



Terrebonne

Refinement Plan

DRAFT



May 2019

Acknowledgments

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Introduction

US 97, a major north-south highway, runs through the center of the Terrebonne community in Deschutes County.

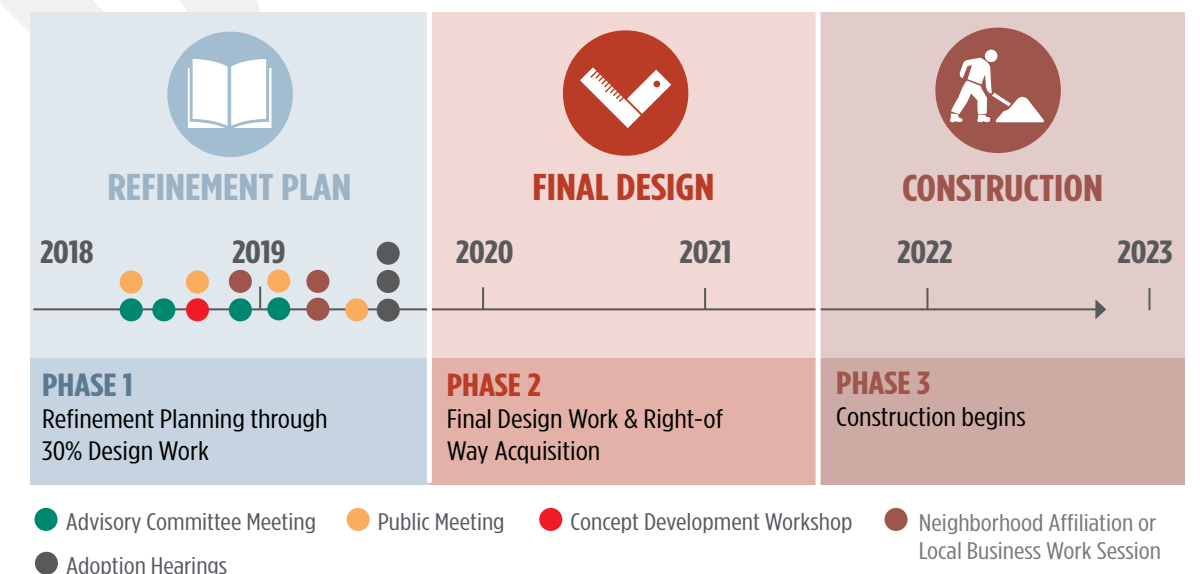
Spurred by rapid growth over the past 10 years, traffic volumes have risen sharply, making side street traffic movements and pedestrian crossings more difficult. US 97/Lower Bridge Way and 11th Street/Smith Rock Way have exceeded ODOT's Critical Crash Rate over the past five-year period.

The Oregon Legislature allocated \$20 million to address safety and congestion issues on US 97 at Lower Bridge Way and along the US 97 corridor through Terrebonne. Funding was earmarked for "improvements in Terrebonne," allowing decision-makers the flexibility to explore several alternatives and design options through the Terrebonne Refinement Plan process. If improvements are not developed within the allotted time, the funding may be reallocated to another project.

ODOT, in partnership with Deschutes and Jefferson Counties, worked closely with the community to select the alternative most likely to meet transportation system needs without exceeding available funds.

Following adoption by Deschutes County and the Oregon Transportation Commission, the project will move into its final design and construction phases.

Project Schedule





Identifying Project Needs...

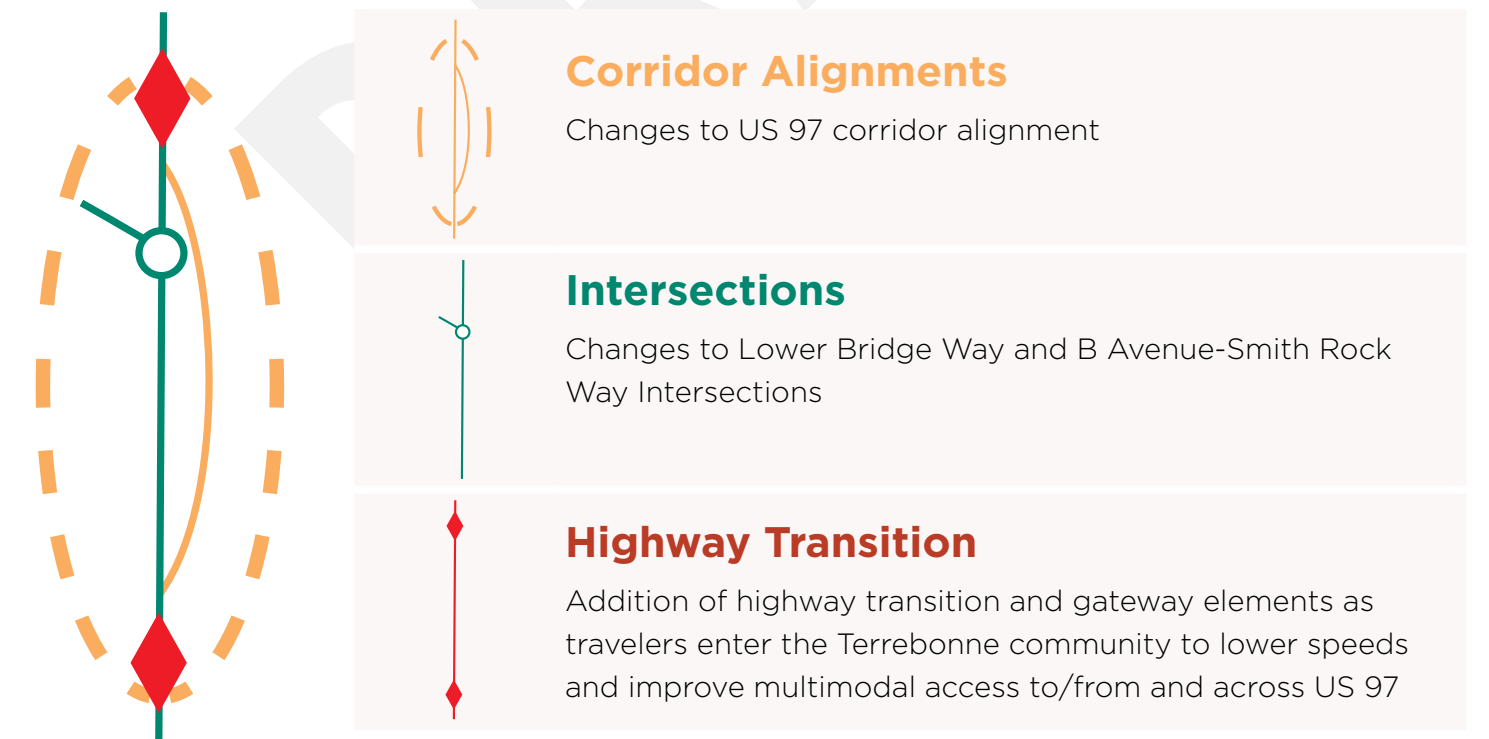
A critical concern for Terrebonne, Crooked River Ranch, and Lower Bridge Estates residents is safety and accessibility at the Lower Bridge Way/US 97 intersection. Terrebonne residents and business owners also want safer crossings for pedestrians, especially school children, at B and C Avenues. Better access between US 97 and residential and business areas is another top concern.

An analysis of current and projected traffic conditions on this section of US 97 identified the following actions needed to address the community's needs:

- » **Provide** two northbound and two southbound highway lanes to accommodate projected 2040 traffic demand (details on p 11)
- » **Ensure** connectivity and access for all users to/from and across US 97 in Terrebonne (details on pp 8-9)
- » **Address** US 97/Lower Bridge Way capacity and safety deficiencies (details on pp 8-10)
- » **Alleviate** US 97/B Avenue capacity deficiencies (details on p 10)
- » **Maintain** US 97 as a key statewide and West Coast freight corridor (details on p 11)

...and Addressing Them

Addressing these needs will involve improvements to the three key elements of US 97's infrastructure shown below. Various alternatives for how to realize the improvements are examined in the Refinement Plan.



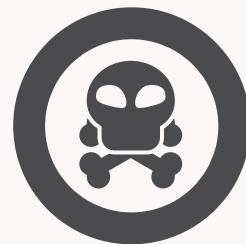


Safety

As part of the plan development process, the project team collected and analyzed historic crash data for the planning area between 2012 and 2016. The data include all reported crashes but do not capture near misses or crashes that went unreported.

Of the six study intersections, US 97/Lower Bridge Way and 11th Street/Smith Rock Way exceeded the ODOT critical crash rate between 2012 and 2016. The US 97/Lower Bridge Way intersection has been an ongoing concern for the community over the years. The high speed and volume of traffic on US 97 impede turning movements to and from Lower Bridge Way, which is one of Deschutes County's highest-volume roads.

93 crashes were reported in the greater Terrebonne area during the study period.



0%
WERE FATAL

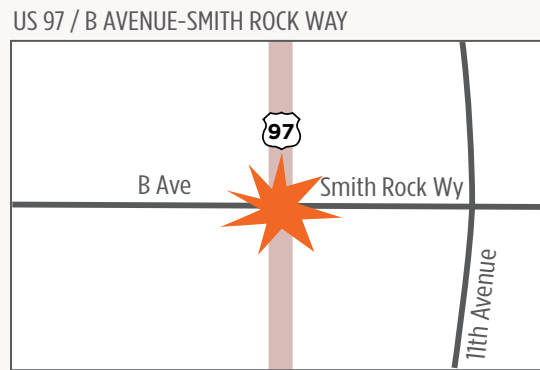
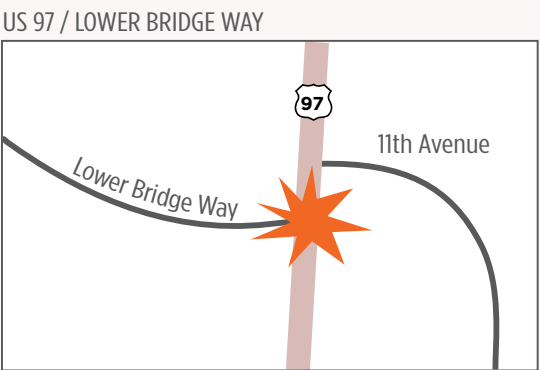


56%
RESULTED IN SOME TYPE OF INJURY



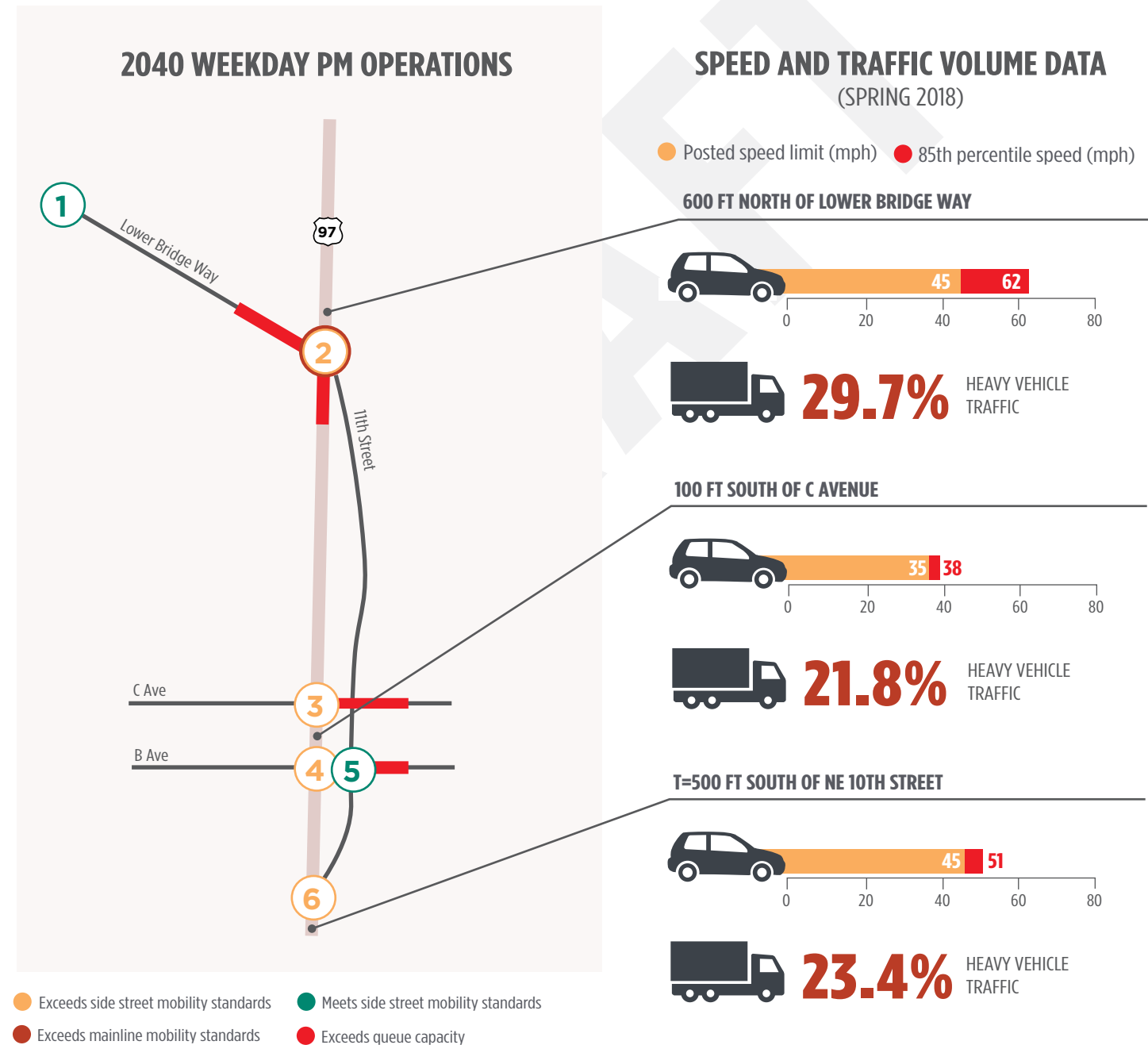
47%
WERE REAR END OR TURNING MOVEMENT COLLISIONS

The highest number of intersection crashes were recorded at two intersections:



Traffic Operations

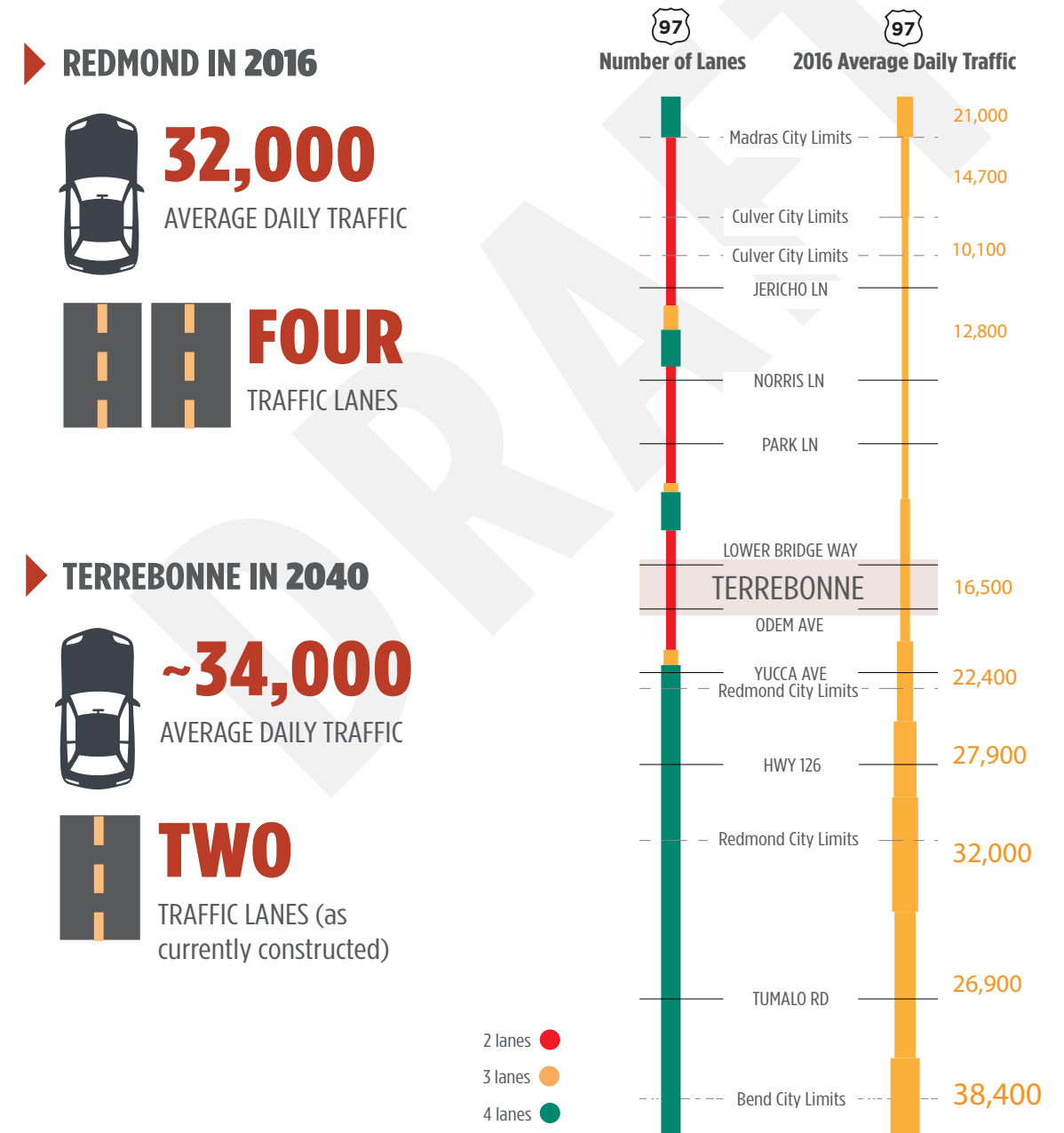
As part of the refinement plan, the project team evaluated study intersections to determine current and future traffic volumes and movements. Traffic counts were collected in 2018 to establish a baseline and measure how safely and efficiently the intersections are performing now. To predict what traffic volumes will likely be in 2040, the project team applied a growth rate to the current traffic counts using ODOT's standard methodology and factoring in local, regional, and West Coast population and employment projections. Capacity, delay, and vehicle queuing were all measured at each study intersection. The figure below shows the intersections that meet and exceed ODOT mobility standards in 2040.



Mobility

Traffic volumes on US 97 are expected to increase by over 50% by 2040 to approximately 34,000 a day on average. This significant growth in volume and truck traffic reflects the ever growing use of US 97 as an alternative West Coast freight corridor to Interstate 5. The figure below illustrates existing highway demand and number of travel lanes in Central Oregon between Bend and Madras. The projected average daily traffic in 2040 correlates to the number of vehicles on US 97 today in Bend and Redmond. This means US 97 through Terrebonne will need at least four traffic lanes (two northbound and two southbound) to manage future demand.

Number of Lanes & Average Daily Traffic Volume



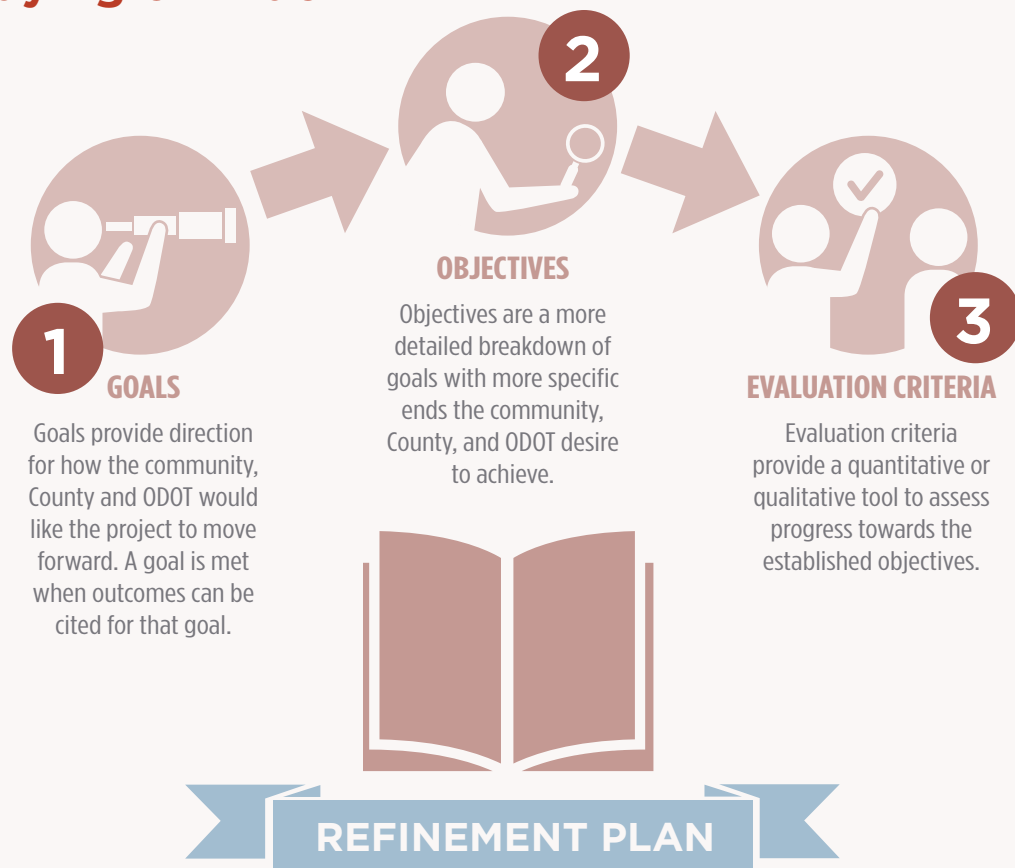
The Refinement Plan

The Terrebonne Refinement Plan is the result of a year-long planning process. It involved a comprehensive review of other guidance documents influencing the planning area, an assessment of existing and projected future conditions along the project corridor, and a review of various alternatives that could resolve the identified issues, guided by an extensive public involvement process.

Setting goals & measuring success

Early on, the project management team worked with stakeholders to set goals, objectives, and evaluation criteria to keep the project on track and help decision-makers select the best alternative design. The guidelines were developed based on feedback from the project's advisory committee, Crooked River Ranch Homeowners Association, Terrebonne's business community, highway users, the project management team, and other members of the public.

Staying on Track



Project Goals, Objectives and Evaluation Criteria

1 GOALS



COMMUNITY & LIVABILITY

Balance east-west connectivity with US 97 mobility needs to match community values and interests.



MOBILITY

Provide a safe and efficient transportation system for all modes of travel, including local trips, through trips on the highway, emergency services, and freight.



SAFETY & HEALTH

Enable people to safely and comfortably drive, walk, run, or cycle in and through the Community, including along and across US 97.

ACCESSIBILITY

Provide infrastructure that supports accessible transportation options for all users.



FINANCIAL RESPONSIBILITY

Use resources efficiently and invest in infrastructure that will serve the community and statewide highway for years to come.

ECONOMIC VITALITY

Encourage visitors and investment in the recreational, agricultural, and business areas nearby and served by US 97.

2 OBJECTIVES



- Increase transportation choices on US 97 by adding or improving bicycle and pedestrian routes, crossing, and connections to transit, including a crossing at US 97 & B Street which serves as a school and scenic bike route crossing.
- Link regional and local routes to key attractors on US 97, such as shopping, schools, residential areas, and other community destinations.
- Provide a transportation network that accommodates local, commuter, and region traffic, including freight movements along US 97.
- Evaluate all potential US 97 alternatives, such as maintaining the existing US 97 alignment, creating a highway couplet with 11th Street or constructing a bypass east or west of the existing alignment.
- Identify and evaluate all potential at-grade and grade separated solutions for the Lower Bridge Way/US 97 intersection in concert with the development of the alternative alignments for US 97.
- Maintain the carrying and dimensional capacity for statewide freight movement on US 97.
- Address safety, comfort, and security of people driving, walking, and biking along and across US 97.
- Use transitional and traffic calming techniques to slow traffic to posted speeds.
- Address the identified existing and future year 2040 gaps and deficiencies (needs) within the study area.
- Provide well-designed, visible, safe, and convenient infrastructure and crossings for all users (e.g., agricultural equipment).
- Achieve maximum return on the \$20 million allocated by the legislature for improvements in the Terrebonne community
- Provide connections to businesses and natural areas within and near the Terrebonne community.
- Attract tourist and investment dollars to the greater Terrebonne community.

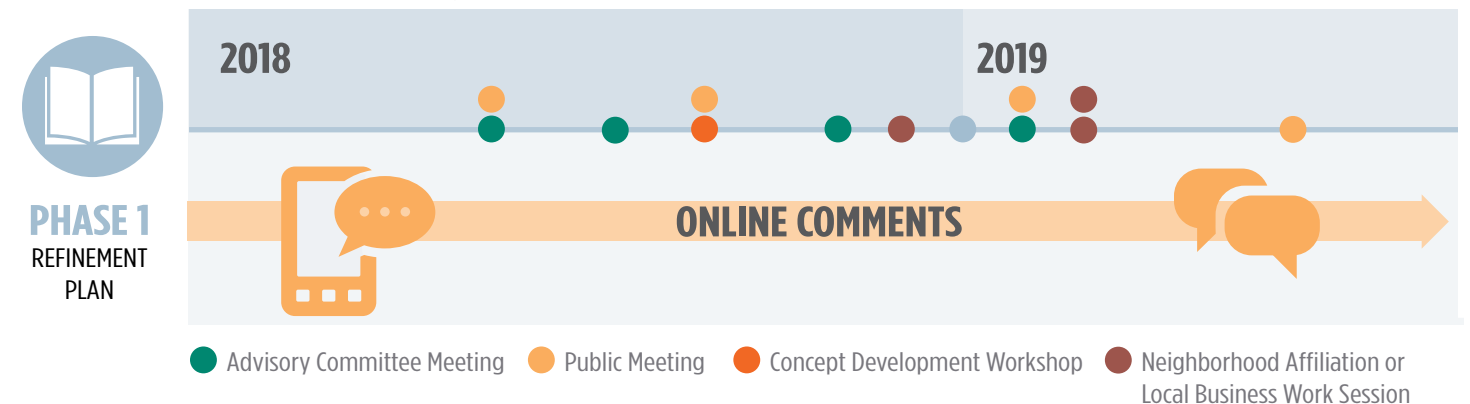


Public Meeting #1, January 9 at Terrebonne Community School

Engaging the Public

The project management team reached out to the public throughout the planning process to help identify problems along the corridor and their root causes, evaluate project alternatives, and identify preferred solutions. Stakeholders and interested parties from Terrebonne, Crooked River Ranch, Lower Bridge Estates, and other nearby areas; the freight industry; and emergency service providers gave valuable feedback.

Continuous Public Feedback



Members

15


Comments

N/A


Advisory Committee

The advisory committee comprised 15 community members and stakeholders interested in improving Terrebonne's transportation system. Their responsibilities included attending committee meetings, reviewing and commenting on draft technical memoranda prepared by the project team, attending public meetings, and providing a preferred plan recommendation to the project management team.

Attendees

147


Comments

51


Public Meeting #1

The first public meeting was held at the Terrebonne Community School. Attendees were asked to comment on the goals, objectives, evaluation criteria, and overall transportation system needs. An online map was made available for the public so those who were unable to attend could provide comments related to motorist, pedestrian, bicycle, and transit concerns.

Attendees

134


Comments

146


Concept Development Workshop

The concept development workshop was a three-day public event held at the Terrebonne Community School and the Grange Hall in Terrebonne. The purpose was to engage the community and develop potential corridor alignment, intersection, and highway transition concepts that reflected the results of the existing and future conditions analysis and the public's priorities. Participants were briefed through a presentation on the overall project needs and workshop objectives and then proceeded through three stations, developing corridor alignment, intersection, and transition (cross-section and speed management) concepts based on their local knowledge.

Nearly 200 concepts were developed on the first day. By the third day, these concepts had been grouped and assessed against the project goals, objectives, and evaluation criteria for each of the project elements to identify the most promising alternatives.

By the end of the workshop, 10 promising alternatives for the project elements remained for further detailed assessment, conceptual design, and cost estimating.

US 97/11th Street Business and Property Owner Meeting

A meeting was held specifically for business and property owners on US 97 and 11th Street at the Grange. The project team gave a brief presentation followed by a breakout session for community members to comment on the two most promising concept designs and their impacts to the US 97/11th Street corridors.

Attendees

77


Comments

16


Public Meeting #2

Over 240 community members participated in the second public meeting, which included a presentation of the preferred alternative followed by a breakout session for community members to comment.

Attendees

240


Comments

46


Cooperation with local affiliations

Throughout the planning and concept design process, the project team encouraged and collaborated with the public, property and business owners, local agencies, and neighborhood affiliations. The project team met with the Terrebonne Neighborhood Alliance (renamed the Save Terrebonne Coalition) in November 2018 to listen to other proposals and ideas identified by members of the public. Additionally, the project team has been in contact with and attended several work sessions with neighborhood affiliations and local businesses along the entire corridor.

NORTH TERREBONNE BUSINESS & PROPERTY OWNER MEETING

Attendees

15


Comments

N/A


CROOKED RIVER RANCH NEIGHBORHOOD MEETING

Attendees

130


Comments

N/A


ONLINE COMMENTS



112






Alternatives

Over 200 concepts were developed by the project team, advisory committee, and community members during the concept development workshop. The project team evaluated all the concepts and grouped ones with similar characteristics into alternatives. They then assessed the 48 grouped alternatives against the established goals, objectives, and evaluation criteria for each of the project elements to identify the most promising alternatives.

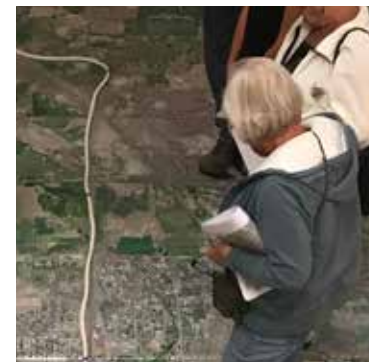
Through a public and internal review process, two corridor alignments, five intersection concepts, and three transition concepts were carried forward for further evaluation.

Which intersection and transition concepts would ultimately reach final design depended on which corridor alignment was chosen. The two corridors included a five-lane section on the existing US 97 alignment and a couplet that created a pair of one-way roads out of the existing US 97 segment and 11th Street.

A bypass of the Terrebonne community was considered as an alternative but dismissed as it would have cost more than \$100 million, far exceeding the \$20

million allocated by the state legislature. In the current climate, it would be difficult and time consuming to secure additional funding for a new bypass, and the local agencies would have risked losing all the current project funding, which was given by the legislature on the condition that the agencies meet a specific timeline.

Alternatives suggested at the Concept Development Workshop



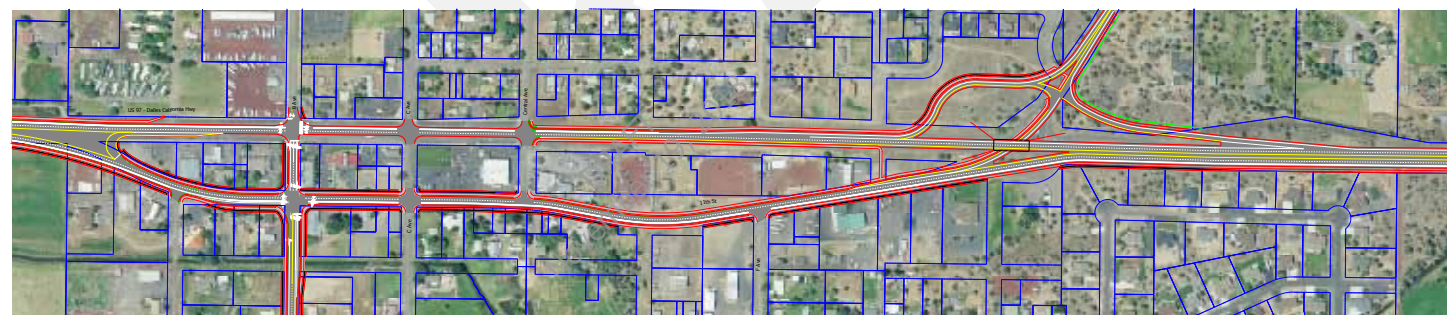
ELEMENT	CORRIDOR ALIGNMENT	INTERSECTION	TRANSITION
Day 1: Concepts	64	102	32
Day 2: Alternatives	14	19	15
Day 3: Promising Alternatives	1	6	3



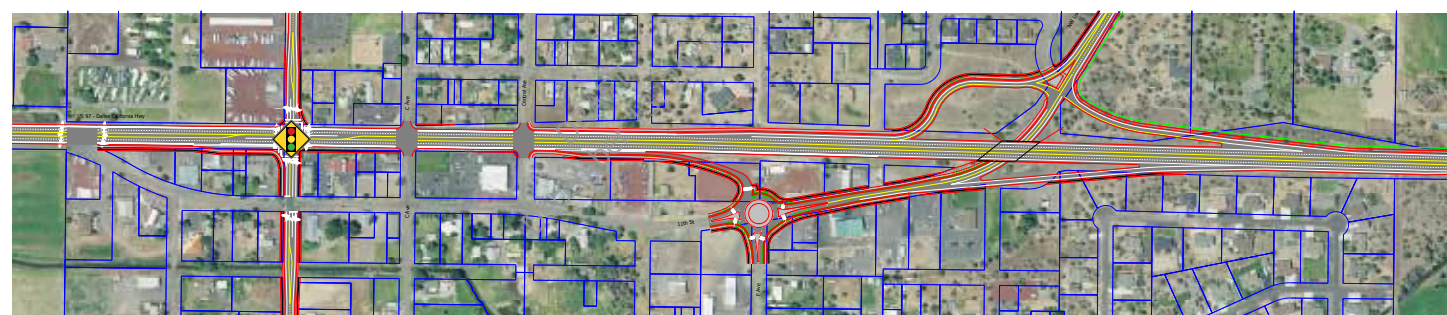
Narrowing it down: the two initially most promising alternatives

Based on feedback from the workshop and further assessment, the most promising couplet and five-lane section alignment alternatives were further evaluated operationally and based on potential right of way, constructibility, and access management related impacts. The figures below show the features included in these two initially shortlisted alternatives as of January 9, 2019.

Couplet Alternative



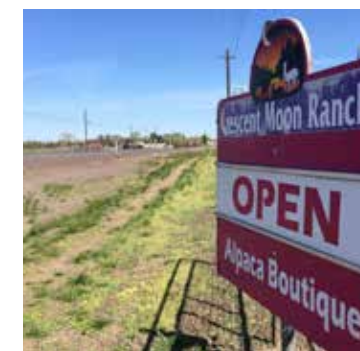
Five-Lane Alternative



Evaluating the alternatives

Next, the two alternatives were evaluated based on a quantitative assessment of the Refinement Plan's evaluation criteria. The results are tallied below (Technical Memorandum #7 provides a complete summary of the results by each goal, objective, and evaluation criterion—the URL to access memoranda appears on page 43).

Weighing the two most promising alternatives based on favorable outcomes

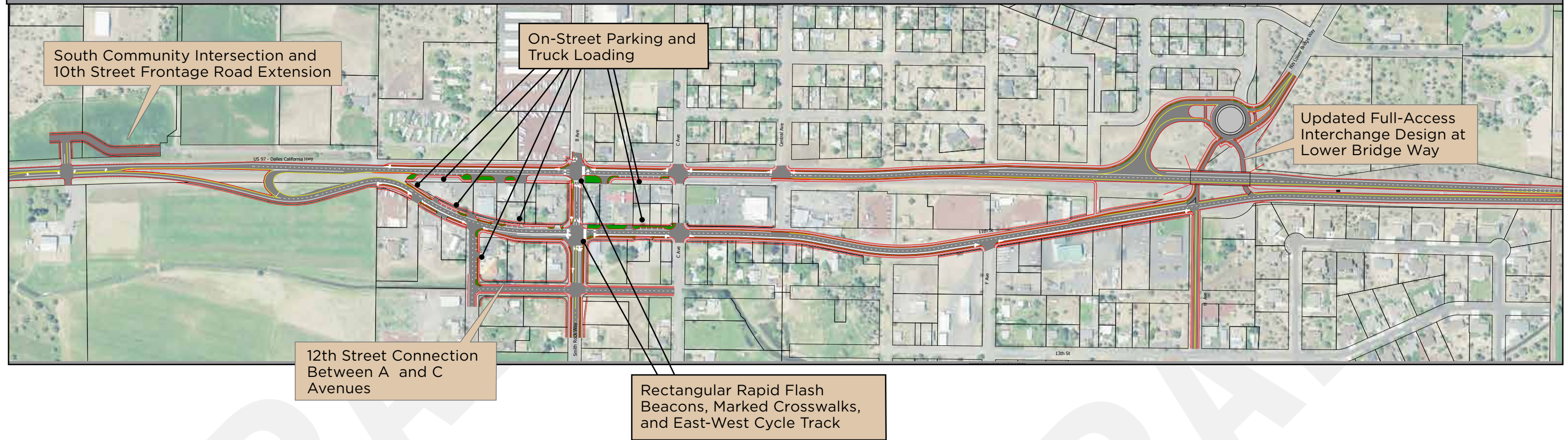


GOAL	COUPLER ALTERNATIVE	FIVE-LANE ALTERNATIVE
Community & Livability	●	●
Mobility	●	●
Safety & Health	●	●
Accessibility	●	●
Financial Responsibility	●	●
Economic Vitality	●	●
TOTAL	●	●

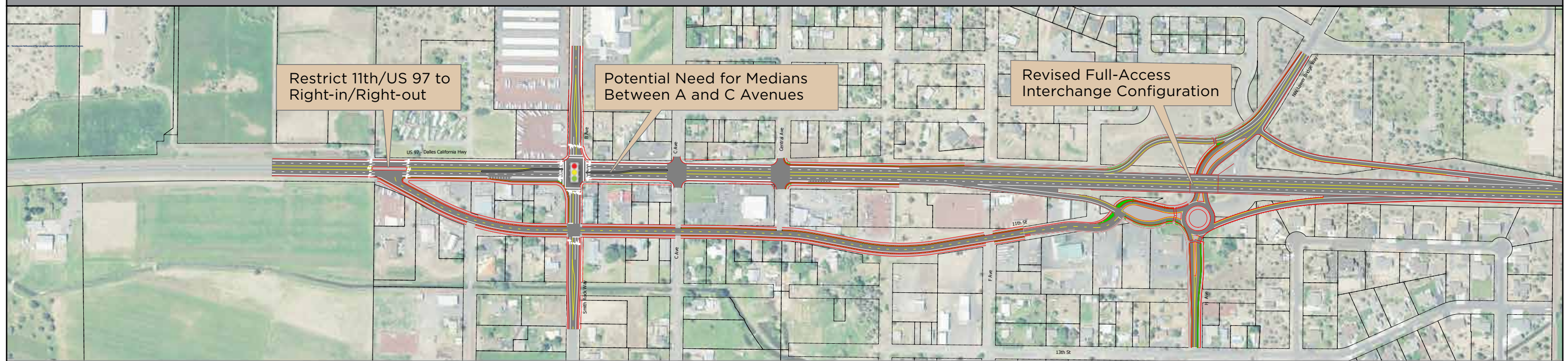
KEY: ● Best possible outcome ● Marginal improvement outcome ○ Least favorable outcome

The enhanced alternatives

Preferred Couplet Interchange Alternative (with post-January 9th enhancements)



STC Five-Lane Interchange Alternative (with post-January 9th enhancements)





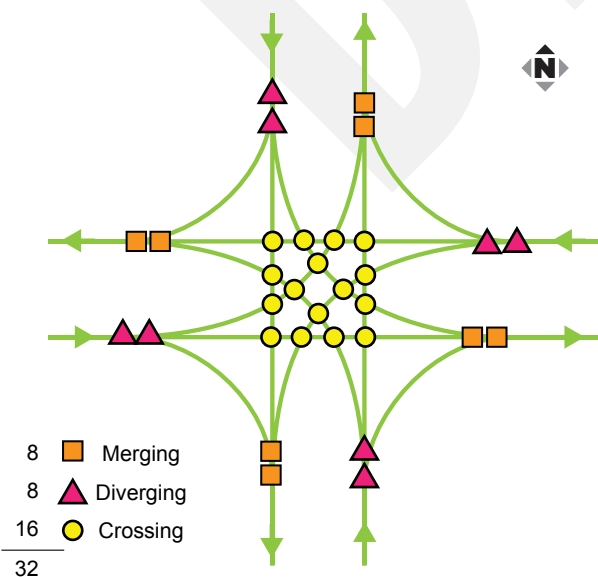
Safety Evaluation

The two most promising alternatives were also investigated for potential safety issues, including vehicle, pedestrian, bicycle and truck conflicts and accessibility, and bicycle and pedestrian exposure.

Conflict & Accessibility

When two vehicular paths cross one another, diverge, or merge together, this is considered a conflict. Crossing conflicts create the most potential for serious crashes. The ability to access a roadway or driveway or cross a road is directly affected by the number of conflict points and the traffic volume on each of these facilities. These figures show conflict maps associated with the couplet and five-lane section alternatives between 10th Avenue and B Avenue.

TYPES OF CONFLICTS

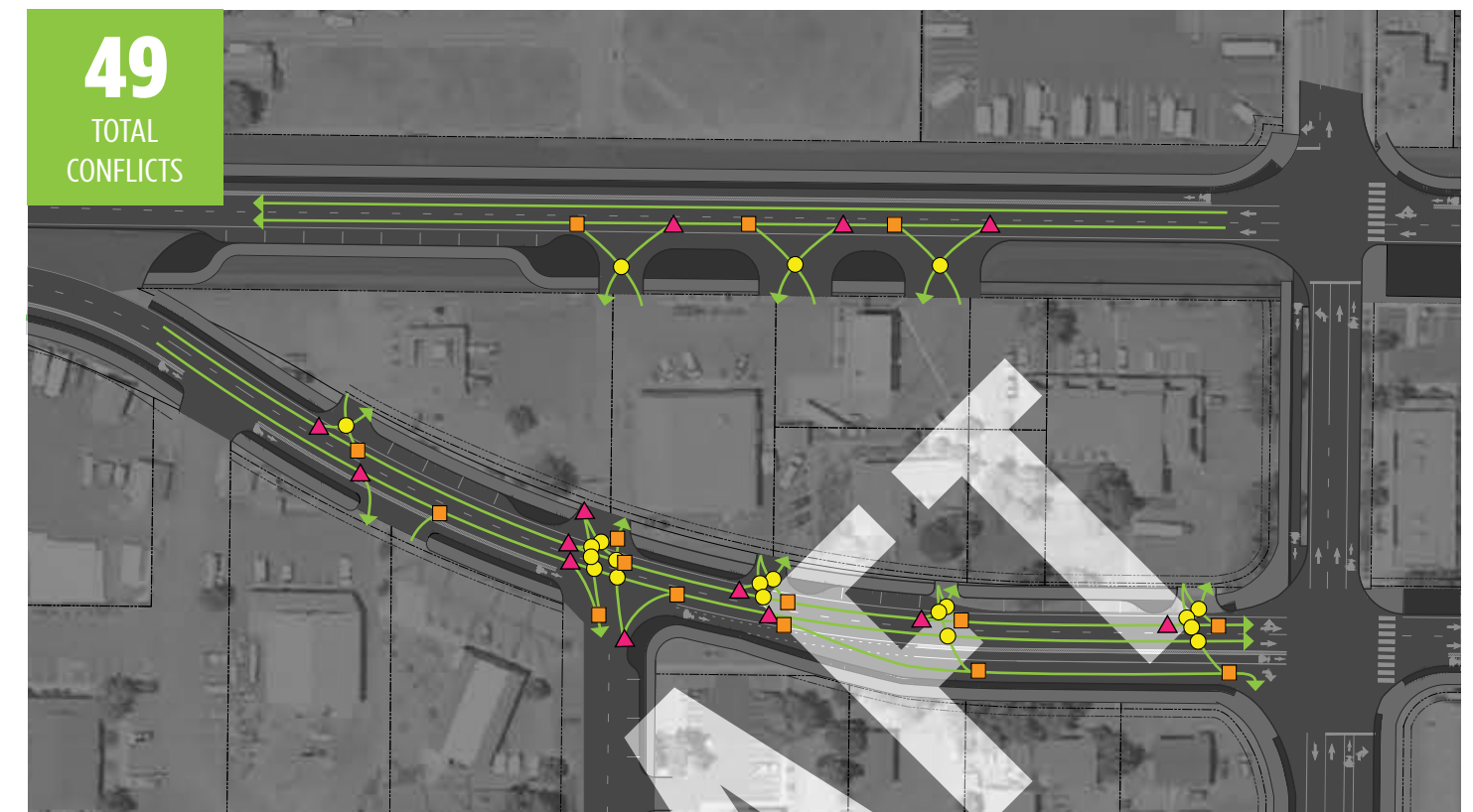


CORRIDOR-WIDE VEHICULAR CONFLICT COMPARISON

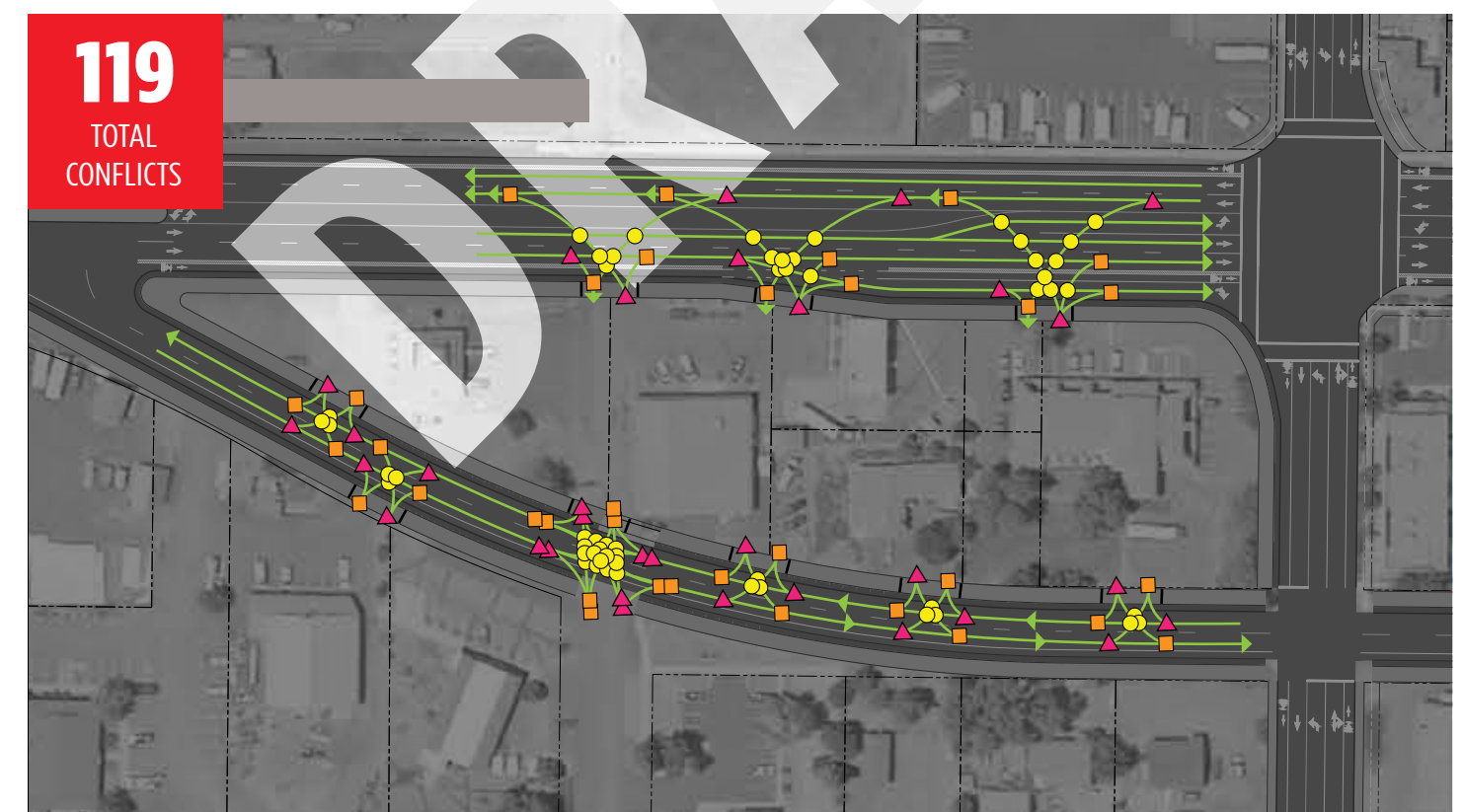
- » Couplet reduces all conflicts by **60%**
- » Couplet has **63%** fewer conflicts than the five-lane alternative
- » Five-lane increases crossing conflicts by **19%**
- » Couplet reduces crossing conflicts by **64%**

Conflict Comparison (11 St/US 97 to B Avenue-Smith Rock Way)

COUPLET ALTERNATIVE



FIVE-LANE ALTERNATIVE



— Travel Paths ■ Merging Conflict ▲ Diverging Conflict ● Crossing Conflict



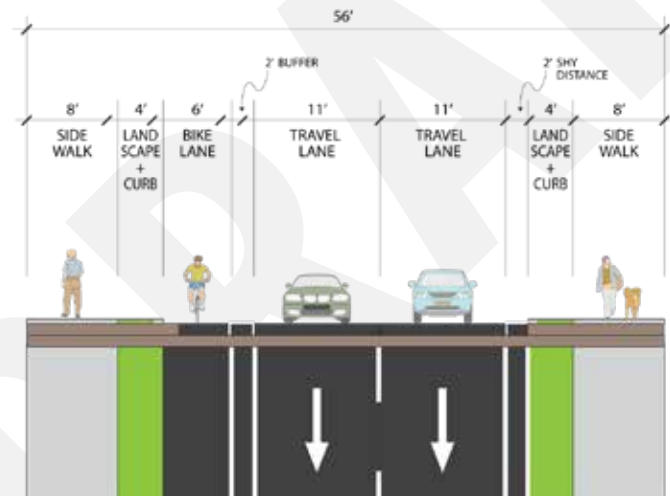
Pedestrian and bicycle exposure

Pedestrian and bicycle exposure refers to contact with or proximity to a potentially harmful agent or event for these vulnerable road users. In the context of the Terrebonne Refinement Plan, “exposure” is defined by the length of pavement (curb to curb) a pedestrian or cyclist must navigate to cross US 97 and 11th Street. For example, if a road has two, 12-foot travel lanes, the exposure would be 24 feet. The figures below shows the exposure distance for both the couplet and five-lane section alternatives. Exposure for pedestrians and bicyclists crossing a five-lane section is substantially longer than for the couplet.

PEDESTRIAN CROSSING EXPOSURE DISTANCE (US 97 & 11TH STREET)

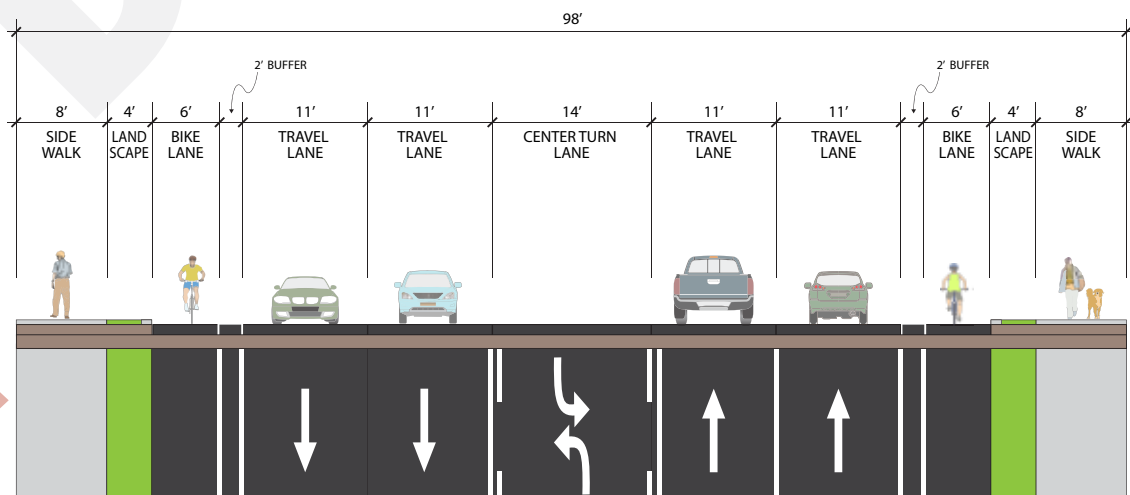
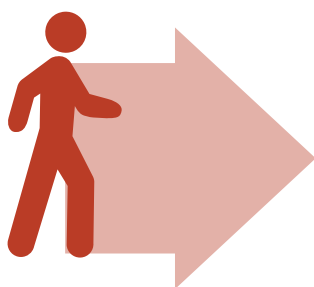
COUPLLET ALTERNATIVE

- + ONE WAY
- + 4 LANES TO CROSS
[2 lanes US 97 + 2 lanes 11th]
- + 64 FEET (32 feet at widest)



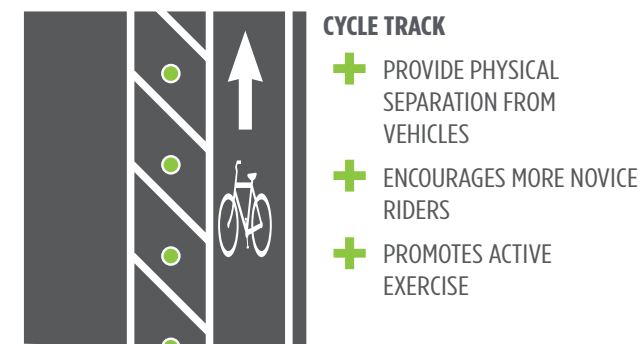
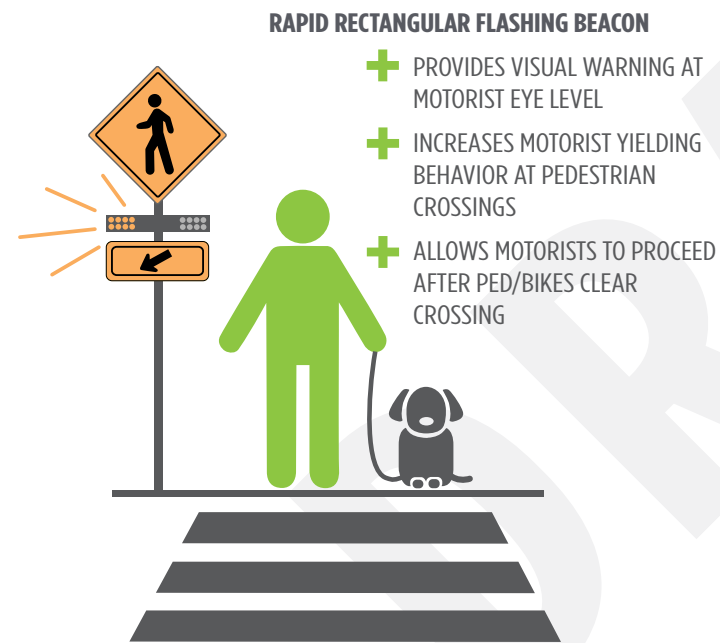
FIVE-LANE ALTERNATIVE

- TWO WAY
- 7 LANES TO CROSS
[5 lanes US 97 + 2 lanes 11th]
- 86 FEET (54 feet at widest)



Cycle track and rectangular rapid flashing beacons

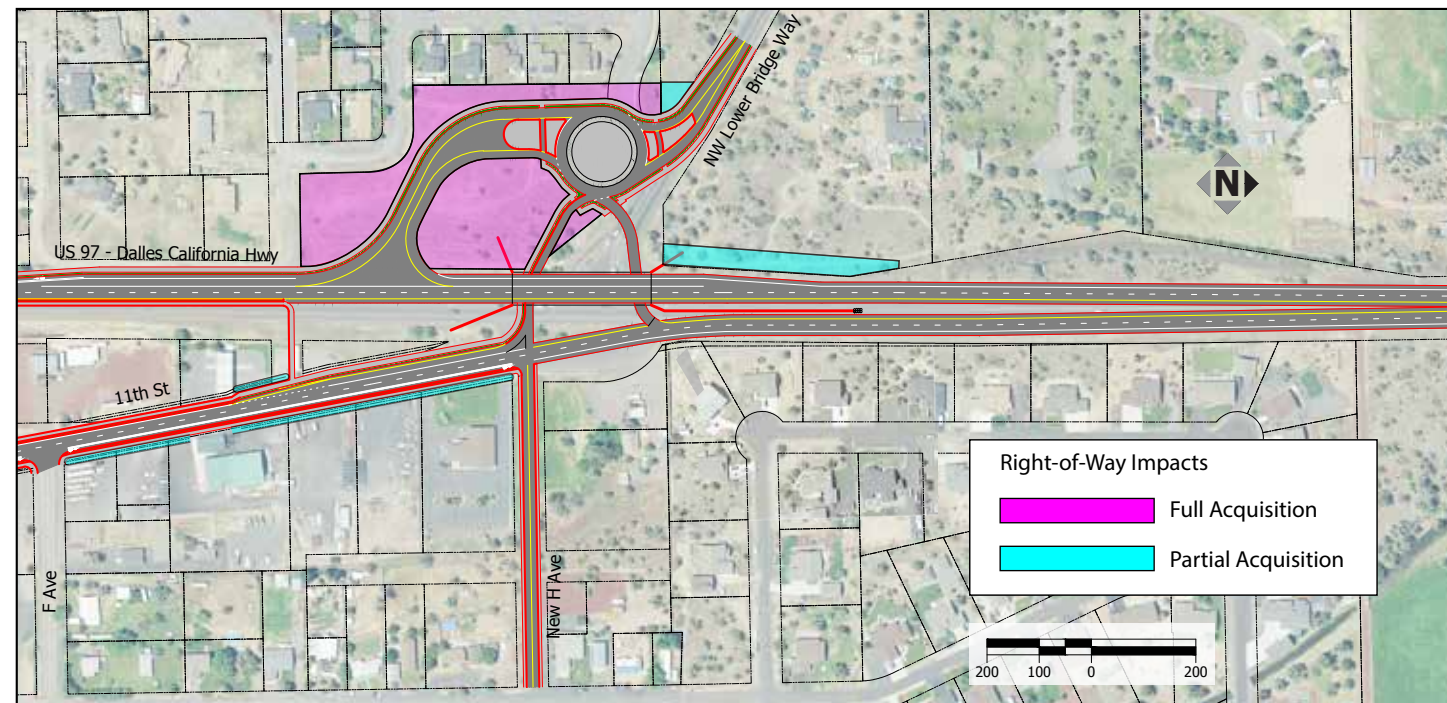
To provide a safe and convenient east-west pedestrian bicycle corridor for crossing US 97 and 11th Street, the couplet introduces a raised cycle traffic and rectangular rapid flash beacons on B Avenue-Smith Rock Way and converts vehicular traffic to one way westbound between the couplet. The five-lane alternative relies on a traffic signal at US 97/B Avenue-Smith Rock Way and two-way stop control at the 11th Street/Smith Rock Way intersection.



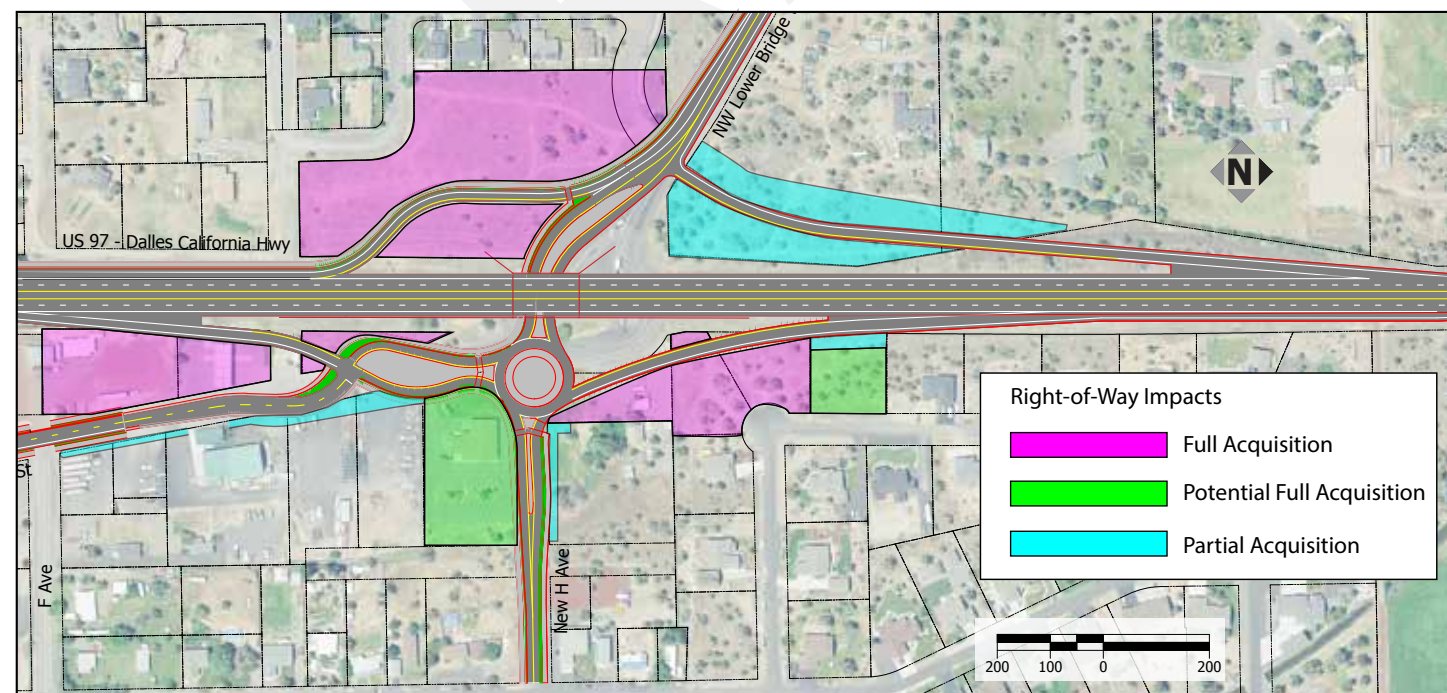
Potential right of way impacts

The potential right of way impacts of each alternative were evaluated to determine potential acquisition needs. The figures below show the potential acquisition needs near the Lower Bridge Way interchange.

PREFERRED COUPLER INTERCHANGE ALTERNATIVE (WITH POST-JANUARY 9TH ENHANCEMENTS)



STC FIVE-LANE INTERCHANGE ALTERNATIVE (WITH POST-JANUARY 9TH ENHANCEMENTS)



Enhancements to the alternatives and preliminary cost estimates

After listening to stakeholders and the public, the project team made the following enhancements to the Preferred Couplet Alternative and the Save Terrebonne Coalition (STC) Five-Lane Alternative following the January 9 Public Open House:

Preferred Couplet Alternative

- » 10th Ave frontage road extension, southern community intersection near Crescent Moon Ranch
- » 12th Street connection between A Avenue and C Avenue
- » On-street parking and truck loading areas along US 97 near business district
- » Full access interchange design at US 97/Lower Bridge Way

STC Five-Lane Alternative

- » Revised full access interchange design at US 97/Lower Bridge Way
- » Conversion of 11th Street/US 97 to right-in/right-out movements

The acquisition costs were combined with construction costs derived from the concept plans to identify a magnitude of cost for each alternative. The table below shows a qualitative comparison of the two alternatives.

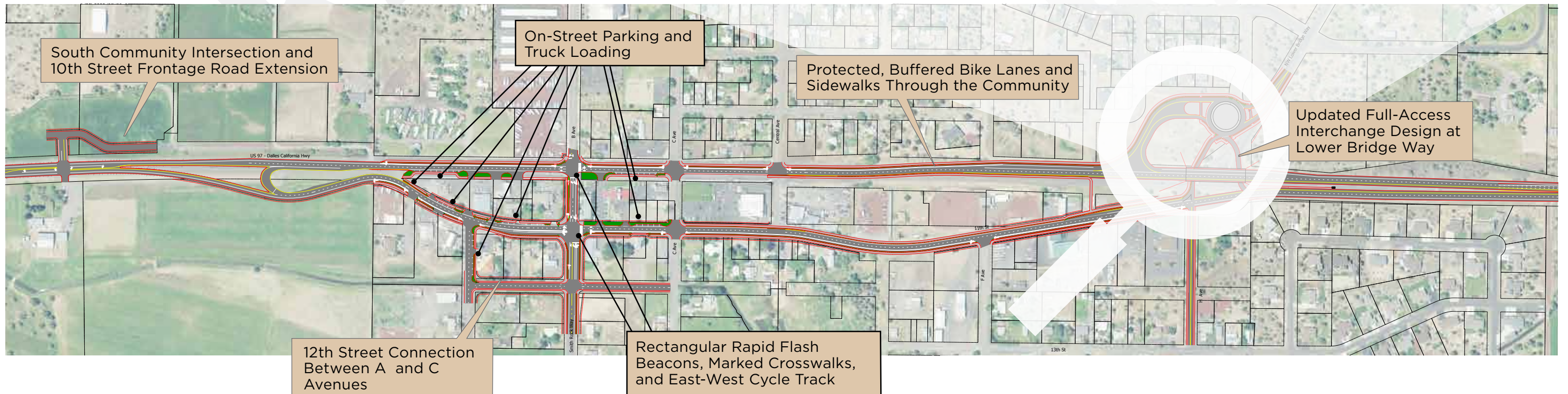
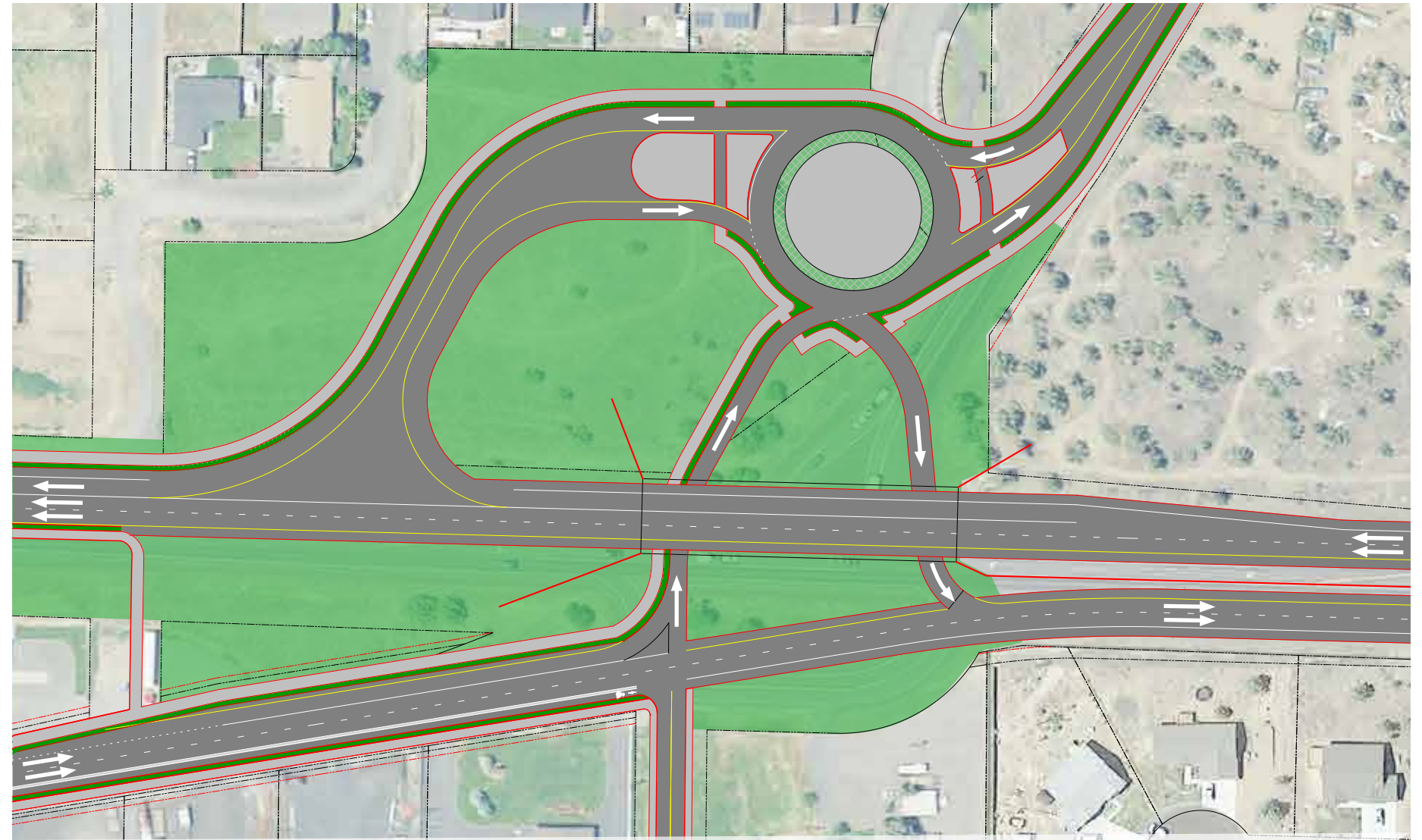
PERFORMANCE MEASURE	PREFERRED COUPLER	STC FIVE-LANE
OPERATIONS & LONG-TERM CAPACITY	All intersections meet mobility standards in 2040.	All intersections meet mobility standards in 2040 except B Ave/US 97 signalized intersection.
MOBILITY FOR ALL USERS	Improves accessibility to/from US 97 for businesses and residents by reducing vehicular, pedestrian, and bicycle conflicts and exposure.	Creates a larger east-west barrier for vehicles, pedestrians, and bicycles to cross or turn to/from US 97 to access businesses and residences
RIGHT OF WAY IMPACT	Potentially one full acquisition of an undeveloped lot and up to 10 partial frontage lot acquisitions	Potentially 6 full acquisitions of developed (3 businesses and 3 homes) and 2 potential full acquisitions of developed (church and home) lots; one full acquisition of an undeveloped lot; and up to 4 partial frontage lot acquisitions.
TURNING MOVEMENT CONFLICTS	Approximately 263 total conflict points (63% less than the five-lane alternative and 60% less than the existing configuration).	Approximately 713 total conflict points (8% more than the existing configuration).
ACCESSIBILITY TO BUSINESSES	Provides on-street parking, truck parking, and generally maintains current access for properties along US 97 and 11th Street	Creates challenges for vehicles trying to access US 97 given increased conflicts, standing queues, and the impact of left turns on safety. Some business accesses and side streets in Terrebonne would be limited to right-in/right-out with the potential addition of medians
LOWER BRIDGE WAY/US 97 INTERCHANGE ACCESS	Full access for all movements	Full access for all movements
COST	\$27M	\$40M+

Preferred Plan

The Couplet Interchange Alternative emerged as the preferred plan.

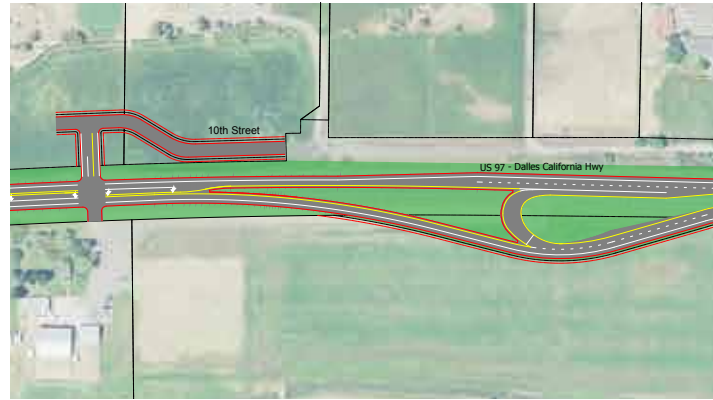
Maintaining Terrebonne's rural community character was a high priority for residents, Deschutes County, ODOT, and the project team. A five-lane section had high potential to increase the sense of a community split in half by a major highway. Based on the evaluation and feedback received by the advisory committee, stakeholder groups, and public, the project management team recommended the Couplet move forward as the preferred, cost-constrained system alternative.

The project team met with individual home, property, and business owners following the advisory committee's recommendation to identify key design features and potential enhancements for the Couplet alternative that would maintain function, livability, and access to properties along US 97 and 11th Street. These features and design elements are shown and explained in the following pages.



Key Near-Term Project Elements

SOUTHERN COMMUNITY (PORTAL) INTERSECTION



New Crescent Moon Ranch full-access intersection with northbound and southbound left-turn lanes and 10th Street frontage road extension

- This intersection allows improved access to the southern part of the community both east and west of US 97 and allows the potential future continuation of a west side frontage road.

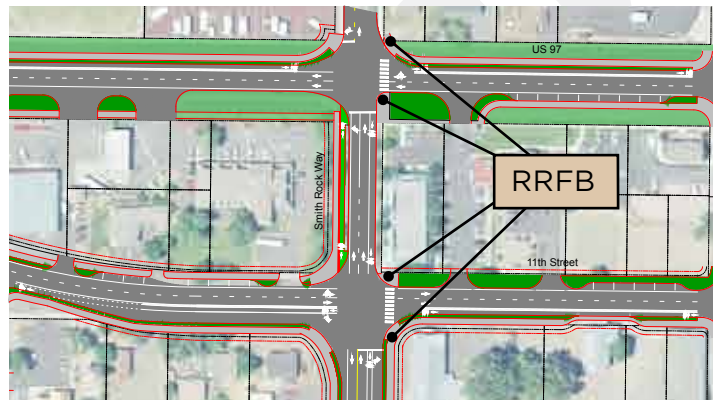
SOUTHERN COUPLET TRANSITION



Chicane – The chicane (series of horizontal curves) is intended to provide visual cues as well as roadway geometry to define the transition from a rural to an urban environment, and also slow vehicular speeds to approximately 30 to 35 miles per hour.

Lane Add/Drop Strategy – To maintain lane continuity throughout the community, the inside northbound lane will be added at the southern couplet U-turn and be dropped just north of Lower Bridge Way, and the outside southbound lane will be added through the Lower Bridge Way southbound on-ramp and dropped near the southern couplet U-turn.

B AVENUE—SMITH ROCK WAY CORRIDOR

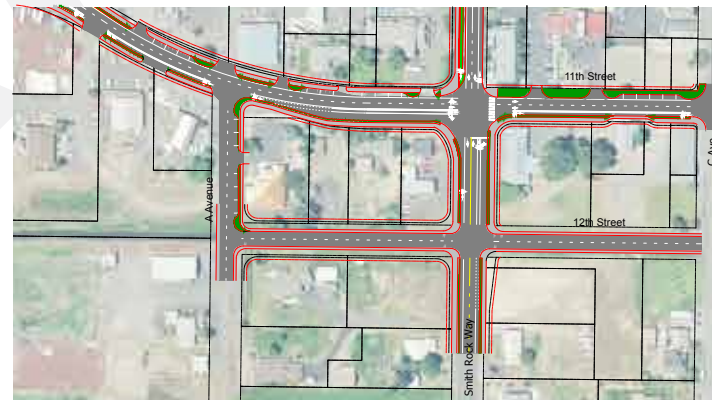


Smith Rock Way One-Way Configuration – To simplify operations, remove conflicts, and improve capacity, Smith Rock Way will be one way westbound between 11th Street (US 97 northbound) and US 97 southbound.

Rectangular Rapid Flash Beacons (RRFBs) – To increase pedestrian and bicycle safety, push-button activated RRFBs will be installed on the north side of the US 97/B Avenue-Smith Rock Way and 11th Street (US 97 southbound)/Smith Rock Way intersection.

Cycle Track – To provide further protection to eastbound cyclists on the one-way segment of Smith Rock Way, a raised, separated cycle track will be installed.

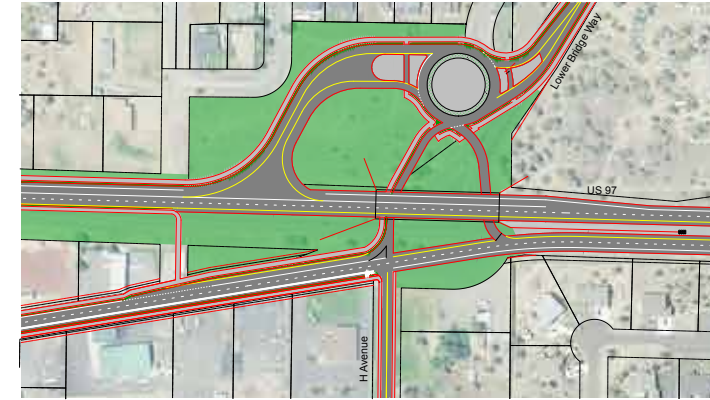
12TH STREET (A TO C AVENUE)



Irrigation Canal Capping – To construct 12th Street, the Central Oregon Irrigation Canal between A and C Avenues will be capped to provide a local street connection.

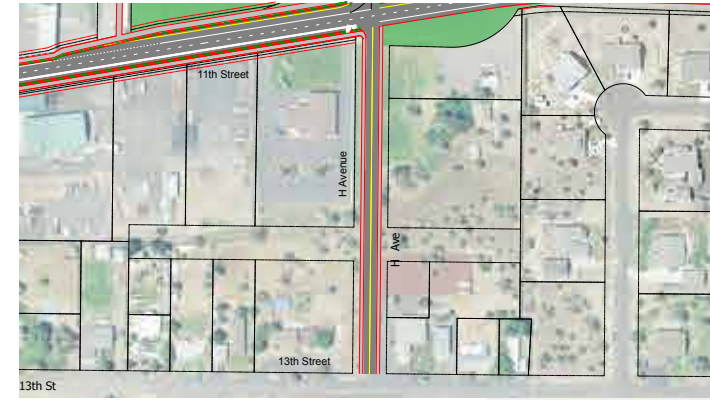
Eastside North-South Local Street Network – The 12th Street connection will allow residents to access the businesses east of US 97 via a local street system comprising 12th, 16th, and 13th Streets without accessing the highway.

NORTHERN PORTAL - LOWER BRIDGE WAY INTERCHANGE



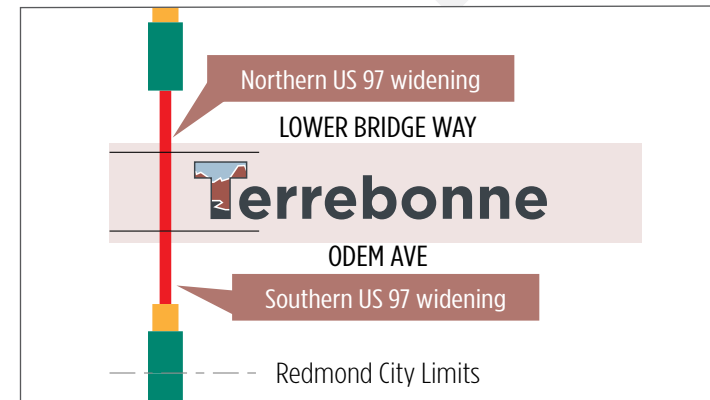
Gateway Transition – The Lower Bridge Way interchange will introduce landscaping, urban features, and a lateral highway transition to lower vehicle speeds entering the community from the north.

NEW H AVENUE CONNECTION (11TH–13TH ST)

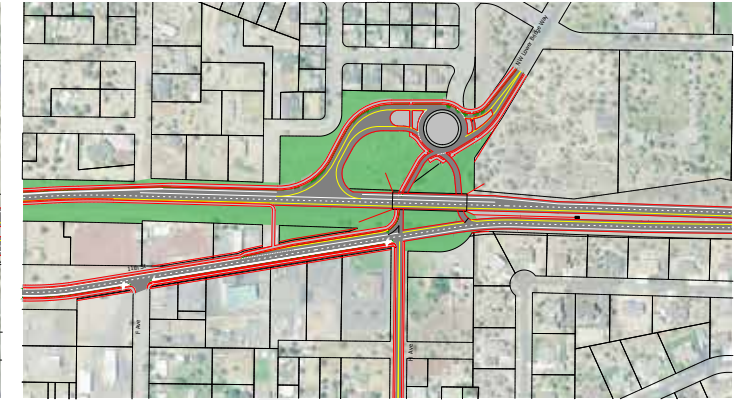


Removal of Highway Conflicts – The new Lower Bridge Way interchange will allow grade-separated access for vehicles traveling to/from US 97 and Lower Bridge Way, addressing the existing operation and safety issues. H Avenue will allow businesses on 11th Street (US 97 Northbound) to access the local neighborhood. This access is provided by F Avenue in 11th Street's current two-way configuration.

LONG-TERM PROJECT ELEMENTS



ROUNDBOUT TERMINAL BASED INTERCHANGE



US 97/Lower Bridge Way Interchange – The new Lower Bridge Way interchange will allow grade-separated access for vehicles traveling to/from US 97 to Lower Bridge Way, addressing existing operations and safety issues. The roundabout will serve as a gateway for travelers on Lower Bridge Way.

LANE ADD/DROP STRATEGY



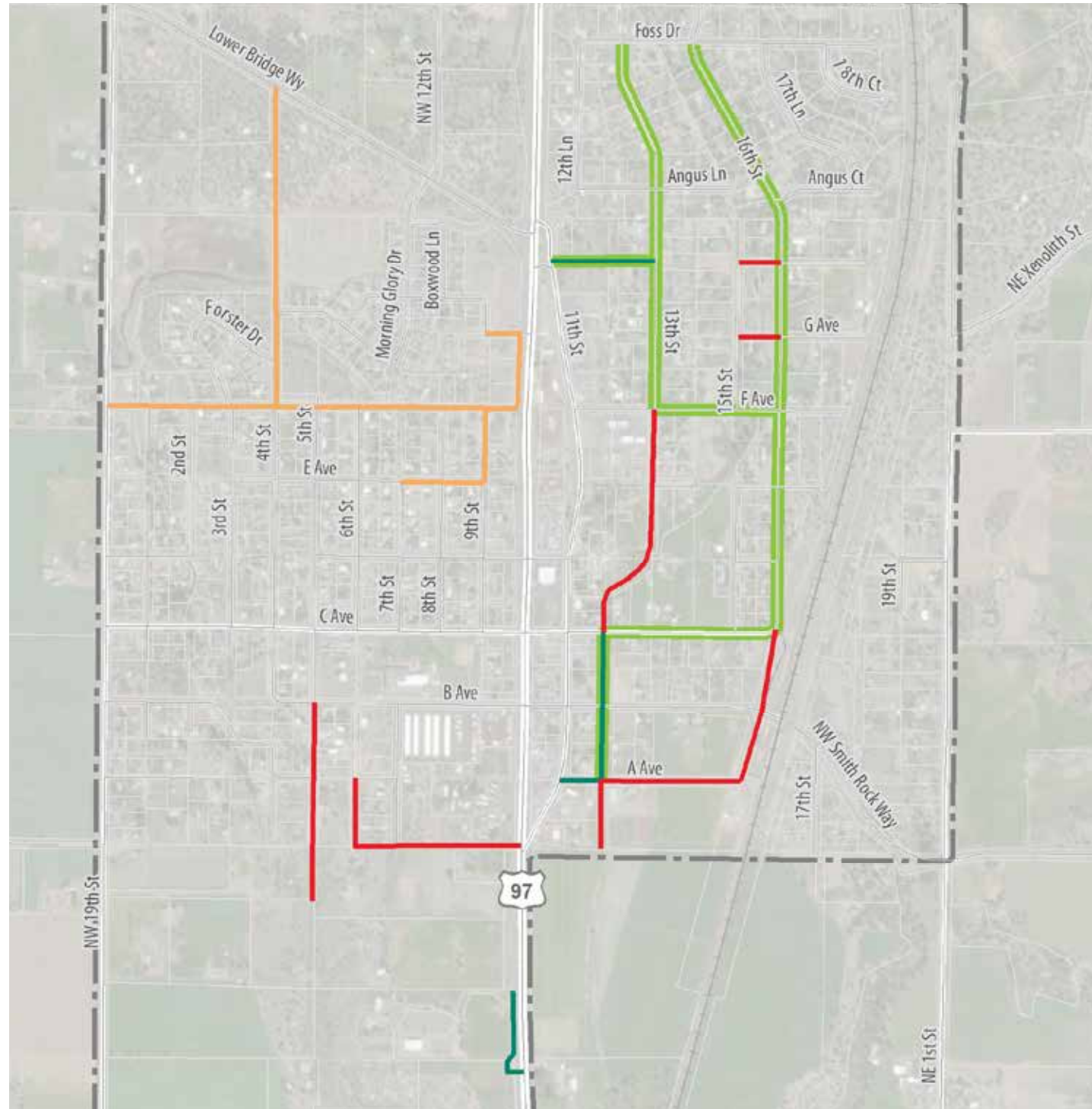
Highway Continuity – To maintain lane continuity throughout the community, the inside northbound lane will be added at the southern couplet U-turn and be dropped just north of Lower Bridge Way, and the outside southbound lane will be added through the Lower Bridge Way southbound on-ramp and dropped near the southern couplet u-turn.

Southern US 97 Widening – US 97 between Terrebonne and NW Canal Boulevard will likely be the next two-lane section of highway to be widened to provide a continuous four-lane section from Sunriver through Terrebonne. This 1.75-mile segment does not present a capacity constraint within the 2040 design and will be monitored by ODOT for operations and funding opportunities. Once constructed, the southerly add/drop lanes in Terrebonne will become continuous through lanes.

Northern US 97 Widening – Widening of the two-lane section of US 97 between Terrebonne and the passing lanes near the Crooked River to four lanes will likely follow the southern US 97 widening. This 1.5-mile segment does not present a capacity constraint within the 2040 design year. Once constructed, the northerly add/drop lanes in Terrebonne will become continuous through lanes.

Other Future Local Street Improvements

To support future development within the Terrebonne community, a local street priority plan has been developed for inclusion in the Deschutes County TSP. The figure below identifies roadway connections requiring improvement and prioritizes them high, medium, and low. The connections were prioritized based on existing and future needs and provide enhanced connectivity within the community.

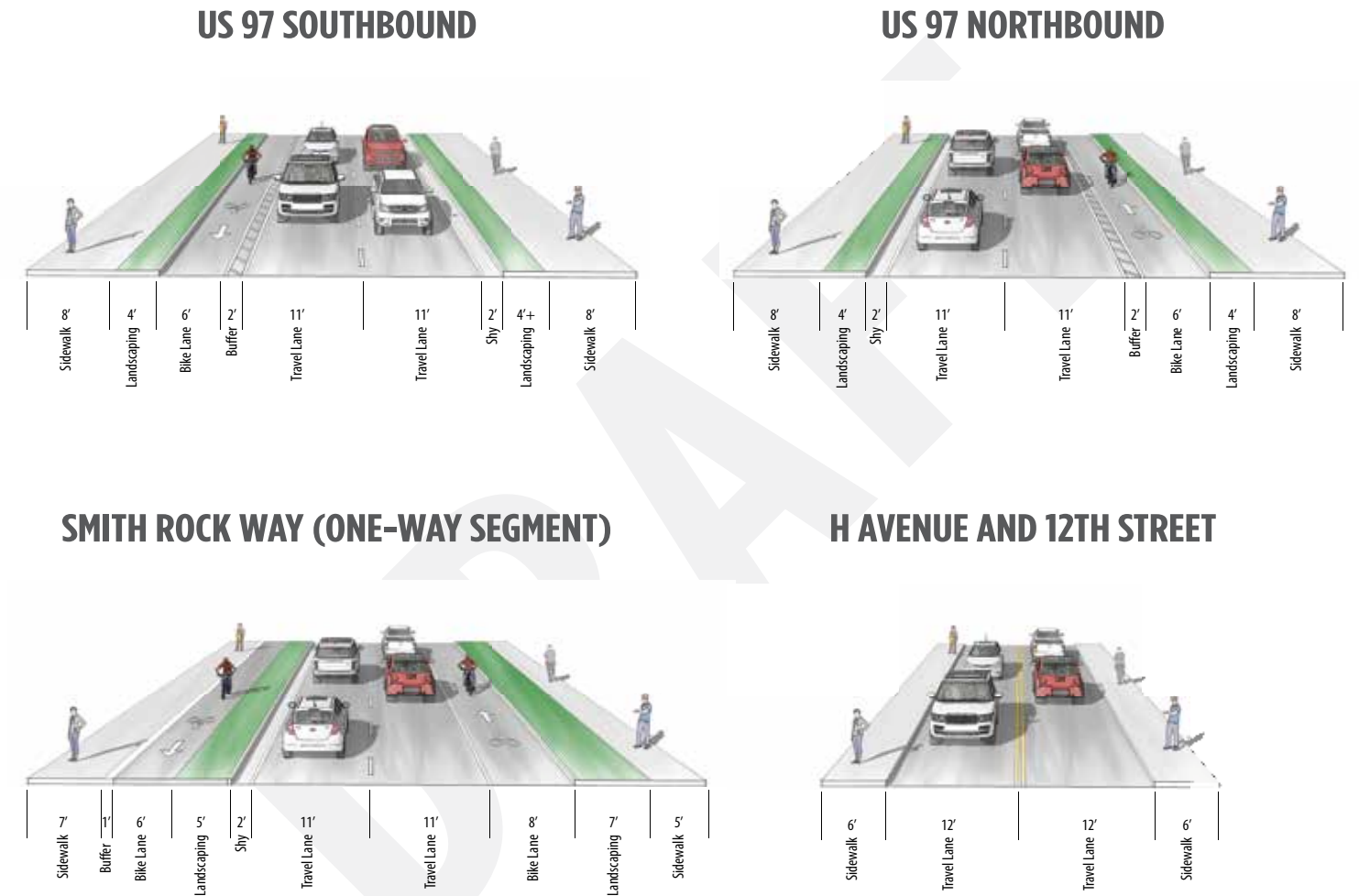


Local Connection Priority

- High
- Medium
- Low
- Eastside north-south local connectivity

Highway and Local Street Cross-Sections

The following cross-sections illustrate what each highway and local street roadway will look like after construction.





Highway Transition and Speed Reduction Treatments

Speed reduction is a deep concern for those living in and traveling through the community. The following treatments address transition needs and suggest potential enhancements under the couplet design. The treatments are recommended as shown.



Speed feedback signs – Speed feedback signs will be placed near A Avenue in the northbound direction and near Central Avenue in the southbound direction.



Curbed road with bike lane and sidewalk – US 97 will be curbed with buffered bike lanes and sidewalks from Lower Bridge Wy to 10th Ave.



Street lighting with banners – Street lights will be introduced near the gateways and strategically at the B Avenue-Smith Rock Way intersections to the highway.



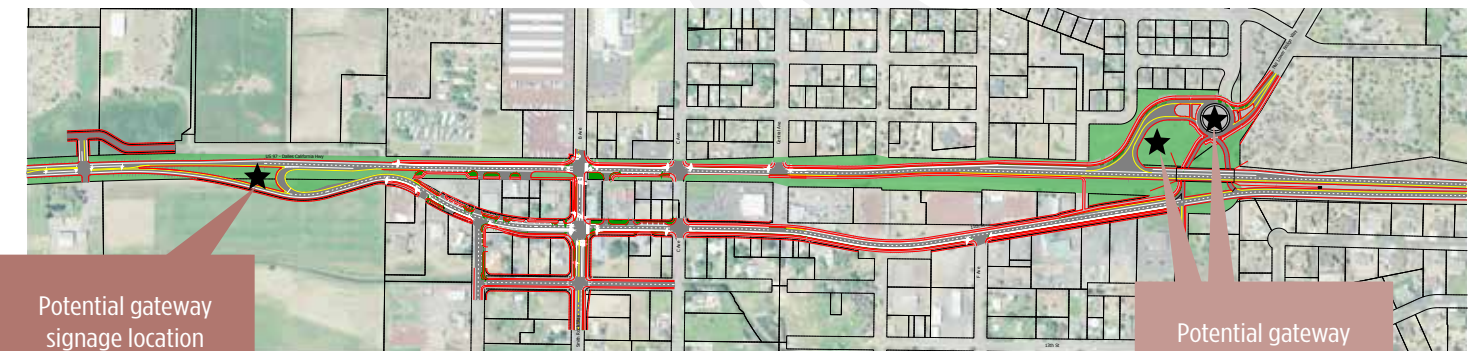
◀ **Chicane (artificial narrowing or turn)** – A large chicane will be used as a gateway feature as northbound traffic enters the business area. A smaller one (lateral transition) will be used for southbound traffic approaching the Lower Bridge Wy interchange.

▶ **Gateway signage** – In the chicane median area for northbound traffic and at Lower Bridge Wy for US 97 southbound and eastbound Lower Bridge Way traffic.



Landscape treatment opportunities

The exhibit below highlights potential gateway signage locations and landscaping areas (highlighted in green). The Lower Bridge Way roundabout terminal will also provide a iconic landscape gateway opportunity (similar to the Powell Butte Highway/Neff Road roundabout).



Roundabout at Powell Butte Hwy and Neff Rd landscaped with native plantings, Bend, OR



Access Management

The project team will develop an access management strategy in consultation with Deschutes County, property owners, and other applicable stakeholders during the project's final design phase. This will further define the location, type, and size of each driveway and local street connection to US 97 and 11th Street from Lower Bridge Way (north) to Crescent Moon Ranch (south).

Given that the preferred couplet configuration reduces overall turn movement conflicts by approximately 60%, the access management strategy will delineate specific driveway locations and widths to properties without curbed frontages, provide alternative access to properties whose access points may occur near intersections, ensure design vehicles (e.g., large trucks) can enter and exit properties and local streets, and consolidate driveways to improve operations and safety for all users traveling along the highway and accessing adjacent properties.

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Implementation Plan

Plan Adoption

This plan represents the project management team's recommendation based on information provided by the project team, the Advisory Committee's guidance, and stakeholder feedback received throughout the planning process. This recommendation and refinement plan will be presented at hearings with the following decision-making bodies:

Deschutes County Planning Commission

The Commission will conduct a hearing and either recommend that the Deschutes County Board of Commissioners approve the plan as presented, make modifications, or direct staff to further update the plan before they make a recommendation.

Deschutes County Board of Commissioners (Board)

The Board will conduct a hearing and either adopt the plan as presented, make modifications, or direct staff to further update the plan prior to amending the Deschutes County Transportation System Plan.

Oregon Transportation Commission (OTC)

The OTC will conduct a hearing and either adopt the plan as presented, make modifications, or direct staff to further update the plan prior to amending the Oregon Highway Plan to accept new right of way (11th Street) and a new interchange (US 97/Lower Bridge Way) into the state system.

Design

Following adoption of the refinement plan by Deschutes County and the OTC, the project team will prepare plans, specifications, and cost estimates so the construction contract can be advertised for competitive bids.



Construction

ODOT and the selected contractor will develop a construction staging plan to ensure a minimum of one lane in each direction on US 97 is open at all times and that access to properties and businesses is maintained and signed during construction. To meet these requirements, the local street improvements (12th Street, H Avenue, South Community intersection and 10th Street frontage road) should be constructed first to ensure alternative access to residents and businesses. The completion of 11th Street would likely follow, and the interchange and improvements to existing US 97 would be completed last.

Corridor Monitoring

High traffic speeds on US 97 through Terrebonne are a historic problem the improvements are intended to alleviate. ODOT will monitor the corridor after construction is completed to ensure that travel speeds through the community are in line with planned targets. If speeds exceed the target and are documented to be associated with potential passing maneuvers, ODOT will first consider enhanced enforcement. If ODOT continues to observe higher speeds and passing maneuvers, it will consider installing turn diverters within the business district to prohibit passing maneuvers.



Supporting Documentation

Technical Memorandum #1: Plans and Policy Review

Technical Memorandum #2: Analysis Methodology and Assumptions

Technical Memorandum #3: Goals, Objectives, and Evaluation Criteria

Technical Memorandum #4: Existing Conditions Analysis

Technical Memorandum #5: Future Conditions Analysis

Technical Memorandum #6: Alternatives Development and Analysis

Technical Memorandum #7: Identification of Preferred, Cost-Constrained Alternative

These memoranda can be found at
www.terrebonnerefinementplan.com



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& ASSOCIATES