles. There are topographical and potential wetland challenges along this segment. For most of this route, an alignment on the north side of OR 38 makes the most sense; however, it would require a highway crossing to reach the Elk Viewing Area. At the west end of the segment, there appears to be available room on the north side of the highway with a connection to the Umpqua River levee (and the Levee Loop Trail). The eastern end of the segment has steeper slopes with less room on the north side of the highway, and also appears to be constrained by wetlands, particularly toward the segment’s eastern terminus. Contour and critical area mapping will help determine the feasibility of any proposed trail alignments in this area. Figure 2 illustrates the typical highway environment through this segment.

![Figure 2. Segment A – Looking east along OR 38, with Umpqua River on left and Dean Creek Elk Viewing Area on right](image-url)
2.2.2 Segment B

This segment of the trail traverses the heart of Reedsport. Several transportation studies and planning efforts have already been completed for this portion of the City, and the 2015 Levee Loop Trail System Plan has identified multiuse trail alignments through this segment (which are currently planned, but not yet constructed; see Figure 1, Dean to Dunes Trail study area map, for additional detail). The planned multiuse trail along the levee that surrounds Reedsport to the north and west provides a great off-highway alternative through this segment. The DDTP will tie into the planned Levee Loop Trail (LLT) alignment, but since this is the most densely populated part of the study area, the opportunity exists to provide additional trail alignment alternatives through town. For example, the DDTP may identify secondary trails connecting to activity centers within the City, or suggest improvements to non-motorized facilities along the highways through town to augment the planned LLT. ODOT currently plans to construct improvements (including non-motorized facilities) along OR 38 and US 101 through Reedsport in 2018, so partnering with those efforts may be advisable. Opportunities for additional off-highway alignments also exist, such as an alignment along Elm Avenue connecting into OR 38 on the eastern edge of town. Figure 3 shows the highway at a location in this segment.

Figure 3. Segment B – Looking west along OR 38 between 4th and 5th Streets
2.2.3 Segment C

This short segment begins where the planned LLT ends (at the US 101/16th Street intersection) and follows US 101 south for half a mile to its intersection with 22nd Street. Just south of 16th Street, US 101 passes over Scholfield Creek on a bridge that is approximately 68 feet wide. There is little topographic variation in this segment. The area along US 101 is mainly commercial, with several buildings and parking lots built up to the sidewalk, somewhat constricting the right-of-way. Planned 2018 ODOT improvements on US 101 in Reedsport will be constructed through this area, ending at 22nd Street. The plan includes converting the four-lane section between 16th and 22nd Streets to three lanes—including one lane of travel in each direction, a center turn lane, two bicycle lanes, and space for on-street parking—along with additional pedestrian improvements in this area. The DDTP should leverage these planned improvements and tie into them if possible. Figure 4 presents the typical highway environment in this segment.

![Image of Segment C](image-url)

**Figure 4.** Segment C – Looking northeast along US 101 between 19th and 20th Streets

2.2.4 Segment D

Segment D follows the US 101 corridor south toward the edge of town, from 22nd Street to Longwood Drive, a distance of about a mile. Shortly after the 22nd Street intersection, the highway narrows from five lanes to two lanes, crossing a narrow bridge (approximately 44 feet wide) over Ranch Road just inside the city limits. As the highway heads south, it climbs a hill and becomes constrained by rock walls on both sides as shown in Figure 5. There is limited right-of-way on US 101 in this segment without building costly retaining walls to widen the highway and/or to widen the bridge. Likely alternative trail alignments for this mile-long segment include:
• Use of the existing highway Frontage Road located north of US 101 (which would require a gradual rise in elevation of the frontage road to meet the existing highway grade at the southwest end of the road);

• Alignment on the highway (which is constrained by the width of the bridge over Ranch Road); or

• Alignment along Longwood Drive (which would likely require making this street one-way for vehicles).

Figure 5. Segment D – Looking south along US 101 north of Longwood Drive

2.2.5 Segment E

This trail segment continues south along US 101 for approximately 2.2 miles—from Longwood Drive, just outside the Reedsport City limits, southwest to the Salmon Harbor Drive intersection in Winchester Bay. Wetlands and steep slopes may pose some challenges in this segment. Critical area mapping will help determine the viability of proposed trail alignments. The highway is constrained on both sides by steep slopes around the Longwood Drive intersection. For most of the segment’s length, Silver Creek and associated wetlands run along the east side of the highway. As the segment approaches Salmon Harbor Drive, the topography flattens out considerably on both sides of the highway, and to the east the landscape opens up into the Winchester Creek estuary area. Figure 6 illustrates the typical highway environment through this segment.

The east side of the highway is generally more open than the west side and there is the potential for a multiuse boardwalk through this area. Installation of a boardwalk through this area would require a pedestrian crossing of US 101 near the Salmon Harbor Drive intersection. The potential also exists to route the trail through the hills to the northwest of US 101 to provide a completely off-highway experience, as a number of unpaved forest roads currently traverse the ridges through this area. However, not only is the topography in this area challenging, but the majority of this land is privately
held by timber companies, so this solution would require significant land acquisition or easement dedication. There is also a utility easement just inside the right-of-way that roughly parallels US 101 on the northwest side of the highway. This might also be explored as a potential trail alignment, although the topography in this area slopes up steeply away from the highway and could potentially pose a challenge to making good bicycle and pedestrian connections.

![Figure 6. Segment E – Looking north along US 101 north of Salmon Harbor Drive, with Winchester Creek estuary and wetlands on right](image)

### 2.2.6 Segment F

Segment F follows Salmon Harbor Drive along the south shore of the Umpqua River and Winchester Bay, from US 101 to Discovery Point Lane. For much of its length, Salmon Harbor Drive has a gravel all-terrain vehicle (ATV) path along its north shoulder, making the south side of the road the likely location for a trail if the roadway is not rebuilt or shifted. There appears to be sufficient room for the trail along the south side of the road for the majority of this segment, although there are more constraints near the US 101 intersection where the road crosses a creek on a narrow bridge. A crossing to the north side of the road may be a preferred alternative in this area to take advantage of an existing pedestrian bridge that crosses the creek adjacent to the vehicular bridge. The location of this pedestrian bridge is shown in Figure 7. The typical roadway environment in this segment is shown in Figure 8. There is an existing County Park with camping located on the south side of the road in this area.
Figure 7. Segment F – Looking west along Salmon Harbor Drive at creek crossing

Figure 8. Segment F – Looking west along Salmon Harbor Drive, with Salmon Harbor Marina on right

2.2.7 Segment G

Beginning at Salmon Harbor Drive where it turns south at the east end of the south jetty (near Discovery Point Lane), this segment of the trail will complete the project with a connection to the Umpqua South Jetty Beach Access parking area. The roads in this section are characteristic of campground roads as shown in Figure 9, and are approximately 22 feet wide with little to no shoulder. The road is relatively
unconstrained and built on the sand dunes. There is little to no grade on this segment, and adding a trail to either side of the road would be relatively simple and would likely have only minor impacts.

Figure 9. Segment G – Looking south along Salmon Harbor Drive near beach access
3. EVALUATION OF TRAIL ALTERNATIVES

Once the various trail alternatives have been determined for each planning segment, they will go through an evaluation process to identify a preferred trail alternative. The criteria provided here are designed to inform a thoughtful evaluation process with flexibility to address the diversity of conditions that exist in the study area. The results of the evaluation will provide information about the potential impacts of the trail and identify any mitigation that may be needed.

The evaluation criteria are outlined and described in Section 3.1, while Section 3.2 describes the evaluation process that will be used to determine how well the trail alternatives meet each of the criteria. Section 3.3 then describes various DDTP trail types that could be considered for implementation within one or more segments along the corridor.

3.1 COMPARATIVE EVALUATION CRITERIA

The following list identifies potential evaluation criteria that can be used to aid in the selection of a preferred trail alignment. These criteria are not listed in any particular priority order, but are built on the project’s objectives and represent the range of issues that must be addressed in the study area corridor.

The description of each evaluation criterion includes a general clarifying statement, followed by a list of characteristics that would positively impact the strength of a trail alternative in comparison to other alignment alternatives.

The criteria are not meant to be scored numerically, but described or commented on in narrative form. They are intended to be qualitatively applied to the various trail alternatives, rather than to provide a quantitative ranking. In this way, the criteria can serve as a springboard for discussion, and the trail alternative evaluation process will allow for individual reviewers to exercise judgment regarding the possible benefits and disadvantages of a particular trail alignment.

**Trail Types**

The preferred trail type is a multiuse trail that is separated from the roadway to the extent possible. In general, the preferred trail alternative:

- Is 10 to 12 feet wide to accommodate a variety of user types
- Provides an off-highway experience
- Has an asphalt surface

For trail segments where the preferred trail type is not feasible, other trail solutions—listed here in approximate descending order of desirability—may be used:

- Street-adjacent multiuse trail (with at least five feet of separation from the roadway)
- Variations from the standard multiuse trail type, such as reduced width or alternate surfaces; or special treatments, such as boardwalks, bridges, and flood-resistant structures
- Solutions with pedestrians and bicycle users separated onto different routes
- Shared-use roadways, bicycle lanes/sidewalks, or other on-street solutions (widened shoulders, for instance)
User Experience

User experience describes the relative quality of a trail alternative from the perspective of the trail user. The trail should be designed for multiple user types, including walkers, joggers, rollerbladers, and bicyclists, as well as accommodate varying levels of abilities and comfort levels. Trail characteristics that contribute to a high quality user experience include:

- Avoids noise and safety impacts from higher speed/higher volume roadways, industrial activities, and other major activity generators
- Optimizes recreational/scenic value of the corridor
- Connects to locations with unique attributes such as natural water features, landforms, etc.
- Provides attractive amenities and structures appropriate to the trail's intended users
- Provides clear and consistent signage, both for educational and directional purposes
- Utilizes existing streets to provide shade for users
- Avoids prolonged stretches of steep increase in grade

Safety and Security

Safety is an important consideration in the location and design of a trail project. The trail should avoid known safety issues or natural hazards. Factors that can positively impact trail user safety and security include:

- Improves safety or corrects a known hazard for all non-motorized users
- Provides ADA accessibility and complies with ADA regulations
- Maximizes separation from the roadway
- Avoids at-grade major road crossings or mid-block crossings (or when unavoidable, provides road crossings at existing signalized intersections or intersections with an existing stop sign)
- Includes traffic calming where needed
- Avoids close proximity to natural hazards or significant grade changes/drop-offs
- Maximizes visibility and provides lighting when appropriate

Connectivity

The trail should provide continuous routes linking trail users to key destinations, including places of employment, residential areas, recreational areas, and centers of activity. It should maximize commuter and recreational value by linking neighborhoods and communities to regional destinations and transportation opportunities. Factors that improve trail connectivity include:

- Provides connections to community amenities—recreational areas, schools, parks
- Provides connections to other major local destination nodes—shopping centers, employment centers, residential areas
- Connects to sites of cultural, natural, or historic interest
- Connects to other local or regional trails or non-motorized facilities—in particular, Reedsport’s planned Levee Loop Trail

Directness of Travel

Related to trail connectivity, directness of travel means the trail should provide as direct a route as possible, linking to key destinations as efficiently as possible. The shortest distance between two points typically rates strongest. Factors that improve the directness of a trail alternative include:
- Avoids out-of-direction or circuitous travel
- Improves directness of route as compared to existing motorized routes
- Provides optimal commuter efficiency

**Environmental and Cultural Resource Impacts**

Trail routes can have positive and/or adverse impacts on existing natural habitats, other environmental features, and cultural resources. Factors that improve an alternative's strength in this arena include:

- Avoids or minimizes impact to critical areas, such as wetlands/streams, biological resources, existing quality vegetation, etc.
- Avoids or protects sensitive plant and animal species
- Avoids or protects cultural and historic resources
- Works with the natural terrain to the extent possible and minimizes the need to impact/adjust slopes
- Takes advantage of opportunities for environmental or cultural resource restoration and enhancements as part of trail development
- Creates opportunities for public education, such as interpretive signage describing important environmental and cultural resources

**Plans and Regulations**

The preferred trail alternative should be consistent with applicable local trail/parks plans, comprehensive plans, transportation plans, and land uses. Factors include:

- Maintains consistency with goals and policies of adopted local and regional plans
- Interfaces with existing local and regional transportation plans and networks
- Leverages planned Levee Loop Trail and planned ODOT improvements along trail corridor
- Complies with AASHTO, MUTCD, and ODOT standards

**Property Ownership Impacts**

When possible, the trail should be placed on land already publicly owned or within existing easements or rights-of-way. Where acquisition of private property must be made to build the trail such acquisition will need to follow the Uniform Relocation Assistance Act. Factors that contribute to a strong trail alternative in this capacity include:

- Minimizes impacts to private property
- Utilizes only publicly owned land for trail alignment
- If not already owned or under an easement, affords the potential to obtain property ownership and access
- If property must be acquired, minimizes number of individual private property or easement acquisitions required, or size of land area that must be acquired

**Cost and Funding Availability**

These criteria are associated with the relative cost of building and maintaining a given trail alternative as compared to other possible routes; more cost-efficient alternatives rate more strongly. Funding availability should also be taken into consideration. Cost/funding factors that improve the strength of a trail alternative include:

- Employs cost effective construction, design and engineering practices
• Capitalizes on existing funding opportunities, such as grants or partnership opportunities
• Complies with funding and grant requirements
• Minimizes long-term maintenance costs through durability of materials and low-impact design principles
• Minimizes the need for mitigation efforts, such as replacing or restoring wetlands degraded as an outcome of trail construction
• Minimizes the need for property acquisition

**Phasing Opportunities**

The phasing plan for the preferred trail alternative should maximize funding opportunities and near-term functionality of the corridor, while also ensuring that all trail segments can function independently of each other if necessary prior to construction completion. Attributes that improve phasing viability include:

• Identifies interim trail solutions that increase functionality of the non-motorized corridor (including signing and pavement markings, shared-use roadways, and/or bicycle lanes and sidewalks) until a multi-use trail can be fully constructed
• Constructs a trail section that is functional in and of itself (e.g., if other trail sections were never built, the given section would still be useful)
• Constructs a crucial link without which other sections would not be functional
• Reduces construction impacts and minimizes disruption to traffic and other activity for residents and visitors
• Maximizes funding opportunities through thoughtful construction timing and coordination with other planned projects (e.g. paving or utility projects)

**3.2 Evaluation Process**

Evaluation criteria should not be used as an absolute indicator that one alternative is better than another, unless an alternative is deemed “fatally flawed” in a certain category. The criteria should simply be viewed as a series of questions to ask in evaluating trail alternatives.

It’s expected that trade-offs will be made, especially in highly constrained segments—a given trail alternative may rate well for most categories but very poorly or even significantly flawed for one or two others, and may still end up as the preferred choice. When evaluating directness of travel, for example, it’s possible that a detour or slightly longer route may be preferable if it provides more functionality with respect to connectivity, environmental features, safety and security, and other factors that may outweigh the benefits of the shortest direction of travel.

The following evaluation levels, from strongest to weakest, should be considered during the evaluation process to aid in determining how well each alternative meets the criteria:

A. Impact is primarily positive and/or best meets project goals and objectives.
B. Impact is neutral, or positive and negative impacts are approximately balanced.
C. Impact is primarily negative and/or is contrary to project goals and objectives.
D. Significantly or fatally flawed due to multiple and extensive adverse impacts and/or is entirely contrary to project goals and objectives.
3.3 PREFERRED AND ALTERNATIVE TRAIL TYPES

The DDTP will analyze potential trail alignments through the seven trail planning segments and propose differing trail types or other pedestrian and bicycle solutions reflecting the particular opportunities and constraints in each segment.

Conceptual cross section illustrations and specifications for selected trail types will be provided at a later stage of the DDTP planning process. At time of design and engineering, the trail and required trail structures (bridges, boardwalks, ramps, retaining walls, signage, etc.) should comply with current AASHTO, MUTCD, and ODOT design standards.

The preferred DDTP trail type is a multiuse trail meeting the needs of touring, commuter, recreational, and family bicyclists and pedestrians (as well as those using strollers, skates, skateboards, and other non-motorized means of transport). The preferred multiuse trail would be:

- Separated from the roadway, providing a completely off-highway experience.
- 10 to 12 feet wide, with 2-foot-wide graveled shoulders.
- Paved with an asphalt surface.
- Sited in existing publicly-owned or controlled property or right-of-way.
- At or below ADA-compliant maximum grade (e.g., 5 percent) and designed with structures (ramps, retaining walls, landings, etc.) satisfying ADA requirements.

![Figure 10. Preferred DDTP Trail Cross-section](image)

A wide variety of constraints—prior development, environmental features, etc.—will likely necessitate trail type variations in order to develop a continuous and fully functional multiuse trail accommodating
all users. Based on the various existing environmental conditions in the study area, these variations may include:

- **Street adjacent multiuse trail** – Would use the same materials and dimensions as the preferred multiuse trail, but would closely parallel a roadway, separated by at least a 5-foot-wide buffer. Buffers can consist of pavement markings or simple barriers such as bollards, although a more substantial physical barrier—such as vehicle parallel parking spaces or landscaping—is preferred. This trail type would be appropriate adjacent to low-speed roadways, or where constraints (such as prior development or narrow right-of-way) prevent complete separation from the highway.

- **Flood-resistant multiuse trail** – Refers to a multiuse trail through areas subject to occasional but regular inundation. Trail surface materials may differ from the preferred multiuse trail type; the trail may be elevated and/or additional structures for cross-drainage may be included.

- **Multiuse boardwalk** – Would provide a low, elevated multiuse structure set on piers across wetlands, floodplain areas, or other sensitive lands. Boardwalk material may include wood, steel, concrete, or some combination of these materials. This trail type is appropriate where constraints necessitate crossing sensitive environmental areas that require minimal impact.

- **Local trail** – This facility could have either a paved or soft surface with a width of 6 to 8 feet. This trail type is suitable for recreational and family trips through constrained areas, or for short connections to key destinations that are not directly accessed by the multiuse trail. Use of this narrower trail type usually requires a nearby route suitable for higher speed commuter and touring bicyclists.

- **On-street solutions** – Where options for providing a trail separated from the roadway are limited, a variety of alternatives within the road right-of-way are possible, including:
  - Bike lanes, designated by signing and road surface striping, with parallel pedestrian sidewalks.
  - Shared roadway solutions or widened roadway shoulders allowing trail users to use vehicle roadways, with signing and surface striping to ensure safety. This solution is only practical and safe on low-speed, low-traffic roadways.

- **Roadway crossings** – Occasionally corridor conditions will necessitate crossing of an existing roadway. At-grade crossing treatments may include:
  - Conventional crosswalk signing and road surface striping for local streets.
  - Upgraded signing and surface striping at existing controlled intersections.
  - Midblock arterial and collector roadway crossings with user-activated beacons or signals, and raised, protected median islands to provide refuge and improve safety. Where warranted, raised crosswalks may be installed to increase visibility and slow vehicle speeds.
4. NEXT STEPS

This chapter provides a quick summary of the next steps involved in developing the DDTP.

- **August 2017** – Baseline information—including existing plans and policies, transportation and land use features, natural and cultural resource features, and demographics—will be described and mapped.

- **September-November 2017** – Conceptual trail alternatives will be developed, analyzed, and mapped. A public open house will be held in November to get communitywide input on the possible alternatives.

- **January-March 2018** – Preferred trail alignments and amenities will be selected; cost estimates and potential funding sources will be identified. A second open house will be held in March for comment on preferred alternatives. A “Decision Maker Workshop” will also be held in March to provide an opportunity for City Council, City Planning Commission, County Board of Commissioners, and/or County Planning Commission to review recommended trail alternatives and provide input.

- **April-June 2018** – A draft Dean to Dunes Trail Plan document will be produced for review and comment.

- **July 2018** – The final Dean to Dunes Trail Plan will be published.