OCEANSIDE INLAND RAIL TRAIL DRAFT FEASIBLITY STUDY

October 2025

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Executive Summary

The Oceanside Inland Rail Trail (OIRT) is the final 7-mile segment of the Inland Rail Trail, a 21-mile multimodal path connecting the communities of Escondido, San Marcos, Vista, Oceanside, and portions of unincorporated San Diego County. The OIRT Feasibility Study was developed through collaboration between the City of Oceanside, Caltrans, NCTD, and a Community Advisory Board, with funding from a Caltrans Sustainable Communities Planning Grant awarded during the fiscal year 2023-2024. The study process included analyzing existing conditions, engaging the public, developing and reviewing alignment alternatives, and preparing prelminary 5% concepts for the preferred alignment based on community input and technical evaluation.

The OIRT enjoys broad support from the public, with safety, separation from traffic, and connectivity as key priorities to those engaged. Most outreach respondents indicated they would use the trail for biking or recreation. The preferred OIRT alignment mostly runs along the south side of the SPRINTER tracks and was chosen for its separation from traffic, directness, and scenic value.

Environmental considerations are central to the project, as the alignment passes through sensitive areas including preserves and wetlands. The OIRT will follow best practices for habitat protection and comply with NEPA and CEQA requirements. Some segments will require easements or property acquisition, with coordination among public agencies and private owners. Implementation is recommended in segments, prioritized by funding, cost, and design difficulty, with multiple local, state, and federal grant programs identified as potential funding sources.

Next steps include securing funding, advancing preliminary engineering and design, completing environmental review and permitting, coordinating with agencies and property owners, construction, and establishing maintenance agreements.

1. Introduction

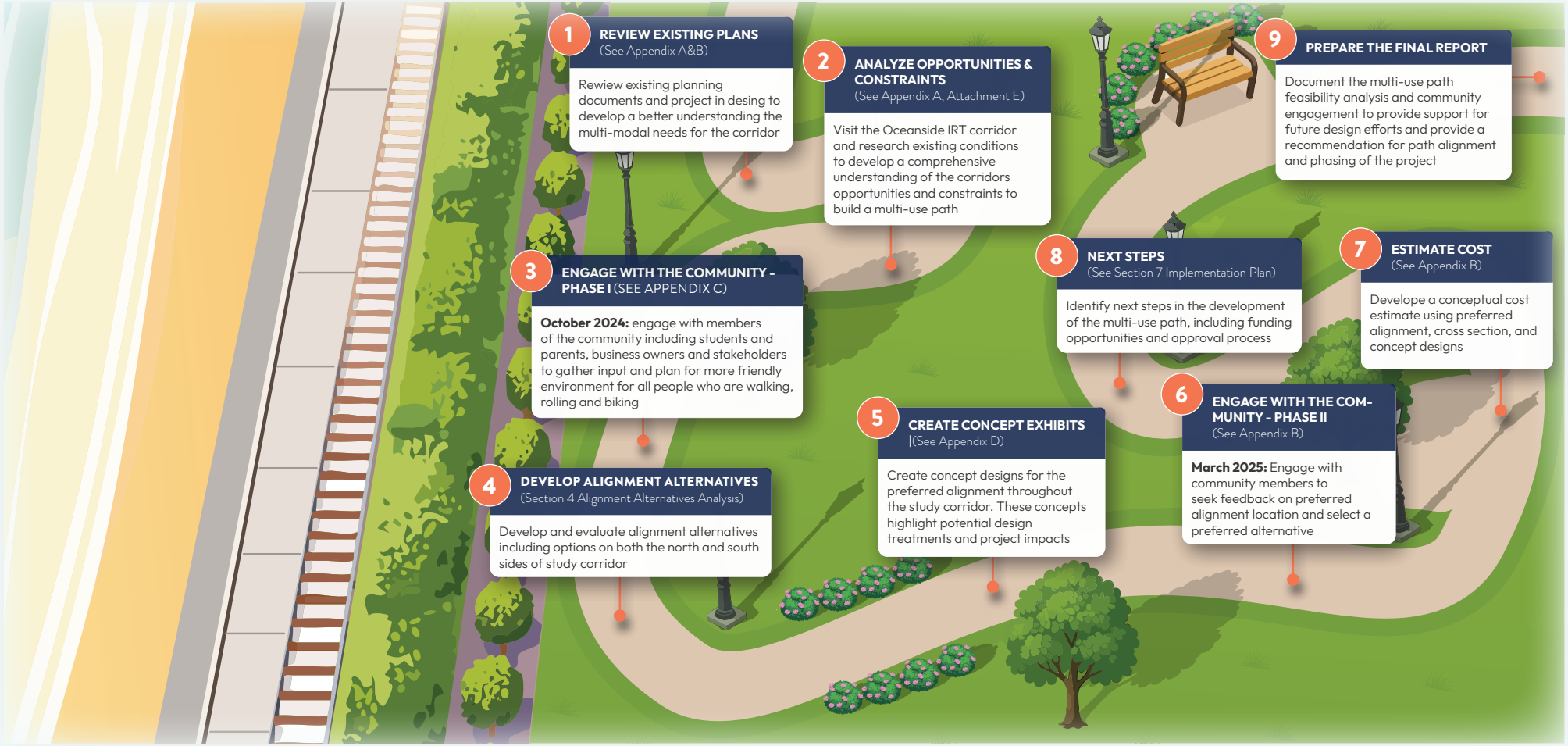
The Oceanside Inland Rail Trail (OIRT) is the final 7-mile segment of the Inland Rail Trail (IRT), a 21-mile multimodal path connecting the communities of Escondido, San Marcos, Vista, Oceanside, and portions of unincorporated San Diego County. The IRT aims to transform under-utilized space within the SPRINTER rail corridor into a vibrant multi-use trail.

This report provides a comprehensive overview of the three-phase OIRT Feasibility Study (Study) process, including public engagement, preliminary design concept development, and an implementation strategy with next steps. The Study was developed through collaboration between the City of Oceanside, Caltrans, and NCTD, along with input from a Community Advisory Board (CAB). Funding for the Study was provided by a Sustainable Communities Planning Grant from Caltrans.

The Study began with public outreach and existing data collection. This approach allowed the project team to review the opportunities and constraints along the corridor and to hear directly from community members about the elements they would like to see in the final OIRT. These findings were used to develop three alignment alternatives which were presented to the public during a second round of public engagement. After reviewing public comments and conditions within the corridor, a preferred alignment was selected. The preferred alignment was used as the basis for developing preliminary concepts for the OIRT.

The Oceanside IRT is assisted by a **Community Advisory Board** (CAB) which includes:

- Caltrans
- City of Vista
- County of San Diego
- Friends of El Corazon
- I-5 North Coast Corridor
- North Coast Transit District
- Oceanside Arts Commission
- Oceanside Bike & Pedestrian Committee
- Oceanside Parks & Recreation Commission
- San Diego Association of Governments(SANDAG)
- San Luis Rey Band of Mission Indians
- Vista Community Clinic


1
REVIEW EXISTING PLANS
(See Appendix A&B)
Rewiew existing planning documents and project in desing to develop a better understanding the multi-modal needs for the corridor
2
ANALYZE OPPORTUNITIES & CONSTRAINTS
(See Appendix A, Attachment E)
Visit the Oceanside IRT corridor and research existing conditions to develop a comprehensive understanding of the corridors opportunities and constraints to build a multi-use path
9
PREPARE THE FINAL REPORT
Document the multi-use path feasibility analysis and community engagement to provide support for future design efforts and provide a recommendation for path alignment and phasing of the project
3
ENGAGE WITH THE COMMUNITY - PHASE I (SEE APPENDIX C)
October 2024: engage with members of the community including students and parents, business owners and stakeholders to gather input and plan for more friendly environment for all people who are walking, rolling and biking
8
NEXT STEPS
(See Section 7 Implementation Plan)
Identify next steps in the development of the multi-use path, including funding opportunities and approval process
7
ESTIMATE COST
(See Appendix B)
Develope a conceptual cost estimate using preferred alignment, cross section, and concept designs
6
ENGAGE WITH THE COMMUNITY - PHASE II
(See Appendix B)
March 2025: Engage with community members to seek feedback on preferred alignment location and select a preferred alternative
5
CREATE CONCEPT EXHIBITS
(See Appendix D)
Create concept designs for the preferred alignment throughout the study corridor. These concepts highlight potential design treatments and project impacts
4
DEVELOP ALIGNMENT ALTERNATIVES
(Section 4 Alignment Alternatives Analysis)
Develop and evaluate alignment alternatives including options on both the north and south sides of study corridor

Project Goals

The purpose of the Study is to develop a “grant-ready” project that will be well-positioned to compete for local, state, and federal funding for final design and construction. The conceptual design is based on community needs, local and regional mobility goals, and existing constraints to advance a constructable community asset.

The design and implementation of the OIRT is guided by the following goals, which were developed with input from the public:

1. Create safe, free, and low stress connections in North County between places of employment, schools, recreation, and the beach
2. Connect the multi-use path to existing facilities to provide multimodal use at local and regional levels
3. Create a feasible multi-use path alignment that balances sustainability, mobility, safety, access, economy, health, and social equity
4. Establish a clear direction and feasibility steps to implement the project in such a way that supports underserved communities and minimizes environmental impacts
5. Develop alignments that allow for environmental best practices such as native vegetation and shade trees to reduce urban heat island effect

Project History

The Oceanside Inland Rail Trail Feasibility Study stems from the Escondido to Oceanside Rail/Trail Bikeway Project Memorandum of Understanding established in 1995. The memorandum laid the foundation for a cohesive bikeway and trail system, connecting various communities through non-motorized transportation options. This agreement was signed by the Cities of Oceanside, Vista, San Marcos, Escondido, the County of San Diego, and the North San Diego County Transit Development Board (now known as the North County Transit District, or NCTD). The OIRT is discussed in multiple regional and local planning documents including the:

- 2009 Oceanside Pedestrian Plan
- 2021 SANDAG Regional Transportation Plan
- 2023 North County Comprehensive Multimodal Corridor Plan
- 2024 Oceanside General Plan
- 2024 Oceanside Smart and Sustainable Corridors plan
- 2024 Oceanside Climate Action Plan.

Previous Inland Rail Trail Construction

The first portion of the IRT, spanning seven miles between Escondido and San Marcos, was completed in 2009. In 2017, a further 1-mile segment was constructed, completing the San Marcos portion of the IRT. In 2021, two additional sections of the IRT were constructed on the north and south sides of Vista. These included a 2.5-mile connection between the City of Vista and San Marcos through unincorporated San Diego County and a 0.5-mile trail segment on the north side of Vista connecting to the intersection of Melrose Drive and Oceanside Boulevard. The latter segment terminates at the border of Oceanside and Vista and is the eastern-most end of the OIRT.

The IRT is undergoing construction in Vista to connect north and south portions of the trail that were completed in 2021. This ongoing development will complete the connection between Melrose Drive in the west and the Escondido Transit Center in the east. It is the last portion of the IRT to be completed outside of Oceanside.

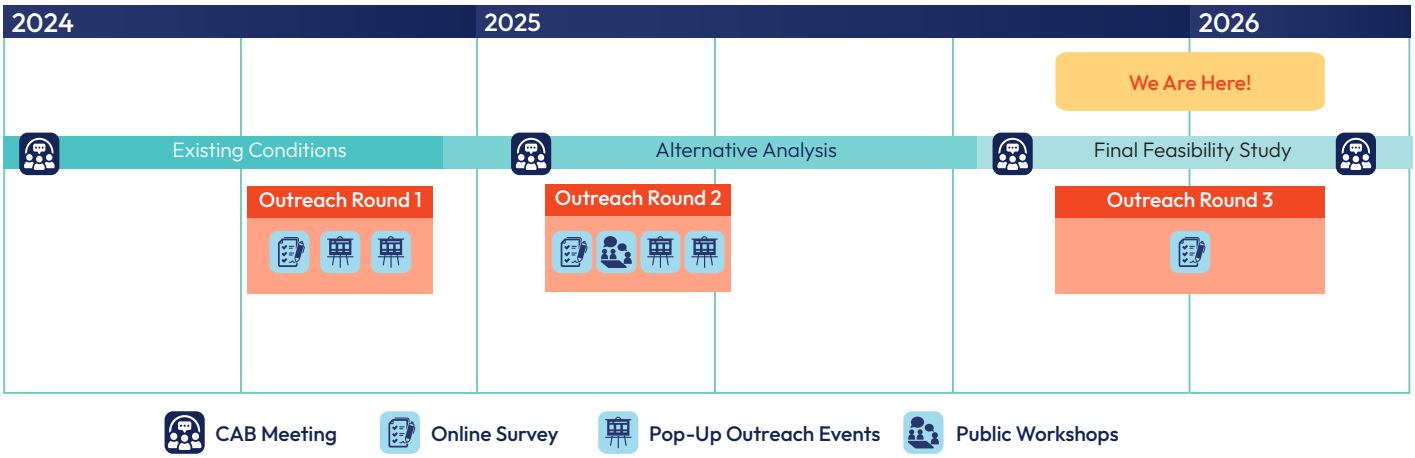
The OIRT will connect to the IRT in Vista at the intersection of Melrose Drive and Oceanside Boulevard. Upon completion, the IRT will form a continuous 21-mile walking and biking pathway, stretching from the Coastal Rail Trail near the Pacific Ocean in the west to the Escondido Transit Center in the east. This extensive multi-use trail will provide significant benefits in terms of mobility, recreation, and environmental sustainability for the local communities.

Source: SANDAG, keepsandiegomoving.com (2025)

Project Timeline and Phasing

The Study consists of three phases, outlined below:

- **Phase 1 –** Existing Conditions (Fall 2024 – Winter 2024)
  - ↳ Phase 1 outlined the opportunities and constraints relevant to the OIRT based on a review of existing conditions and public input.
  - ↳ Phase 1 included a review of existing documents, collection of available relevant data, field visits, community outreach, and the development of the Community Needs Assessment Memorandum, which is included in **Appendix A**.
- **Phase 2 –** Alignment Alternatives (Winter 2024 – Summer 2025)
  - ↳ Phase 2 determined possible project alternatives based on the information collected in Phase 1.
  - ↳ Phase 2 included the development of three conceptual alternative alignments and community outreach.
  - ↳ Phase 2 concluded with the selection of a preferred alignment.
- **Phase 3 –** Final Assessment Report (Summer 2025 – Spring 2026)
  - ↳ Phase 3 includes the development of preliminary concepts for the preferred alignment, community outreach, and the development of this report, which will be used to help procure grant funding for the final design and construction of the Inland Rail Trail in Oceanside. A final version will be released documenting the public outreach and feedback received during Phase 3.



2. Existing Conditions

The opportunities and constraints of the OIRT were examined through community-based and technical perspectives. This included thorough document review, data collection, field visits, and robust public engagement, which provided a holistic overview of opportunities and constraints within the corridor. These are summarized in the Opportunities & Constraints Map in **Appendix A**.

Document Review

Several existing documents were reviewed to gain insight into the planning, community, and environmental context of Oceanside:

- **2009 Oceanside Pedestrian Plan:** Identified gaps and usage differences in pedestrian networks, particularly stressing the importance of pedestrian connections west of Interstate 5.
- **2021 SANDAG Regional Transportation Plan:** Highlighted the need for a more equitable transportation network in the County.
- **2023 North County Comprehensive Multimodal Corridor Plan:** Focused on adapting the transportation network to accommodate significant regional growth.
- **2024 Oceanside General Plan:** Emphasized the need for non-automobile transportation modes due to capacity constraints on existing networks.
- **2024 Oceanside Smart and Sustainable Corridors:** Suggested a need for constructing parts of the trail along Oceanside Boulevard.
- **2024 Oceanside Climate Action Plan:** Recognized the OIRT's potential in shifting mode share and reducing greenhouse gas emissions.

Data Collection

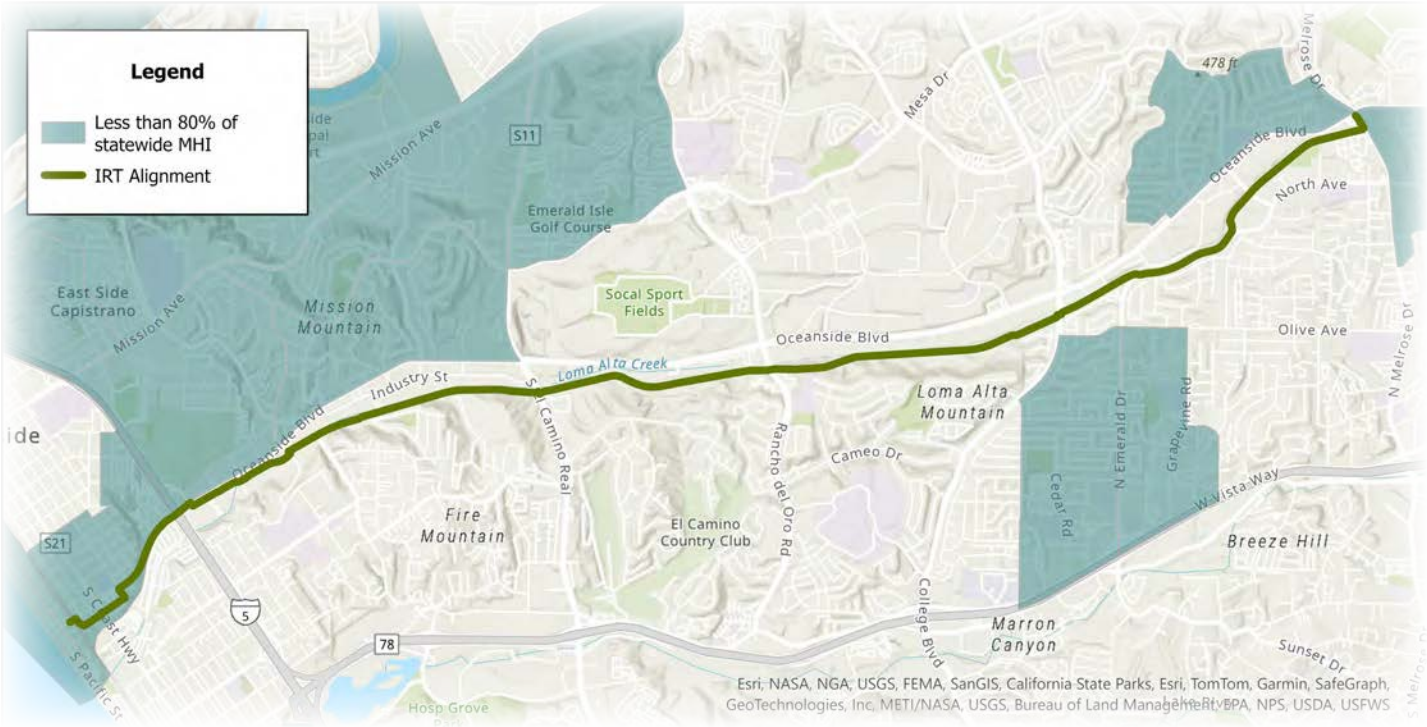
Data collection and mapping analysis provided essential insights into the existing conditions and potential challenges within a 0.5-mile radius of the SPRINTER corridor:

- **Collisions –** Analyzed incident data from 2019-2023:
  - ↳ **Key Locations:** High collision densities were identified at South Pacific Street and at major intersections along Oceanside Boulevard, such as College Boulevard, Rancho del Oro Drive, Crouch Street, El Camino Real, and the Interstate 5 San Diego Freeway. A significant cluster of pedestrian collisions was noted at Greenbrier Drive, influenced by the Crouch Street SPRINTER station.
- **Vehicular Traffic –** SANDAG's 2019 Federal Regional Transportation Plan provided traffic data:
  - ↳ **Key Locations:** Local roadways such as Grandview Street, Crouch Street, Skylark Drive, and North Avenue were identified as opportunities for trail alignment outside NCTD right-of-way due to their low traffic volumes, which could provide a comfortable trail experience. Conversely, segments of the trail along arterials like Oceanside Boulevard would require enhanced separation from vehicle traffic.
- **Multi-Modal Connections –** Analysis included existing and proposed bicycle facilities and major transit corridors:
  - ↳ **Key Locations:** The trail's western end connects to the Coastal Rail Trail, and the eastern end links to the existing Inland Rail Trail near the Melrose SPRINTER station. Proposed Class IV separated bikeways along Oceanside Boulevard would offer safe cycling routes, addressing current safety concerns due to high-speed vehicle traffic.

- **Land Use and Environment –** Consideration of the surroundings, steep slopes, equity factors, and community context:
  - ↳ **Key Locations:** Environmentally sensitive areas (ESAs) and 100-year floodplains along Loma Alta Creek were identified as major considerations. High-grade areas (>50%) near Beechwood Lane, Joseph Carrasco Park, and Rancho Del Oro SPRINTER station present construction challenges.

Further analysis identified right-of-way limitations and highlighted the need for alignments that minimize environmental impacts while providing connectivity to economically disadvantaged areas. According to Median Household Income (MHI) data from the U.S. Census, the census tracts between the Coastal Rail Trail (CRT) and El Camino Real as well as the Ord Way to Melrose Dr & Oceanside Boulevard qualify as disadvantaged, since households have less than 80% of the MHI for the state. This is displayed in **Figure 2-1**.

Figure 2-1: Median Household Income Status



Field Visits

Field visits were conducted to validate data and identify safety, operational, or construction challenges not apparent in data:

- **Constrained Zones:** Noted constrained areas along Oceanside Boulevard between Cleveland Street and South Coast Highway, and El Camino Real and SoCal Sports Complex, limiting trail alignment options.
- **Available Zones:** Identified available spaces for potential trail alignment between Union Plaza Court and Crouch Street on the north side of the SPRINTER tracks, between SoCal Sports Complex and Calle Platino on the south side of Oceanside Boulevard, and on the south side of the SPRINTER tracks near College Boulevard Station.
- **Challenges:** Observed steep slopes at Beechwood Lane on the north side of the SPRINTER tracks and near the intersection of Skylark Drive and Sarbonne Drive on the south side of the SPRINTER tracks, which present alignment constraints.

Opportunities and Constraints

A planning-level analysis identified several constraints and opportunities for the OIRT development:

- **Constraints:**
  - **Steep Slopes:** Identified high-grade areas (>50%) near Beechwood Lane, Joseph Carrasco Park, and around the Rancho Del Oro SPRINTER station, requiring extensive grading or retaining walls. Moderate slopes (>25%) in these areas further complicate construction.
  - **Limited Right-of-Way:** Constrained sections particularly along the SPRINTER corridor due to adjacent developments, planned double-tracking, and maintenance access needs. This includes the sections between South Coast Highway and the COASTER tracks, and between Crouch Street and Rancho Del Oro.
  - **Creek Crossings:** The SPRINTER corridor runs parallel to Loma Alta Creek, presenting multiple crossing challenges. Notable areas include segments east of El Camino Real, near Beechwood Lane, and between El Camino Real and College Boulevard, where interaction with the 100-year floodplain is significant.
- **Opportunities:**
  - **New Developments:** There are four properties under development along the corridor, including two apartment complexes and two mixed-use developments, providing opportunities for route realignment, public art integration, and potential right-of-way acquisition to mitigate some constraints.
  - **Parallel Roadways:** Low-volume roads such as sections of Oceanside Boulevard, Godfrey Street, Skylark Drive, and Ord Way represent viable alternatives for trail segments outside the SPRINTER right-of-way, potentially offering a more flexible alignment.
  - **Community Connections:** The OIRT corridor is strategically located to connect with a variety of community assets including schools, healthcare facilities, shopping centers, community centers, and recreational areas. Key connections include El Camino High School, Mira Costa College, and the proposed Coastal Rail Trail, among others.

3. Public Outreach Summary

The Study team implemented an outreach and engagement program to seek public input to inform the Study. This outreach strategy was vetted by Caltrans as part of the approval process for the Caltrans Sustainable Communities Planning Grant. Obtaining meaningful public input throughout the planning process is critical to the success of this project and will help the City develop a project that meets community needs and works for people of all ages and abilities. An in-depth description of public engagement activities and responses for Phase 1 and Phase 2 can be found in **Appendix C**.

- 1 workshop
- 3 outreach phase factsheets
- 3 surveys
- 4 pop-up outreach events
- 10 sidewalk decals
- 12 Community Advisory Board Member Organizations
- 9,000 postcards

Phase 1

The initial outreach and engagement activities during Phase 1 informed the development of alternative alignments for the Inland Rail Trail. The key takeaways from the input received include:

- The project enjoys broad support from those that were engaged.
- Safety is a primary concern. Those engaged cited the following:
  - ↳ Encouraged City to prevent homeless encampments.
  - ↳ There was a strong desire for separation between pedestrians and bikes/e-bikes.
  - ↳ Road crossings need to be safe.
- Trail connectivity is a priority.
- Most people would use the OIRT for biking/e-biking (more than 60%).
- The OIRT would help the community be more active and access public recreation.
- Shade, lighting, and native landscaping are important elements to incorporate into the project.

Phase 2

The input received during Phase 2 outreach and engagement activities informed the selection of the preferred alignment and development of the preliminary design concepts. The key takeaways from the input received include:

- Safety is a primary concern. Those engaged cited the following:
  - ↳ Alternatives that use Oceanside Boulevard need to be physically separated from traffic.
  - ↳ Concerns about homeless encampments making the trail unsafe.
  - ↳ The trail should have lighting.
  - ↳ Road crossings need to be safe.
  - ↳ Concerns were expressed about isolated areas of the trail that could be dangerous.
- There is a strong desire to keep the trail separated from traffic with fewer intersection crossings to make it a pleasant trail experience.
- The large majority of people said they would use the trail for recreation and exercise.
- Many people said to look to the San Luis Rey trail as an example.
- Several people commented about the need for amenities, such as bike parking, landscaping, shade, benches, and bathrooms.
- Alternative A: South Side of SPRINTER Tracks received the most positive feedback out of the three alignment alternatives presented to the public due to its separation from vehicular traffic and scenic nature.

Phase 3

Phase 3 of Engagement is currently being conducted online to receive input on the preliminary design concepts and the Draft Study. This allows interested members of the public to provide input through a survey to help develop and phase the design before it is presented to Oceanside City Council. A meeting with the Community Advisory Board was held on October 21, 2025 to gather additional input. The results of this outreach and engagement will be included in the Final OIRT Feasibility Study.

4. Alignment Alternatives Analysis

This section outlines the process used to determine the Preferred Alignment. An area within a 0.5-mile radius along the SPRINTER tracks between the Coastal Rail Trail and Melrose Drive was examined to identify feasible trail placement locations. The project team identified six initial alignment alternatives, from which three were advanced for public input.

The alignment alternatives were refined through a three-step process:

1. **Fatal Flaw Analysis:** Initial screening of roadway segments and space north and south of the SPRINTER tracks, eliminating sections with significant feasibility challenges.
2. **Possible Alignment Locations:** Removing impractical locations due to lack of continuity or accessibility.
3. **Refinement:** Reviewing permutations of alignment alternatives resulting in six options to present to the Community Advisory Board (CAB).

Fatal Flaw Analysis

The fatal flaw analysis determined locations within the study area that should be immediately screened out of the set of trail placement locations. This exercise allowed the project team to discard portions of the study area that would pose significant risk to the project's continuation if they were included in the preferred alignment alternative due to environmental constraints or other existing conditions. The following locations within the study area were determined to be fatally flawed, with sub-bullets indicating the reason:

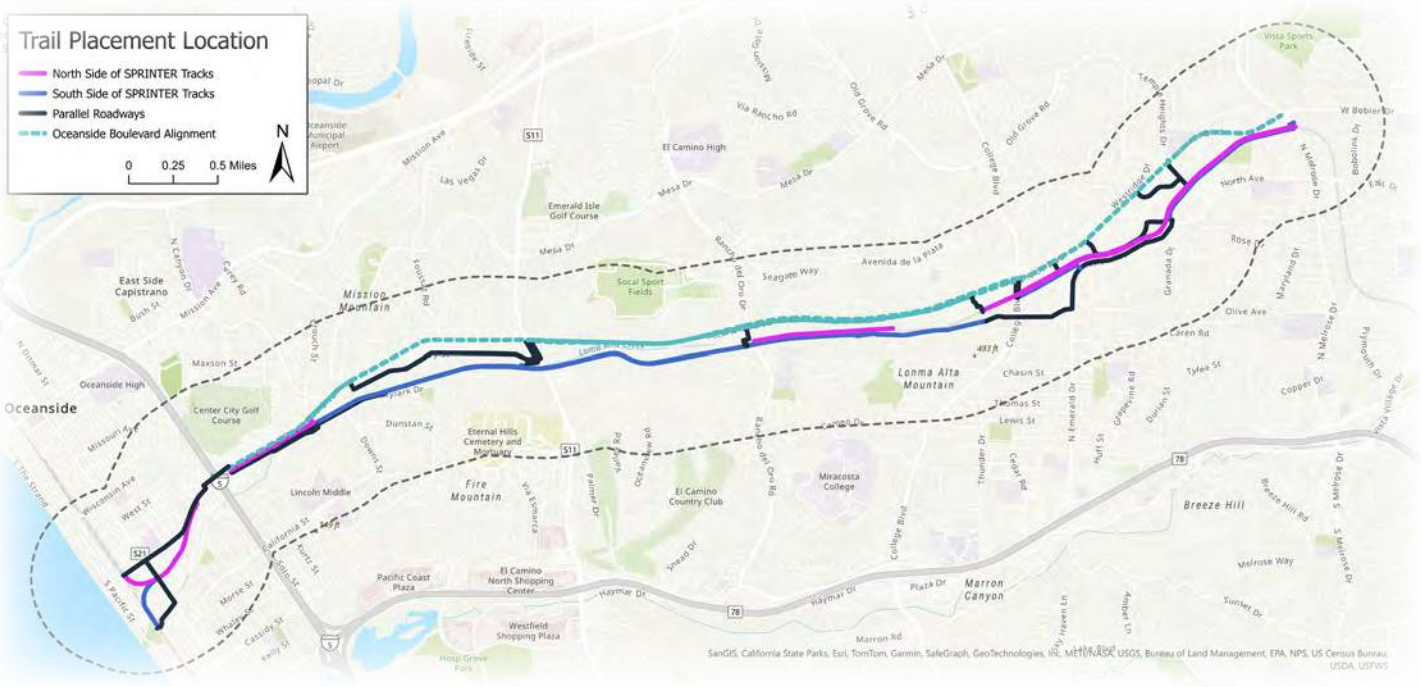
- South side of SPRINTER tracks between South Coast Highway and Interstate 5 (I-5) overpass
  - ↳ Lack of available right-of-way
  - ↳ Steep slopes
- North side of SPRINTER tracks between I-5 southbound off-ramp and I-5 overpass
  - ↳ Lack of available right-of-way
- South side of SPRINTER tracks between I-5 underpass and Crouch Street
  - ↳ Lack of available right-of-way
  - ↳ Loma Alta Creek
- North side of SPRINTER tracks between Crouch Street and Rancho Del Oro
  - ↳ Lack of available right-of-way
  - ↳ Loma Alta Creek
  - ↳ Steep slopes
- Skylark Drive between Sarbonne Drive and East end
  - ↳ Steep slopes
- North side of SPRINTER tracks between the west end of 4035 Oceanside Boulevard and College Boulevard
  - ↳ Lack of available right-of-way
  - ↳ Loma Alta Creek
  - ↳ Steep slopes

Among the roadways within a 0.5-mile radius of the SPRINTER tracks, the roadways highlighted in **Figure 3-1** were determined to be not fatally flawed, and therefore considered as viable options for potential trail placement.[1]

Appendix B: Fatal Flaw Analysis Presentation represents the typical slide deck used by the project team to assess fatally flawed sections of the corridor during the beginning of the fatal flaw analysis.

[1] An additional alignment alternative for the western end of the corridor, S Ditmar Street to Godfrey Street, was added for consideration during concept development, after Phase 2 outreach.

Figure 3-1: Possible Trail Placement Locations Within the Study Area



Possible Alignment Locations

The project team studied the set of possible alignment alternative locations after fatally flawed sections were removed from the universe of alternatives. Some locations that were not considered fatally flawed were removed from the set of possible alternative alignment locations because they were determined to be impractical due to lack of continuity or inaccessibility from other segments.

The study area was broken into two distinct sections, “east” and “west”, at the Oceanside Boulevard-I-5 undercrossing because there is only one safe and cost-effective crossing of I-5 within the study area adjacent to the SPRINTER tracks: the I -5 undercrossing at Oceanside Boulevard. One alternative west of I-5 could be paired with any of the alignment alternatives east of I-5 to complete the preferred alignment throughout the study corridor. All alignment alternatives were developed in collaboration with the City of Oceanside, Caltrans, and NCTD.

Alignment Alternatives West of I-5

Two alignment alternatives west of I-5 were originally chosen to move into the refinement phase. However, as engineering analysis continued, a third option was developed to advance to conceptual design.

4. **Oceanside Boulevard:** Utilizes existing at-grade COASTER tracks crossing and traffic calming measures for a direct route.
5. **South Coast Highway:** Offers separation from vehicular traffic with improved bicycle/pedestrian facilities.
6. **Godfrey Street:** Offers a direct route separated from vehicle traffic which utilizes existing at-grade COASTER tracks crossing. This option was introduced during the concept design phase as a lower stress alternative of the Oceanside Boulevard alignment option based on public feedback and a deeper engineering analysis.

Alignment Alternatives East of I-5

Six alignment alternatives were developed between I-5 and Melrose Drive based on the fatal flaw analysis results. These six alignment alternatives were created by grouping the segments within the study area into cohesive, continuous alignments which traversed east-west between I-5 in the west and Melrose Drive in the east.

7. **Oceanside Boulevard:** Runs from the I-5 undercrossing at Oceanside Boulevard to Melrose Drive, providing high community access.
8. **North Side of SPRINTER Tracks:** Uses parallel roadways with less continuity, posing right-of-way and environmental challenges.
9. **North & South Side of SPRINTER Tracks:** Combines use of both sides, balancing access to destinations and avoiding steep slopes.
10. **South Side of SPRINTER Tracks + Oceanside Boulevard:** Balances access and cost, avoiding hillside and floodplain with some detours.
11. **South Side of SPRINTER Tracks:** Direct multi-use path posing higher cost and topography challenges.
12. **Minimized Parallel Crossings:** Uses fewer new crossings for a safer, direct path at a moderate cost.

Refinement of Alignment Alternatives

The alignment alternatives were presented to the Community Advisory Board (CAB), which is a collection of project stakeholders that act as a liaison between the City and the respective constituencies of CAB stakeholders. The CAB met on January 22nd, 2025 at Oceanside City Hall to discuss the alignment alternatives and to gather feedback to reduce the six alignment alternatives east of I-5 to three.

Appendix C shows the CAB presentation, which describes the locations of the alignments in detail throughout the study area. CAB members were asked to fill out comment cards to provide feedback on the alignment alternatives, as well as to share comment cards with their respective constituencies to be returned to the project team. **Appendix C** shows an example of the comment cards that were distributed to CAB members to generate feedback on the potential alignment alternatives.

In addition to the two alignment alternatives west of I-5, three alignment alternatives east of I-5 were selected for further public engagement based on CAB feedback:

1. **Alternative A:** South Side of SPRINTER Tracks – Direct, scenic, high cost, and challenging topography.
2. **Alternative B:** South Side of SPRINTER Tracks + Oceanside Boulevard – Balanced in access and cost with moderate traffic stress.
3. **Alternative C:** North & South Side of SPRINTER Tracks – Moderate in all categories with balanced access and continuity.

Agency Coordination

After the conclusion of Phase 2 of Outreach and Engagement, the project team organized meetings with agency stakeholders, including Oceanside Police, Fire, Public Works and Parks Departments, and Caltrans, SANDAG, and NCTD, to solicit feedback on the alignment alternatives. These stakeholders will be involved in the construction, permitting, maintenance, and/or emergency response along the trail, and they provided valuable input on the proposed design elements. Considering these components from an early planning-level stage provides opportunities to improve safety and implementation.

Oceanside Police and Fire Departments

Creating safe connections in North County between places of employment, schools, recreation, and the beach is the first goal of the IRT. Emergency response protocol, access, infrastructure, and response times are closely linked and critical to safety. Oceanside Police (OPD) and Fire provided safety input, including:

- Mile markers can reduce emergency response times by clarifying emergency call locations.
- OPD recommends safety push buttons along isolated portions of the trail, though vandalism is a concern.
- OPD and Fire confirmed they would be comfortable with a short section of bicycle boulevard (mixed bicycle and vehicle traffic) along Oceanside Boulevard near Coast Highway 101, provided vehicular volumes are low and best practices are followed to allow emergency vehicles to utilize the corridor.
- Safety cameras can address the strong public desire for safety infrastructure along isolated portions of the trail such as Alternative A between El Camino Real and College Boulevard.
- Neither department stated any strong preference for or against any of the alignment alternatives.
- The vehicle turnouts recommended by Public Works (below) would be adequate for emergency vehicles.

Oceanside Public Works and Parks Departments

Coordination with the Oceanside Public Works and Parks Departments included trail maintenance, connections to park facilities, and interpretive signage opportunities. Major takeaways include:

- There is a wetlands restoration project occurring on the north side of the Loma Alta Creek between South Coast Highway 101 and the Coaster tracks near the Pacific Ocean, which could be a key partner for trail placement.
- Public Works and Parks would prefer a minimum trail width of 10' with 2' shoulders for maintenance access.
  - ↳ Preferred shoulder materials are asphalt, concrete, or decomposed granite.
- One vehicle turnout each between El Camino Real and Rancho Del Oro, and Rancho Del Oro and College would be desirable if the South Side of SPRINTER Tracks (Alternative A) is chosen.
- Public Works did not cite specific maintenance concerns towards any of the alignment alternatives.

Caltrans, SANDAG, and NCTD

Key topics discussed with Caltrans, SANDAG, and NCTD were:

- Maintenance access
- Corridor insight (environmental concerns, challenges, key organizations)
- Feedback from other Inland Rail Trail segments

Major takeaways from the discussion with Caltrans, SANDAG, and NCTD include:

- Caltrans asks that the City reaches out to Caltrans at least one year prior to construction within the I-5 ramps system at Oceanside Boulevard.
- Work at the I-5 undercrossing at Oceanside Boulevard undercrossing may trigger NEPA and FHWA review depending on the intensity of construction work.
- NCTD double-tracking throughout the corridor is a long-term plan with no set timeline.
- If Class IV facilities are recommended along Oceanside Boulevard (either Alternative B or Alternative C), NCTD requests that consideration be given to bus stops along that route.
  - ↳ 100' turnouts shall be provided for NCTD 40' bus.
  - ↳ 8' width for passenger loading area is non-negotiable.
  - ↳ Preferred bus width for design is 12'.

- 25' separation from center of NCTD tracks and edge of trail is preferred, but this can be reduced if there is vertical separation such as fencing provided between the trail and the tracks, provided the reduction in separation is necessitated by the trail's surroundings.
- Some rail crossings incorporated in the Vista IRT required new pedestrian signal heads. Pedestrian gate arms may also be required at rail crossings along the Oceanside IRT.
- SANDAG recommends a phased approach to Oceanside IRT implementation to secure funding.
- Soil disposal after earthwork was a significant cost to the Vista IRT sections.

Preferred Alignment Alternative Selection

The alignment alternatives were discussed with related agencies and presented to the public during Phase 2 of public engagement. The City and regional agencies supported all alternatives and provided key feedback including a desire for safety infrastructure (lighting, mile markers), maintenance access, and coordination with existing projects and bus facilities.

Public outreach methods included pop-up events, an open house workshop, and an online survey with primary takeaways emphasizing the importance of safety, separation from vehicular traffic, route directness, and scenic nature, as documented in **Appendix C** and **Chapter 3**, **Public Outreach Summary**.

Considering public preference, city input, and technical evaluation, **Alternative A** was selected as the preferred alignment east of I-5 for its highest degree of separation from traffic, directness, and scenic appeal, despite its higher cost and topographical challenges. West of I-5, **Godfrey Street** was selected as the preferred alternative for its ability to provide a low stress connection.

5. Preliminary Concept Design

The preliminary concept design considers several important factors for trail implementation such as multi-use path best practices, railroad safety, vehicular crossings, construction considerations, and right-of-way (ROW) encroachments and acquisitions. The public will have the opportunity to comment on this report and the high-level 5% concept drawings, included in **Appendix D**.

Multi-Use Path Design Best Practices

The OIRT will be designed as a multi-use path for people walking and rolling, such as bikes, scooters, roller skates or mobility devices, like a wheelchair. This is referred to as a "Class I Bike Path," "Shared-Use Path," or "Trail". A multi-use path is a hard-surface travel way (paved or concrete) completely separated from vehicles on the street. The OIRT should be designed to meet relevant City, State, and NCTD design standards as well as industry best practices. The AASHTO Guide for the Development of Bicycle Facilities, Fifth Edition (2024) ("AASHTO") provides helpful guidance for the design of shared-use paths and side paths and should be referenced during future design phases.

Trail Width

To create a consistent and comfortable trail experience, the concepts utilize the following preferred, constrained, and minimum trail dimensions:

- Preferred Trail Width: 16' (6' travel lanes, 2' shoulders)
- Constrained Trail Width: 14' (5' travel lanes, 2' shoulders)
  - ↳ When the desired trail width may infringe on private right-of-way (ROW), the NCTD 25-foot clear zone, drainage infrastructure, or steep grades, these dimensions can provide an enhanced trail experience when compared to the minimum width.
- Minimum Trail Width: 12' (4' travel lanes, 2' shoulders)
  - ↳ The minimum trail width defines the dimensions that do not require a design exception and are to be followed wherever feasible to limit review delays.

Trail Surface

The trail surface may be asphalt or concrete. This will be determined during final design based on a consideration of cost, geotechnical reports, and expected frequency of maintenance and emergency vehicle access. As noted in the **Trail Width** section, a minimum two-foot-wide graded shoulder should be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, and other objects. The shoulder could be the same surface as the path, helping to increase the effective path width in most areas. Alternatively, the shoulder could be constructed with a pervious pavement. As water filters through the pavement, some pollutants are removed, helping to improve water quality.

Design Speed

The Caltrans Highway Design Manual (HDM) recommends a 20 miles per hour (mph) design speed for bike paths (with mopeds prohibited). AASHTO notes design speed should consider the path location and context: urban shared use paths may be designed for 15 mph while rural paths may be design for up to 30 mph. Where using the preferred design speed is infeasible, such as constrained right-of-way locations, the highest possible design speed should be used. AASHTO Table 6-5 notes the minimum radii for horizontal curves by design speed.

Table 6-5: Minimum Radii for Horizontal Curves at 20-Degree Lean Angles (AASHTO, 2024)

Design Speed (mph)	Minimum Radii (ft) for Horizontal Curves at 20-Degrees Lean Angles
8	12
10	18
12	27
14	36
16	47
18	60
20	75
25	115
30	166

Trail Slopes

The trail should be designed with a maximum 2% cross slope and maximum 5% running slope to meet the latest ADA standards. The running slope may be stepper in areas where the path follows a roadway and the existing roadway slope exceeds 5%, or at ramps if hand railing and landing areas are provided as required.

KEY PATHWAY DESIGN ELEMENTS

- Preferred Trail Width: 16’ hard surface (6’ travel lanes, 2’ shoulders)
- Constrained Trail Width: 14’ hard surface (5’ travel lanes, 2’ shoulders)
- Minimum Trail Width: 12’ hard surface (4’ travel lanes, 2’ shoulders)
- Maximum Cross Slope 2%
- Maximum Running Slope 5%*

* The proposed hard surface should be designed to meet the latest ADA standards. A 5% max running slope may be exceeded at ramps and potentially where the existing roadway slope exceeds 5%

Separation

Separation between the proposed multi-use path and adjacent roadways and the SPRINTER corridor is a critical factor in the path’s comfort and safety. Fencing will be constructed between the trail and the NCTD SPRINTER tracks to maintain rail safety and operations. When the trail runs adjacent to a roadway, such as along Godfrey Street or Oceanside Boulevard, vertical separation from vehicles will be provided to keep users safe and comfortable through the use of physical barriers such as curbs, delineators, or a crash-rated barrier.

Railroad Coordination

The SPRINTER is operated by NCTD, making them a key stakeholder. NCTD plans to construct a second rail line within their ROW, referred to as "double tracking", though details regarding design and implementation are still pending. The project team used available conceptual drawings and typical design criteria to approximate the location of the future rail facilities.

NCTD will provide input as design progresses to verify the location of the trial will not preclude double tracking. NCTD design preferences will be followed, where feasible. This includes a 25' clear zone from the centerline of tracks and the edge of the OIRT and vertical separation such as fencing between trail users and the railroad. The preferred alignment does not conflict with existing or proposed NCTD maintenance roads. Best practices regarding rail safety will be followed as the OIRT follows the SPRINTER alignment for significant portions of the corridor.

Crossings

The California Public Utilities Commission (CPUC) is the state agency with exclusive jurisdiction over rail crossings in California. CPUC engineers evaluate the safety of rail crossings and review proposed construction where roadways or pathways cross railroad or rail transit tracks. CPUC may require additional infrastructure for intersections near a railroad crossing, such as signalization with railroad interconnect preemption. The cost of these upgrades, including grade separations, closures, and vehicular and pedestrian gate arms, can be significant and has been considered in the cost estimate in **Chapter 7**.

Rail Equipment

Since the OIRT runs parallel to the SPRINTER alignment, existing rail equipment, such as rail equipment enclosure cabinets, must be considered. Some existing enclosure cabinets will be removed when NCTD completes double-tracking. If the OIRT is constructed before double-tracking takes place, an interim solution will be needed, such as entering the NCTD clear zone or obtaining an easement.

Some enclosure cabinets will be maintained after double-tracking including an existing enclosure cabinet east of El Camino Real will remain. Other existing rail equipment that will be maintained on the north side of the trail, so the trail must curve south to avoid the enclosure cabinet, which may require an easement or acquisition from Zephyr Oceanside LLC.

Coordination with NCTD will be needed regarding the enclosure cabinet on the southwest corner of Temple Heights Drive. NCTD plans to construct a second track and maintain their access road on the north side of this enclosure cabinet, so using the space to the north of the enclosure cabinet for the OIRT may not be feasible due to possible access road conflicts. The ROW south of the enclosure cabinet is developed and currently used as a business' parking lot, which could create difficulties in procuring an easement or acquisition. Therefore, the enclosure cabinet will likely need to be relocated through coordination with NCTD.

El Camino Real SPRINTER Station

The trail becomes constrained as the OIRT approaches the EL Camino Real Station, where the NCTD access road transitions from the north side to the south side of the tracks. To provide adequate space for the OIRT, one option is to enter the NCTD clear zone. However, this could create conflicts with the NCTD access road, as well as interfere with the existing culvert on the southwest corner of the intersection of El Camino Real with the SPRINTER. Depending on coordination and final design, easements may be needed from the Mountain Olive Cemetery Association and San Diego Gas & Electric Company. On the southeast corner of El Camino Real, an easement would be needed from Zephyr Oceanside LLC to maintain the existing drainage ditch.

Roadway Crossings

Safe and comfortable crossings for trail users are an essential component of the transportation network. FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations provides detail on improvement

selection for uncontrolled crossings, such as South Coast Highway. Roadway characteristics such as speed, traffic volumes, and the number of lanes should be considered while recommending improvements.

To maintain safety at higher volume roadway crossings and provide appropriate coordination with the railroad, some roadway crossings may be signalized. Signalization is recommended at Crouch Street, El Camino Real, College Boulevard, and Temple Heights Drive. While a pedestrian hybrid beacon or HAWK signal may typically be proposed in locations like this, full signals with railroad interconnect are proposed to simplify roadway user understanding and CPUC coordination. Due to the steep grades surrounding the Rancho del Oro intersection, a flyover bridge is proposed instead of signalization. This creates an improved rider experience, minimizes retaining wall construction, and reduces conflict points between road users.

Additional Construction Considerations

The ability to construct and maintain the OIRT should be considered as design progresses. Steep slopes in areas such as Rancho del Oro could create challenges for staging construction equipment. Drainage must be considered to prevent pooling on the trail since it runs parallel to Loma Alta Creek and existing drainage facilities for significant portions of the corridor. Possible construction impacts such as erosion and runoff should be mitigated as-needed. Close coordination will be needed with NCTD for portions of the trail in or near the NCTD clear zone, particularly if construction impacts rail operations.

Right-of-Way and Property Encroachments

The OIRT utilizes public right-of-way (ROW) owned by the City of Oceanside and NCTD where feasible. Some portions of the trail may encroach in private ROW, requiring easements or property acquisition. The City of Oceanside will work with the developers of Jefferson Oceanside and Olive Park to coordinate a final trail design through the proposed developments. In several constrained areas, the OIRT must either utilize land in the NCTD clear zone or in private ROW. A summary is provided in **Table 5-1**.

Additionally, the OIRT may require the removal of existing private improvements within public ROW, such as along Godfrey Street and South Ditmar Street. Along these corridors, the project may need to remove existing fencing, stairs, or other improvements that encroach the public ROW to construct the OIRT. Future design phases will seek to minimize impacts to property owners while meeting the project goals.

Table 5-1: Private Right-of-Way Encroachments

Eastment ID	Segment	Location	Pareel APN	Property Owner	Reason	Length (ft)	Area (ft^2)
1	C: Crouch St to El Camino Real	Southwest side of El Camino Real SPRINTER station	1650402100	Mount Olive Cemetery Association, Inc.	Avoid NCTD access road directly south of the El Camino Real SPRINTER Station	200	600
2-A	C: Crouch St to El Camino Real	Southeast side of El Camino Real SPRINTER station	1650402100	Mount Olive Cemetery Association, Inc.	Avoid NCTD access road directly south of the El Camino Real SPRINTER Station	270	900
2-B	C: Crouch St to El Camino Real	Between south of El Camino Real SPRINTER station and southwest corner of El Camino Real and SPRINTER tracks intersection	1620310600	San Diego Gas & Electric Co.	Avoid NCTD access road directly south of the El Camino Real SPRINTER Station, avoid culvert on southwest side of intersection of El Camino Real and SPRINTER tracks	30	150

Eastment ID	Segment	Location	Pareel APN	Property Owner	Reason	Length (ft)	Area (ft^2)
2-C	C: Crouch St to El Camino Real	Southwest corner of El Camino Real and SPRINTER tracks intersection	1620503000	San Diego Gas & Electric Co.	Avoid culvert on southwest side of intersection of El Camino Real and SPRINTER tracks	130	1360
3	D: El Camino Real to Rancho Del Oro SPRINTER Station	Southeast corner of El Camino Real and SPRINTER tracks intersection	1620503600	Zephyr Oceanside, LLC Zephyr Oceanside, LLC	Avoid culvert on southeast side of intersection of El Camino Real and SPRINTER tracks	70	980
4	D: El Camino Real to Rancho Del Oro SPRINTER Station	NCTD signal cabinet approximately 1500' east of El Camino Real	1620503600	Zephyr Oceanside, LLC Zephyr Oceanside, LLC	Protect in place existing NCTD signal cabinet	160	830
5	E: Rancho Del Oro SPRINTER Station to College Blvd	South of Rancho Del Oro SPRINTER Station	1651133000	Z U Property Investments, LLC	Build OIRT up hillside on southwest corner of intersection of Rancho Del Oro and SPRINTER tracks	460	7,400
6	E: Rancho Del Oro SPRINTER Station to College Blvd	0.25 miles west of College Blvd SPRINTER Station	1621110400	Oceanside Trolley Place, LLC	Avoid NCTD clear zone and coordinate with Olive Park development	1,500	6,000
7	E: Rancho Del Oro SPRINTER Station to College Blvd	Southwest side of College Blvd SPRINTER Station	1621110400	Oceanside Trolley Place, LLC	Avoid NCTD clear zone and coordinate with Olive Park development	300	4,000
8	G: College Blvd to Temple Heights Dr	East side of North Ave between North Ave and SPRINTER tracks	1614701000	Vista Pacific Business Park Owners Association	Transition OIRT from North Avenue back to NCTD ROW while minimizing encroachments to Loma Alta Creek	380	5,680

Trail Amenities

Thoughtful amenities can transform a path from a paved surface to a vital part of a community by creating a more comfortable, usable space. Public outreach efforts found safety was a key concern for residents and that shade, lighting, and native landscaping are important elements to incorporate into the project. The following amenities are recommended for further consideration, as funding and community support allow. Each amenity was ranked by the community during Phase 1 outreach, and the features below are ranked from most preferred to least preferred.

1. Native Landscaping
2. Lighting
3. Drinking Fountains
4. Habitat/Ecological Enhancements
5. Shade
6. Benches/Seating
7. Public Art
8. Directional Signage
9. Bike Fix-It Station
10. Map Kiosks
11. Bike Parking
12. Educational/Interpretive Signage

6. Environmental Considerations and Potential Review Processes

Community feedback identified minimizing environmental impacts as one of the primary project goals for the OIRT. Environmental considerations are especially important because Loma Alta Creek and associated preserves run parallel to the SPRINTER alignment within the study area. The proximity of this natural resource can create a beautiful and scenic trail but may also require additional design considerations and coordination regarding features like placement, lighting, and fencing. A sample of the expected review processes are included below. A summary of agency coordination with NCTD, Caltrans, and the City of Vista through the Feasibility Study process will be included in the Final Study.

Preserve Areas

There are several locations within the OIRT study corridor which are noted in the City of Oceanside 2010 Subarea Plan as either "hardline" preserves, "softline" preserves, or as part of a Wildlife Corridor Planning Zone (WCPZ). These are called out in the preliminary design concepts in Appendix D. These do not prohibit the construction of trails, but special consideration will need to be made for the species and habitats that exist within the preserve areas.

Design Best Practices in Preserve Areas

The OIRT conceptual alignment passes through preserve areas between Mesa Drive and Rando del Oro Drive and must consider the guidelines in Section 5.3.1.1 of the Subarea Plan. Hardline preserves are identified as protected lands that are conserved for biological resources, while softline preserves are identified as potential future preserve areas within which conservation efforts will be incorporated over time. The trail passes through two preserves, the Evergreen Nursery Environmental Preserve and the El Corazon Area.

The impact of construction, operation, and maintenance of the trail on riparian areas, wetland resources, and sensitive species should be considered as the project progresses. The Sub Area Plan provides a framework for mitigation, but a detailed understanding of existing conditions, such as which species may be present in which areas, is needed to identify potential challenges. As part of the project's next steps, a qualified biologist familiar with the Sub Area Plan would prepare a report providing recommendations for design practices within the hardline and softline preserve areas, needed permits, and potential mitigation measures. The biologist's recommendations should include trail placement (i.e. are there any sensitive areas that need to be avoided?), lighting (i.e. how can lighting be designed to minimize wildlife disturbance or protect dark skies?), and fencing (i.e. where should fencing be included to minimize encroachment onto sensitive habitats, or prohibited to allow for wildlife passage?), among other considerations.

Evergreen Nursery Environmental Preserve

The Evergreen Preserve supports coastal sage scrub, riparian woodland, riparian scrub, freshwater marsh, mulefat scrub, and disturbed habitat. Some areas are hardline, while some are softline. Neither prohibit the construction of trails, however, depending on what species and habitats exist, avoidance of certain areas may need to be considered. A biological report should be completed to recommend design best practices and necessary mitigation measures within the preserve.

El Corazon Area

Hardline development guidelines are included in Section 5.3.1.2 of the Subarea Plan. A biological report should be prepared to address any mitigation measures needed for the requirements specific to the El Corazon Area:

- Trails and paths will be located away from sensitive habitats and restoration areas to the maximum extent possible and will be limited to a maximum of 6 feet in width
    - ↳ The concepts in Appendix D depict a 12' path in accordance with the minimum width described in Chapter 5 in hopes that an agreement can be reached

- Access areas and trails will be clearly marked
- Signs will be posted to discourage off-trail access and use
- Where sensitive species are present, trails will be closed as necessary during the breeding season to prevent undue harassment or nest abandonment
  - ↳ This would be identified in a biological report. Periodic surveys prior to breeding season could determine if there is a need for a temporary closure
- Invasive, nonnative plants or plants that require intensive irrigation, fertilizers, or pesticides, will be prohibited within 500 feet of the Preserve
- Landscaping will incorporate native shrub species
- Runoff from landscaped areas will be directed away from the Preserve and will be contained and/or treated within the landscaping footprint

National Environmental Policy Act (NEPA)

The OIRT may utilize federal funding, which would require the completion of the NEPA process. NEPA helps ensure government decision makers and the public understand the potential environmental impacts of development, as well as identifying ways to mitigate any potential damage. For federal grant funded projects, Caltrans typically acts as the lead agency for NEPA review. Trail projects are eligible to be processed as Categorical Exclusions (CE) if they meet certain criteria, which could reduce the associated time and cost of the NEPA review process. As part of the CE process, technical studies would likely be required to determine if there would be any significant effects regarding the following topics:

- Noise
- Air Quality
- Hazardous Materials
- Water Quality/Resources
- Coastal Zone
- Floodplains
- Waters, Wetlands
- Biological Resources
- Section 4(f) (parks, wildlife refuges, cemeteries, etc.)
- Visual Resources
- Land Use/Community/Farmland Impacts
- Cultural Resources
- Transportation

Due to the scope of the OIRT, portions of the trail may impact some environmental resource areas, in which case the project would be processed as a full Environmental Impact Statement (EIS) under the standard NEPA process. Mitigation measures would be identified to avoid or minimize impacts.

California Environmental Quality Act (CEQA)

Similar to NEPA, CEQA helps ensure government decision makers and the public understand the environmental impacts of development, as well as identifying ways to mitigate any potential damage. It is required for all major construction projects within the state of California. Active transportation projects like the OIRT are eligible to be processed as Categorical Exemptions (CE) if they meet certain criteria, which could reduce the associated time and cost of the CEQA review process. However, a CE may not be applicable to the OIRT due to the presence of sensitive areas such as preserves near the trail. If the project does not receive this CE, the standard CEQA process would be required, including the preparation of an Environmental Impact Report (EIR).

In accordance with State CEQA Guidelines Appendix G: Environmental Checklist Form, the following environmental factors, among others, would likely be considered:

- Aesthetics
- Biological Resources
- Hydrology/Water Quality
- Noise
- Cultural Resources
- Land Use/Planning
- Air Quality
- Hazards & Hazardous Materials
- Tribal Cultural Resources

Further, CEQA would consider consistency with existing habitat and conservation plans, including the Oceanside

Subarea Habitat Conservation Plan/Natural Community Conservation Plan. Therefore, design best practices for preserve areas, including the completion of a biological report, should be followed.

The City of Oceanside would likely be the lead agency under CEQA. Coordination may also be needed with:

- North County Transit District (NCTD)
- U.S. Army Corps of Engineers
- Regional Water Quality Control Board (San Diego Region)
- California Department of Fish and Wildlife (South Coast Region)
- California Coastal Commission (CCC)

Wetlands

The National Wetlands Inventory, maintained by the U.S. Fish and Wildlife Service, identifies the Loma Alta Creek and some other areas within the study area as wetlands. Though the trail cannot avoid the wetland area completely, steps would be taken to mitigate any potential impacts.

Notable areas identified by the National Wetlands Inventory are:

- Loma Alta Creek and its surrounding areas between South Coast Highway and the Pacific Ocean
- North and south sides of SPRINTER tracks east of El Camino Real
- North side of SPRINTER tracks east of Rancho del Oro intersection
- Between SPRINTER tracks and North Avenue

Permitting may be required by the following regulatory agencies based on the impact of the project on sensitive species or habitats, including wetlands:

- U.S. Army Corps of Engineers
- Regional Water Quality Control Board - San Diego Region
- California Department of Fish and Wildlife (CDFW) - South Coast Region

Loma Alta Creek

The Loma Alta Creek is an environmentally sensitive area that is present throughout much of the OIRT study corridor. The preliminary conceptual trail design considers the approximate creek bed location and the 100-year flood plain to minimize the environmental impacts and design costs of trail implementation. Future project phases will continue to refine the design to reduce impacts to the extent practicable.

100-Year Flood Plain

The 100-year flood plain is shown in the Opportunities & Constraints Map in **Appendix A**. The primary concerns with placing infrastructure in a floodplain include:

- Loss of access
- Safety
- Induce flood level rise
- Discharge of fill material

Best practices for drainage and design will be followed when the trail is within or near the Loma Alta Creek 100-year flood plain. If OIRT construction alters the creek, flood plain elevations, or involves discharge of fill material into the creek, additional agreements and permits would be required.

If the construction of the trail involves discharge of fill material into waters of the U.S., including wetlands or streams, a Section 404 permit will need to be obtained from the U.S. Army Corps. If a Section 404 permit is required, then a Section 401 permit will also need to be obtained from the Regional Board. If the construction will alter the bed, back, or channel of a stream or river, then a Section 1600 Agreement will need to be obtained from CDFW.

Additional floodplain permitting would also be required as part of the City's typical review process. All projects located in Special Flood Hazard Areas (SFHA) are required to show the flood plain limits on their plans. Development within the SFHA may also have additional requirements per the City's Floodplain Management Regulations. If FEMA map revisions or Letters of Map Changes are required, documents such as CLOMR, LOMR, and LOMA should be submitted to the City prior to submission to FEMA.

Drainage Considerations

Future design phases will continue to refine the trail design to account for adequate drainage, both along and adjacent to the OIRT. Design solutions may include culverts, headwalls, pre-formed steel truss bridges, sub-surface drainage such as HDPE pipe below the trail, permeable drainage channels, drainage ditches, inlets, and more. The design should also include storm water best management practices (BMPs) to help treat storm water runoff and prevent ponding or flooding. The project will likely require a Storm Water Quality Management Plan (SWQMP), Stormwater Pollution Prevention Plan (SWPPP), and a Hydrology and Hydraulics Report. It is noted that it may not be feasible to grade the trail above the 100-year floodplain, and a flood analysis maybe required

California Coastal Commission

Approximately 0.6-miles of the west-most portion of the OIRT is located in the California Coastal Zone according to the California Coastal Commission (CCC). This zone includes all property from the eastern side of Coast Highway to the Pacific Ocean, as well as property in proximity to portions of Loma Alta Creek. The OIRT may need a Coastal Development Permit as stated in the California Coastal Act for any development within the California Coastal Zone.

Caltrans

A Caltrans Encroachment Permit (EP) is required for any construction within Caltrans ROW. The OIRT will enter State highway ROW for approximately 0.15-miles around the interchange of Interstate 5 (I-5) with Oceanside Boulevard.

The width of Oceanside Boulevard is constrained under I-5 due to the median piers supporting the bridge deck and the proximity of the NCTD tracks. To provide separation between trail users and vehicles the trail must be limited to 8'. This meets Caltrans minimum criteria for the traveled way but does not provide enough space for the 2' minimum shoulders. The eastbound vehicle travel lanes must also be limited to 10.5', which is less than the required vehicle lane width at interchange locations in the State highway ROW per Caltrans Design Information Bulletin-94 Complete Streets: Contextual Design Guidance. Therefore, a design exception in the form of a Design Standard Decision Document (DSDD) for the OIRT would be needed for this 0.15-mile portion between Parkwood Lane and Commerce Street.

This design exception offers safety benefits such as vertical separation when compared with the existing Class II unprotected bicycle lanes. Without this design, users would have to cross Oceanside Boulevard twice. If the IRT is constructed to cross Oceanside Boulevard twice, users may not utilize that portion due to additional delays, and the community would not experience the full safety benefits of the trail.

According to the 2019 Vision Zero in North County Report, Oceanside Boulevard is the corridor with the third highest number of bicycle and pedestrian crashes in Oceanside. Oceanside Boulevard & I-5 has the sixth highest number of bicycle and pedestrian crashes of any intersection in Oceanside. This could be related to the high speeds of vehicles exiting the freeway, which makes vertical separation important to reduce the force if a crash does occur. According to the FHWA, "Converting traditional or flush buffered bicycle lanes to a separated bicycle lane with flexible delineator posts can reduce crashes up to 53% for bicycle/vehicle crashes" (Developing CMFs for Separated Bicycle Lanes. FHWA-HRT-23-025, (2023)). Mitigation measures could be added to further increase the safety at this location, such as:

- Improved Lighting through I-5 Underpass
- Signing and Pavement Markings
  - ↳ Path: "Slow Zone"
  - ↳ Roadway: "Yield Here to Pedestrians"

If needed, bicyclist dismount signage could be added to this portion of the trail, and it could become a pedestrian-only path through the underpass.

City of Vista

The OIRT terminates where the Vista IRT begins at the intersection of Oceanside Boulevard with Melrose Drive. Though this intersection is within the jurisdictional boundaries of the City of Oceanside, the Melrose SPRINTER station and the grade crossing of the SPRINTER with Melrose Drive are within the City of Vista's jurisdictional boundaries. Continued coordination with the City of Vista will be needed through final design and construction.

7. Implementation Plan

The following section highlights key components for OIRT implementation including costs, potential funding sources, and a phasing approach that could be leveraged to advance the trail.

Potential Funding Sources

Securing funding is a critical step in the implementation of the OIRT. The following section summarizes key programs and opportunities that may be used to help fund the development of the OIRT such as grants, developer fees, and partnerships.

Grants

The local, state, and federal programs listed below support active transportation, sustainability, and community connectivity. Many of these funding sources are competitive and require projects to demonstrate alignment with broader mobility, environmental, and equity goals. The concepts, cost estimates, and segment summaries in this chapter can support future grant applications to advance trail design and construction.

Affordable Housing and Sustainable Communities Program (AHSC)

The AHSC funds land use, housing, transportation, and land preservation programs through the California Department of Housing and Community Development that support infill and compact development that reduces greenhouse gas emissions. Projects must fall within one of three project area types: transit-oriented development, integrated connectivity project, or rural innovation project areas. Fundable activities include affordable housing developments, sustainable transportation infrastructure, transportation related amenities, and program costs.

Better Utilizing Investments to Leverage Development (BUILD) Program

BUILD provides grants for surface transportation infrastructure projects with significant local or regional impact, including surface transportation components of transit-oriented development projects. This grant could be a good fit for the eastern portion of the IRT, which would improve connectivity between the cities of Oceanside and Vista.

California Active Transportation Program (ATP)

The ATP's goal is to increase the proportion of trips accomplished by walking and biking, increase the safety and mobility of non-motorized users, advance regional efforts to achieve goals for greenhouse gas reduction, enhance public health, and provide a broad spectrum of projects to benefit everyone in the region. It is administered through California Transportation Commission (CTC), Caltrans, and the San Diego Association of Governments (SANDAG).

Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program

The FRA CRISI program provides funding for projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail, including highway-rail grade crossing improvement projects as well as any project necessary to enhance multimodal connections or facilitate service integration between rail service and other modes. This grant can supplement the signalization costs related to at-grade rail crossings as well as station improvements and connections related to the IRT.

Land and Water Conservation Fund (LWCF)

The LWCF grant administered through the California Department of Parks and Recreation provides funding for the acquisition or development of land to create new outdoor recreation opportunities for the health and wellness of Californians. The grant can be used for the development of recreational trails as well as amenities such as restrooms, lighting, and landscaping. This grant would be best suited for portions of the trail adjacent to preserves.

Local Partnership Program (LPP)

The LPP provides funding through the California Transportation Commission (CTC) to counties, cities, districts, and regional transportation agencies which have imposed fees dedicated to transportation improvement. The LPP provides funding to local and regional agencies to improve aging infrastructure, road conditions, active transportation, transit and rail, and health and safety benefits.

Habitat Conservation Fund (HCF)

The HCF allocates funds through the California Department of Parks and Recreation to nature interpretation programs to bring urban residents into park and wildlife areas, including the acquisition and development of wildlife corridors and trails. This grant would be best suited for portions of the trail adjacent to preserves. It can be used for trail design and maintenance as well as installing benches, dark sky lighting, or educational signs.

Highway Safety Improvement Program (HSIP)

HSIP funds are eligible for trails that improve the safety. According to the 2019 Vision Zero in North County Report, Oceanside Boulevard is the corridor with the third highest number of bicycle and pedestrian crashes in Oceanside. The OIRT could improve bicycle and pedestrian safety by offering a low-stress adjacent alternative through the city. Oceanside Boulevard & I-5, Oceanside Boulevard & El Camino Real, and Coast Highway & Oceanside Boulevard are among the ten intersections in Oceanside with the highest number of bicycle and pedestrian crashes. The OIRT could improve the safety of these intersections or provide an alternative route. To be eligible for HSIP funds, the City of Oceanside must first complete a Local Road Safety Plan (LRSP) or Safety Action Plan.

Infrastructure For Rebuilding America (INFRA)

The US DOT INFRA awards competitive grants for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people, including highway-railway grade crossing projects. This grant can supplement the signalization costs related to at-grade crossings with the SPRINTER tracks.

Railroad Crossing Elimination Grant Program

This FRA program provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods. Eligible projects include improvement or installation of protective devices, signals, signs, and other means to improve safety. This grant can supplement the signalization costs related to at-grade crossings with the SPRINTER tracks.

Recreational Trails Program (RTP)

The RTP provides funds annually through the California Department of Parks and Recreation to develop and maintain non-motorized recreational trails and trails-related facilities. Uses of funds include land acquisition, design development, and trail construction.

Route to Parks

Parks California launched the Route to Parks grant program in 2020 to improve park access for all Californians so they can create authentic connections with nature. This grant would be best suited for portions of the trail adjacent to preserves.

Safe Streets for All (SS4A)

SS4A is a competitive grant program focused on improving roadway safety for all users by reducing and eliminating serious injury and fatal crashes. The program provides funding to develop tools to help strengthen a community's approach to roadway safety and save lives. After a safety plan for the City of Oceanside is in place an SS4A Implementation Grant could be used to for the design of the OIRT if the primary purpose is safety related. This grant is best suited for portions of the trail near high-collision intersections.

Sustainable Communities Planning Grants

This Caltrans program supports transportation planning projects on an annual basis. It includes Sustainable Communities Grants to encourage local and regional planning that supports the State's greenhouse gas reduction target. This grant cannot be used for environmental studies, engineering plans, or construction. However, funds may be used for up to 30 percent design or conceptual drawings, which will be a vital step for this project.

Sustainable Transportation Equity Project (STEP)

The STEP funds community-led transportation projects through the California Air Resources Board (CARB) that address local transportation needs and increase access to key destinations while reducing vehicle miles traveled in disadvantaged or low-income communities. Each STEP grant includes multiple project types within one community that work together to make it easier for people to get around without owning a car. STEP funds a variety of clean transportation and supporting projects, such as public transit and shared mobility services, pedestrian and bicycle infrastructure, urban greening, land use planning, housing policy, workforce development, and clean transportation planning and education.

TransNet Active Transportation Grant Program (ATGP)

The ATGP is funded through SANDAG by Transnet, the half-cent sales tax to fund local transportation projects. ATGP encourages local jurisdictions to plan and build facilities that promote multiple travel choices and increase connectivity to transit, schools, retail centers, parks, work, and other community gathering places. It also encourages local jurisdictions to provide bike parking, education, encouragement, and awareness programs that support pedestrian and bike infrastructure.

Development

Portions of the trail could be constructed by developers in conjunction with new housing, commercial, or other developments. This approach can more quickly create valuable public infrastructure and increase value for developers by facilitating connections to housing, businesses, and recreation. Municipalities often seek developer contributions for the construction of trails through the property being developed.

Volunteers

The OIRT has strong community support based on public outreach. Many community members see value in the trail and would like to see it constructed. Due to this strong community support, the OIRT may be able to become a community project with volunteers donating their time and resources. This increases community advocacy as well as reduces the City's cost. One option is to implement an "Adopt-A-Trail" program. A local business or neighborhood group could make a monetary or volunteer commitment to construct or maintain a portion of the OIRT. Similar to the successful "Adopt-A-Highway" Program administered by Caltrans, the City of Oceanside could provide signs to thank the volunteers for their work, further promoting the program.

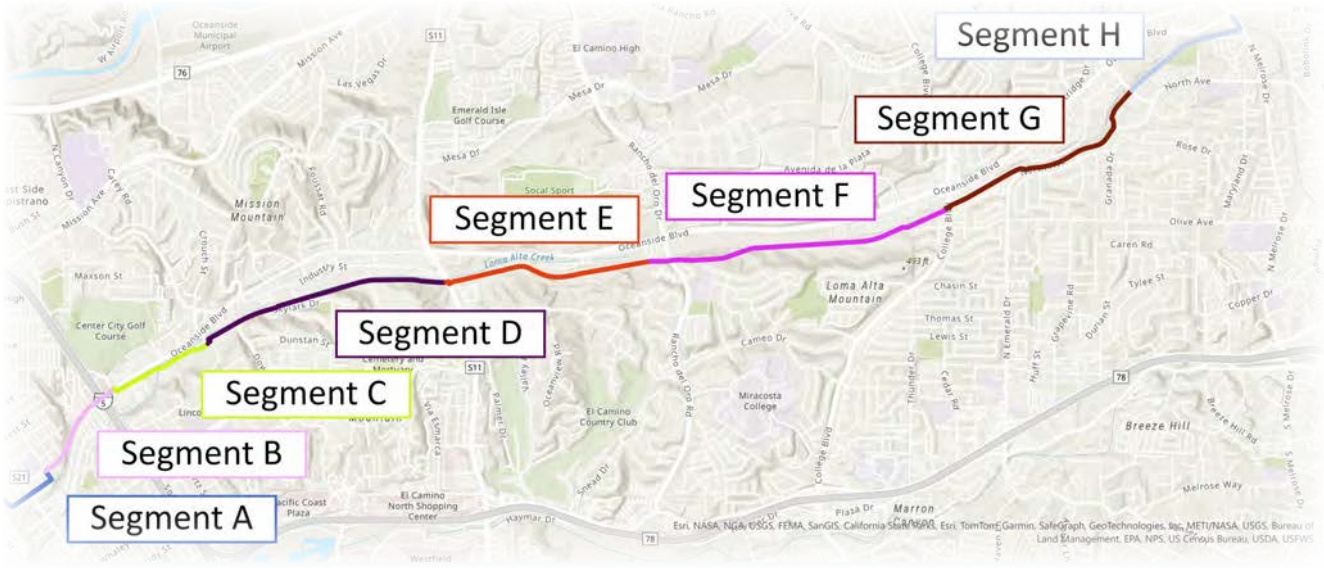
Potential Phasing Plan

Due to the length, complexity, and funding availability for the corridor, the project could benefit from being constructed in phases. Construction phases allow for large projects to be completed in more manageable pieces. This can help secure funding through more competitive grant applications, expedite construction, and improve the efficiency of project delivery.

To assist with implementation, the project has been separated into segments based on geography, the types of improvements needed, and construction considerations. Construction of segments could be prioritized based on funding availability, cost, and level of design difficulty. A summary of this evaluation is included in **Table 7-1**. A brief description of the segment opportunities and challenges is provided for each segment, below. A map of the segments is provided in **Figure 7-1**. The segment limits are:

- **A:** Coastal Rail Trail (CRT) to Oceanside Blvd
- **B:** Oceanside Blvd to Commerce St
- **C:** Commerce St to Crouch St
- **D:** Crouch St to El Camino Real
- **E:** El Camino Real to Rancho Del Oro SPRINTER Station
- **F:** Rancho Del Oro SPRINTER Station to College Blvd
- **G:** College Blvd to Temple Heights Dr
- **H:** Temple Heights Dr to Melrose Dr & Oceanside Blvd
  - ↳ H-N: North of Sprinter Tracks
  - ↳ H-S: South of Sprinter Tracks

Figure 7-1: OIRT Segments



Segment Evaluation

Each segment was evaluated in eight categories based on the criteria below. "A" represents the most desirable scenario, while "D" is the least desirable. A summary of the rankings is included in **Table 7-1**.

- **Access** relates to opportunities to enter and exit the trail, specifically near trip attractors
  - ↳ Number of opportunities to enter or exit the trail between cross streets
  - ↳ Number of cross-street intersections with bicycle or pedestrian facilities
- **ROW Impacts** include infringements on private ROW or personal property within the public ROW.
  - ↳ Area of private ROW needed
  - ↳ Area of personal property needed
  - ↳ These are covered in **Chapter 5**
- **Utility Impacts** reflect the difficulty of redesigning existing utilities
  - ↳ Traffic signal relocation
  - ↳ Drainage work
  - ↳ These are called out in the preliminary design concepts in **Appendix D**
- **Agency Coordination** relates to the level of approval needed from other agencies
  - ↳ Rail – NCTD (North County Transit District) and CPUC (California Public Utilities Commission)
  - ↳ Roadway – City of Vista and Caltrans
  - ↳ Coast – CCC (California Coastal Commission)
- **Structural Work** reflects the extent of retaining walls and bridges needed given the existing grades
  - ↳ Bridge length
  - ↳ Retaining wall length and height
  - ↳ These are called out in the preliminary design concepts in **Appendix D**
- **Environmental Impacts** relate to the impact on preserves or undeveloped land
  - ↳ Area of preserve used
  - ↳ Disturbance of undeveloped land
- **Topography** describes the engineering challenges posed by existing
  - ↳ Interaction with steep slopes
  - ↳ Amount of alignment alternative likely to require significant earthwork
- **Cost** is a qualitative assessment of the possible price of a segment
  - ↳ Structures such as bridges or retaining walls
  - ↳ Earthwork, floodplain, right-of-way acquisition
  - ↳ Rail crossing improvements
  - ↳ A detailed breakdown can be found in **Appendix E**

Table 7-1: Segment Characteristics

Segment ID	Length (Mi)	Access	ROW Impacts	Utility Impacts	Agency Coordination	Structural Work	Environmental Impacts	Topography	Cost
A	0.4	High	Medium	Low	Medium	Low	Low	Low	Low
B	0.6	High	Low	High	Medium	Low	Low	Low	Medium
C	0.6	High	Low	Medium	Medium	Low	Low	Low	Low
D	1.4	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium
E	1.1	Low	High	Medium	Medium	Medium	Low	Medium	Medium
F	1.6	Low	Medium	Medium	Medium	High	High	High	High
G	1.3	Medium	Medium	Medium	Low	Medium	Medium	Low	Medium
H (N/S)	0.8	Medium	Low	High	Med/High	Medium	Low	Medium	Med/High

A: Coastal Rail Trail (CRT) to Oceanside Boulevard

The first portion of the OIRT offers a low stress connection from the existing CRT to the Coast Highway SPRINTER Station and Ditmar Elementary School. This segment makes a competitive funding candidate because it closes a gap between existing active transportation infrastructure, public transit, and a school. The primary design challenge for this segment would be the removal of private improvements that were constructed within public ROW, which currently conflict with the desired trail placement. However, other options like removing parking could be utilized for implementation.

B: Oceanside Boulevard to Commerce Street

The section of the OIRT along Oceanside Boulevard could be implemented as one project to limit the impacts of construction on the public, such as increased congestion around I-5 ramps due to work zone activities. This segment requires a design exception from Caltrans as described in **Chapter 6**, which could potentially cause delays in implementation. Traffic signals may have to be relocated, as reflected as the cost estimates later in this chapter.

C: Commerce Street to Crouch Street

This OIRT section would provide a low stress connection between commercial areas, grocery stores, transit, Coastal Academy High School, and the new Jefferson Oceanside multi-family housing development, which is currently under construction. The access and potential safety benefits of this portion of the trail create a competitive funding candidate. A traffic signal with railroad interconnect may need to be installed to facilitate the at-grade railroad crossing at State Tree Drive and South Oceanside Boulevard based on coordination with CPUC. A culvert on the northwest corner of Commerce Street and South Oceanside Boulevard may need to be reconstructed to create space for the OIRT.

D: Crouch Street to El Camino Real

This portion of the OIRT would primarily be constructed in an undeveloped area adjacent to the Evergreen Nursery Environmental Preserve, creating recreational opportunities for those living in the new Jefferson Oceanside multi-family development as well as offering a low-stress connection between the Crouch Street and El Camino Real SPRINTER stations. This connection to nature and potential increase in active transportation usage for those living in multi-family housing could make this section a competitive grant candidate.

A traffic signal with railroad interconnect may need to be installed to facilitate the at-grade railroad crossing between Crouch Street, South Oceanside Boulevard, and Skylark Drive based on coordination with CPUC. To facilitate this connection construction of retaining wall, a sub-surface drainage system, and reconstruction of culverts may be needed. Easements may be needed to connect the El Camino Real SPRINTER station to the roadway at South El Camino Real, as detailed in **Chapter 5**.

E: El Camino Real to Rancho Del Oro SPRINTER Station

This segment offers a recreational connection between the El Camino Real SPRINTER station and the Rancho Del Oro SPRINTER Station. This route runs parallel to Loma Alta Preserve, which would create a scenic active transportation route through the corridor. A traffic signal with railroad interconnect may need to be installed to facilitate the at-grade railroad crossing at South El Camino Real based on coordination with CPUC.

Drainage should be considered as design progresses because this location lies within the 100-year floodplain of Loma Alta Creek. Due to the existing grades and drainage infrastructure retaining wall and a sub-surface drainage system will likely be needed. Easements may be needed, as detailed in **Chapter 5**. Coordination with NCTD is needed to enter the 25' clear zone for approximately 500' in order to minimize earth and structural work, which would increase costs. Though this section has some design challenges, the recreational opportunities provided by this trail could create a strong funding candidate.

F: Rancho Del Oro SPRINTER Station to College Boulevard

Implementation of this segment of the OIRT may be the most expensive due to the steep grades along the corridor. A flyover bridge over Rancho Del Oro may be the most cost-efficient option to minimize earth work. With the bridge, active transportation users could cross the road safely without creating additional congestion or requiring the installation of a new traffic signal for the railroad. Easements may be needed, as detailed in **Chapter 5**. Due to

the design challenges of this segment, the final trail alignment around Rancho Del Oro will be determined through preserve coordination, slope analysis, and a constructability review. Culvert reconstruction, a second bridge, a sub-surface drainage system, and extensive retaining wall may be needed to construct this segment. A traffic signal with railroad interconnect may need to be installed to facilitate the at-grade railroad crossing at College Boulevard based on coordination with CPUC.

Portions of this segment could be constructed in coordination with the potential Olive Park development project. This segment may be a more competitive funding candidate if all other portions of the trail are constructed first, as it would close an active transportation infrastructure gap.

G: College Boulevard to Temple Heights Drive

This segment would offer a low stress connection to grocery stores, commercial areas, and public transit for those living in the housing development around North Avenue by connecting to existing bicycle facilities on College Boulevard. This segment could also help children in the neighborhood safely access Maryland Elementary School nearby. These connections make this segment a competitive funding candidate. Constructing Segment H first would create an even stronger application, as it would extend the OIRT and close the active transportation gap between Temple Heights Drive and College Boulevard. A bridge connecting the portion of the trail adjacent to the SPRINTER tracks to North Avenue may be the most cost-efficient solution to minimize earthwork, drainage work, and impacts on the Upper Loma Alta Creek preserve. Easements may be needed, as detailed in **Chapter 5**.

H: Temple Heights Drive to Melrose Drive & Oceanside Blvd

This segment of the Oceanside OIRT could utilize the northern or southern side of the NCTD SPRINTER tracks to connect to Temple Heights Drive. Feedback received during Phase 3 of the project may help inform which option moves forward, in addition to cost, funding, and other implementation considerations. Both alignments are expected to require the construction of retaining wall, culvert installation and reconstruction, and at-grade rail crossing improvements at one location. The northern alignment would cross the railroad tracks at Temple Heights Drive and the southern alignment would cross at Melrose Drive. Both alignments require coordination with NCTD and City of Vista through the Melrose Drive SPRINTER Station. A traffic signal with railroad interconnect may need to be installed to facilitate the at-grade railroad crossing at Temple Heights Drive based on coordination with CPUC

The southern alignment would require the relocation of an existing NCTD signal house or coordination with NCTD to enter the clear zone to avoid the signal house, as well as the construction of a sub-surface drainage system. An environmental specialist should be consulted regarding French Field if this alignment is chosen to move forward due to historical soil contamination at this site. The northern alignment would require close coordination with NCTD to redesign the Melrose Drive SPRINTER station to accommodate the trail. This segment of the trail could be a competitive funding candidate because it will connect the City of Vista and the City of Oceanside through the continuation of the OIRT, which currently terminates on Oceanside Boulevard, which is a high-stress route.

Preliminary Cost Estimate

Preliminary costs were estimated for each segment to offer a high-level approximation of construction costs for use in planning and initial programming stages. This level of estimation is intended to serve as a guide for funding, enable stakeholders to make informed decisions, and to facilitate further detailed analysis in subsequent phases of the project. As the project progresses, more detailed and accurate estimates may be developed. **Table 7-2** provides a summary of the cost estimates, while the detailed breakdown can be found in **Appendix E**.

Table 7-2: Preliminary Cost Estimates

Segment	Full OIRT Corridor[1]	A	B	C	D	E	F	G	H(N)	H(S)
Construction Grand Total	$81,020,000	$4,280,000	$4,210,000	$6,740,000	$18,300,000	$9,900,000	$16,450,000	$13,330,000	$7,840,000	$6,930,000
Contingency (30%)	$24,306,000	$1,284,000	$1,263,000	$2,022,000	$5,490,000	$2,970,000	$4,935,000	$3,999,000	$2,352,000	$2,079,000
Construction Grand Total	$105,326,000	$5,564,000	$5,473,000	$8,762,000	$23,790,000	$12,870,000	$21,385,000	$17,329,000	$10,192,000	$9,009,000
Design (15%)	$15,799,000	$835,000	$821,000	$1,314,000	$3,569,000	$1,931,000	$3,208,000	$2,599,000	$1,529,000	$1,351,000
Environmental (3.5%)	$3,686,000	$195,000	$192,000	$307,000	$833,000	$450,000	$748,000	$607,000	$357,000	$315,000
Right-of-Way	$10,350,000	$-	$-	$600,000	$720,000	$6,810,000	$-	$2,220,000	$-	$-
Construction Management (20%)	$21,065,000	$1,113,000	$1,095,000	$1,752,000	$4,758,000	$2,574,000	$4,277,000	$3,466,000	$2,038,000	$1,802,000
Total Soft Costs	$50,900,000	$2,143,000	$2,108,000	$3,973,000	$9,880,000	$11,765,000	$8,233,000	$8,892,000	$2,038,000	$3,468,000
Total Construction Plus Soft Costs	**$156,226,000**	**$7,707,000**	**$7,581,000**	**$12,735,000**	**$33,670,000**	**$24,635,000**	**$29,618,000**	**$26,221,000**	**$14,116,000**	**$12,477,000**
Total Construction & Soft Costs with Escalation[2]	$279,777,000	$13,802,000	$13,576,000	$22,806,000	$60,298,000	$44,118,000	$53,041,000	$46,958,000	$25,280,000	$22,344,000

[1] Includes Segment H (North)
[2] Escalated 6% per year for 10 years

Next Steps

The Oceanside Inland Rail Trail will improve mobility options, creating safer connections for people of all ages and abilities to walk, bike, or roll to key destinations across Oceanside and beyond. While building the full seven-mile path discussed in this report would create the greatest positive impact on mobility and recreation options, phasing the path into multiple segments, as discussed above, may prove to be the most feasible approach and could help create community assets more quickly.

The list below summarizes the next steps for project implementation, following funding procurement (which may be obtained for one segment and/or step at a time). The design, environmental review, and construction of each segment of the OIRT will take multiple years to complete.

1. **Preliminary Engineering:** Continue developing more detailed concept designs and preliminary engineering for each segment. Aerial or field survey of the corridor, detailed right-of-way mapping, and a comprehensive utility review should be completed for a more accurate design. This would also help facilitate coordination with impacted utility companies and property owners. Coordination with NCTD regarding double tracking plans and easements should also continue.
2. **Environmental Processes:** Complete CEQA, NEPA, and other environmental clearance processes outlined in **Chapter 6**.
3. **Design and Permitting:** Prepare final design and bid packages (plans, specifications, and cost estimates (PS&E)) for each segment. Design and permitting will require review and coordination with multiple agencies, dependent on the segment. This coordination is described in **Chapter 6** and in the **Segment Evaluation** section of this chapter.
4. **ROW and Property Encroachments:** The OIRT is proposed in public ROW wherever feasible. **Chapter 5** provides information on the coordination, acquisitions, and easements needed to implement the OIRT.
5. **Utility Coordination:** Utility impacts were avoided where feasible and have been identified in the **Segment Evaluation** section of this chapter and labeled in the design concepts in **Appendix D**. This was completed with an aerial scan, so utility impacts, specifically the location of underground utilities, should be investigated in more detail as design progresses. Coordination with respective utility companies should begin in the preliminary engineering stage, as utility relocations and modifications can be a lengthy process.
6. **Construction:** Phasing of the trail, as described in this chapter, could expedite project delivery by dividing the project into more manageable segments. The effect of construction on operations along Oceanside Boulevard should be considered.
7. **Maintenance:** The City of Oceanside would likely be responsible for the maintenance of the facility. Using volunteers and community service hours to help maintain the trail could reduce the impact of increased maintenance on the City, as described in the **Potential Funding Sources** portion of this chapter. A maintenance agreement with Caltrans may be required for the section of Oceanside Boulevard that connects the northbound and southbound I-5 ramps, and a maintenance agreement with NCTD would be required for portions of the trail within NCTD right-of-way.