I-15 ENVIRONMENTAL IMPACT STATEMENT
Farmington to Salt Lake City

Alternatives Development and Screening Report: November 2022 Preliminary Results

I-15 Environmental Impact Statement Farmington to Salt Lake City

Lead agency:
Utah Department of Transportation

November 7, 2022

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Acronyms and Abbreviations

CD	collector-distributor	NB	northbound
CFR	Code of Federal Regulations	NEPA	National Environmental Policy Act
DDI	diverging diamond interchange	NOI	Notice of Intent
EIS	environmental impact statement	SB	southbound
FHWA	Federal Highway Administration	SPUI	single-point urban interchange
ft	feet	SUP	shared-use path
GIS	geographic information systems	TDM	travel demand management
GP	general-purpose (lane)	TSM	transportation system management
HOV	high-occupancy vehicle (lane)	U.S. 89	U.S. Highway 89
I-15	Interstate 15	UDOT	Utah Department of Transportation
I-215	Interstate 215	USC	United States Code
MOU	Memorandum of Agreement	USDOT	United States Department of Transportation
NA	not applicable	WFRC	Wasatch Front Regional Council

1.0 Introduction

1.1 Report Purpose and Background Information

This report describes the alternatives development and screening process that was used for the Interstate 15 (I-15) Farmington to Salt Lake City Environmental Impact Statement (EIS) (Figure 1-1). The Utah Department of Transportation (UDOT) is preparing the EIS to evaluate transportation solutions to improve safety, replace aging infrastructure, provide better mobility for all users, strengthen the state and local economy, and better connect communities along I-15 from Farmington to Salt Lake City.

What is the purpose of this report?

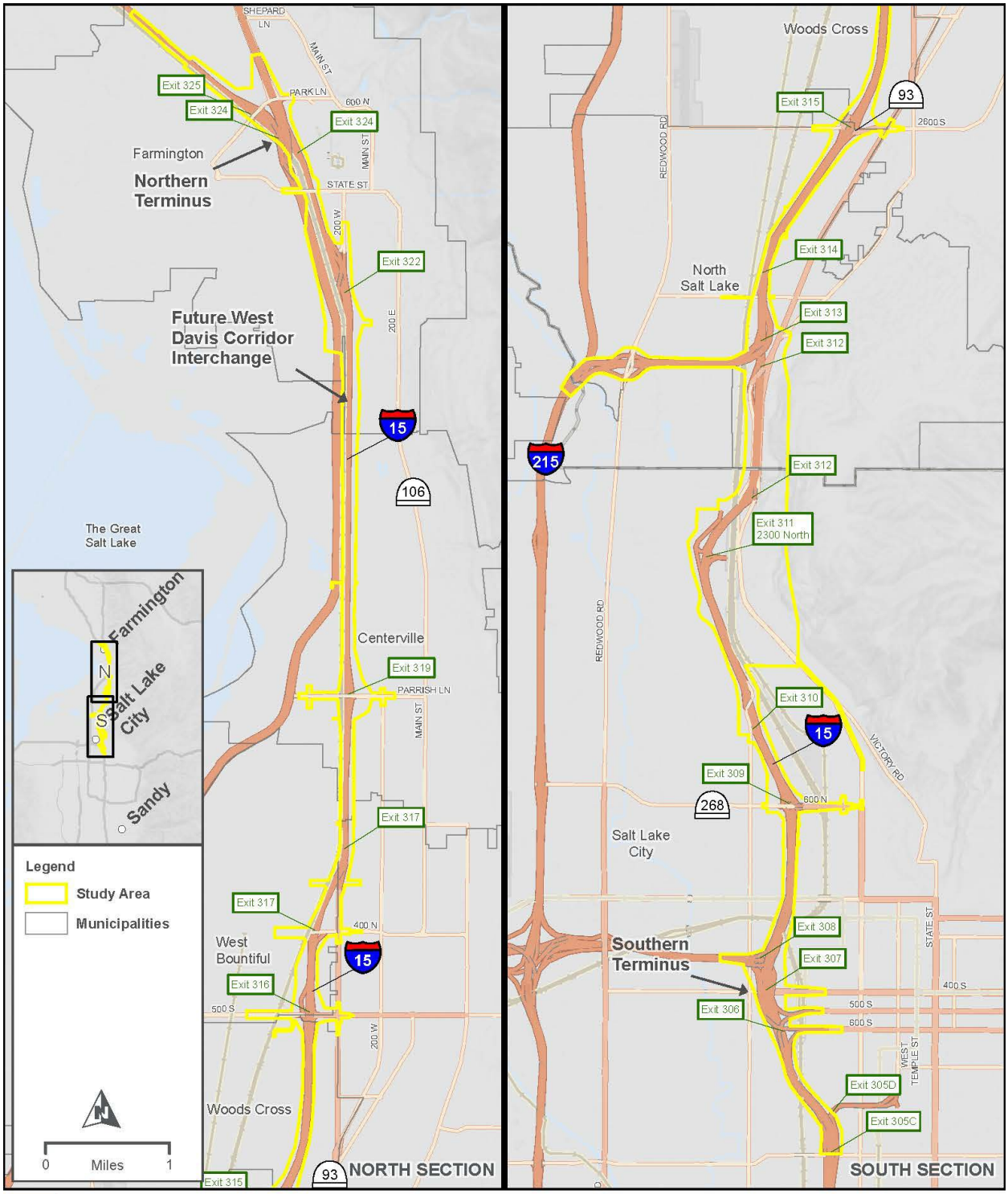
This report describes the alternatives development and screening process that was used for the I-15 EIS.

The alternatives development and screening process provides critical information about how well an alternative or concept satisfies the project's purpose. This process also assists with determining whether an alternative meets the regulatory standards under a variety of federal statutes, such as the National Environmental Policy Act (NEPA), the Clean Water Act, Section 4(f) of the Department of Transportation Act of 1966, and Section 6(f) of the Land and Water Conservation Fund Act of 1965. For more information regarding the regulations considered in this screening process, see Section 1.3, *Reasons Why an Alternative Might Be Eliminated during the Screening Process*.

The Federal Highway Administration (FHWA) has assigned its responsibilities under NEPA and other federal environmental laws to UDOT for highway projects in Utah, pursuant to 23 United States Code (USC) Chapter 327, in a Memorandum of Understanding (MOU) dated May 26, 2022. In accordance with its responsibilities, UDOT is carrying out the environmental review process for the I-15 Farmington to Salt Lake City Project in lieu of FHWA and serves as the lead agency in the NEPA process. The assignment of NEPA responsibilities to UDOT does not change the roles and responsibilities of any other federal agency whose review or approval is required for the project.

Note on November 2022 Preliminary Results. This November 2022 version of the *Alternatives Development and Screening Report* includes the draft Level 1 screening results for mainline, interchange, and bicyclist and pedestrian crossings concepts, and the draft Level 2 screening results for the mainline I-15 concepts. Following completion of the public comment period in December 2022, the screening results will be updated based on public and agency comments as necessary. UDOT will then conduct the Level 2 screening process for the interchange and bicyclist and pedestrian crossings concepts that pass Level 1 screening. A future version of this report will document the public and agency comments and the results of the Level 2 screening process.

Figure 1-1. I-15 EIS Study Area



NEEDS ASSESMENT STUDY AREA
I-15 EIS: FARMINGTON TO SALT LAKE CITY

1.2 Alternatives Development and Screening Process Overview

The alternatives development and screening process consisted of the following four phases:

1. Develop initial concepts for I-15 mainline, interchanges, and bicycle and pedestrian connectivity improvements.
2. Apply first-level (Level 1, purpose and need) screening criteria to eliminate concepts that do not meet the project purpose. Refine the concepts that pass first-level screening for further evaluation in second-level screening.
3. Apply second-level (Level 2, impacts) screening criteria to eliminate concepts that meet the project purpose but would be unreasonable for other reasons—for example, a concept that would have unacceptable impacts to the natural and human environment, would not meet requirements to obtain necessary permits and approvals, or could be replaced by a less costly concept with comparatively less impacts.
4. Combine concepts that pass Level 2 screening into alternatives and conduct preliminary engineering. These alternatives will be refined to avoid and minimize impacts to the natural and human environment and will be designed to a higher level of detail before UDOT performs the detailed impact analyses for the EIS.

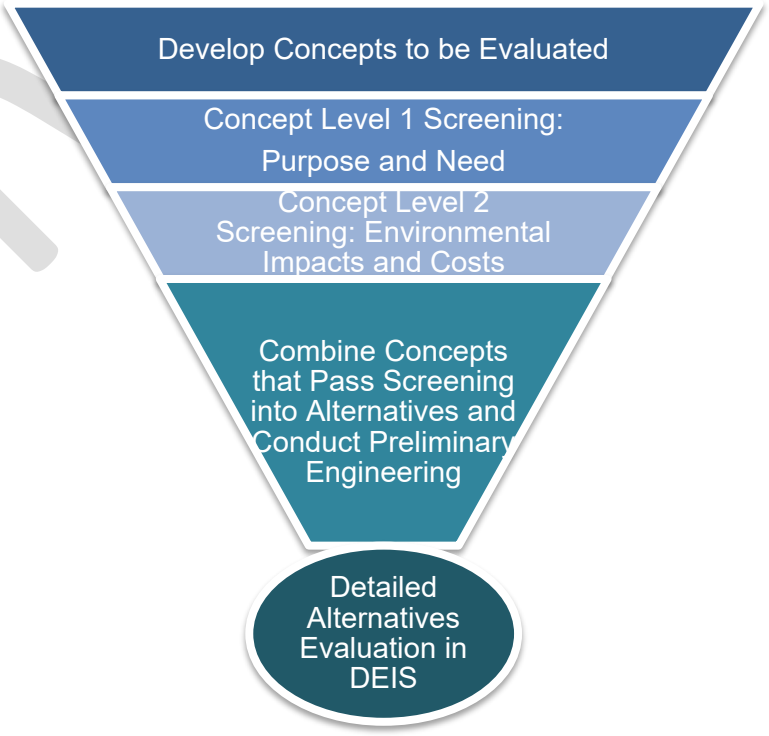
What is a concept?

A concept is a preliminary alternative. For this project, the term *concept* is used before and during screening, and the term *alternative* is used after screening.

UDOT will conduct a two-level (Level 1 and Level 2) screening evaluation of alternatives (Figure 1-2). The initial agency and public inputs occurred during the project's scoping process in 2022. A summary of the public and agency input received during the formal comment period held during the scoping phase is provided in Section 2.2.2, *Scoping*, and included the *Scoping Summary Report*. The release of the draft version of this report initiates another formal request for public and agency input.

As shown in Figure 1-2, the project's purpose and needs are the foundation of the alternatives screening process. Level 1 screening was based on the project's purpose. The project purpose is to improve safety, replace aging infrastructure, provide better mobility for

Figure 1-2. Screening Process Overview



all users, strengthen the state and local economy, and better connect communities along I-15 from Farmington to Salt Lake City. The alternatives that passed Level 1 screening were determined to satisfy the project's purpose and will be further refined and evaluated with Level 2 screening criteria to determine their expected impacts to key resources. Alternatives that do not satisfy the project's purpose or that have unacceptable impacts will be determined to be not reasonable.

The alternatives development and screening process is designed to be dynamic throughout the EIS process. If a new alternative or refinement of an alternative is developed or arises later in the EIS process, it will be considered using the same screening considerations and criteria as the other alternatives, as described in this report.

1.3 Reasons Why an Alternative Might Be Eliminated during the Screening Process

This section describes the laws and applicable regulations and guidance used to determine whether an alternative might be eliminated during the screening process.

1.3.1 Council on Environmental Quality Regulations and Guidance

NEPA's implementing regulations define *reasonable alternatives* as those that meet the project's purpose and need and that are technically and economically feasible. According to these regulations and guidance issued by the Council on Environmental Quality, there are three primary reasons why an alternative or concept might be determined to be not reasonable and eliminated from further consideration.

1. The alternative or concept does not satisfy the purpose of the project (evaluated in the Level 1 screening for the I-15 Farmington to Salt Lake City Project).
2. The alternative or concept meets the purpose of the project but is unreasonable based on a combination of other factors, such as costs, logistical or technical issues, environmental impacts, or inability to meet permitting or other regulatory requirements (evaluated in the Level 2 screening).
3. The alternative or concept substantially duplicates another alternative or concept; that is, it is otherwise reasonable but offers little or no advantage for satisfying the project's purpose, and it has impacts and/or costs that are similar to or greater than those of other, similar alternatives or concepts (evaluated in the Level 2 screening).

1.3.2 Clean Water Act Requirements

Because federally regulated wetlands or other waters of the United States might be present in the project study area, UDOT will consider compliance with the permitting requirement under Section 404 of the Clean Water Act during the concept development phase and the identification of alternatives for review in the EIS. If it appears that an individual Section 404 permit could be required, UDOT would consider standards in the U.S. Army Corps of Engineers Clean Water Act *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* (40 Code of Federal Regulations [CFR] Part 230) and Executive Order 11990, *Protection of Wetlands*, during the concept development phase.

The Section 404(b)(1) Guidelines state that "no discharge of dredged or fill material [to Section 404–regulated waters] shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" [Section 230.10(a)]. This section of the Guidelines further states that:

1. For the purpose of this requirement, practicable alternatives include but are not limited to:
    a. Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;
    b. Discharges of dredged or fill material at other locations in waters of the United States or ocean waters;
2. An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity may be considered.
3. Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in Subpart E of the guidelines) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not water dependent), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

1.3.3 Section 4(f) and Section 6(f) Requirements

Pursuant to 23 USC Chapter 327 and the NEPA Assignment MOU, UDOT is responsible for compliance with Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC Chapter 303), and with applicable provisions of Section 6(f) of the Land and Water Conservation Fund Act of 1965, as amended (54 USC Chapter 2003).

Section 4(f) applies to certain publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic properties that are listed on or eligible for listing on the National Register of Historic Places.

Section 4(f) prohibits agencies within the U.S. Department of Transportation (USDOT) from approving the use of any Section 4(f) land for a transportation project, except as follows:

- First, the USDOT agency can approve the use of Section 4(f) land by making a determination that (1) there is no prudent and feasible alternative that would avoid the use of the Section 4(f) resource *and* (2) the project includes all possible planning to minimize harm to that property, and, if there is more than one alternative with a use of Section 4(f) property with greater–than–*de minimis* impacts, the alternative would have the least overall harm in light of Section 4(f)'s preservation purpose.
- Second, the USDOT agency can approve the use of Section 4(f) property by making a finding of *de minimis* impact for that property.

What is a *de minimis* impact?

For publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the activities, features, or attributes of the property.

For historic sites, a finding of *de minimis* impact means FHWA has determined that the project would have "no adverse effect" on the historic property.

A concept that would have more than a *de minimis* impact on Section 4(f) resources could be eliminated during Level 2 screening. To comply with the Section 4(f) regulations, UDOT will need to demonstrate that either (1) the alternative or concept selected would have a use with more than *de minimis* impacts on the Section 4(f) property or (2) there is no feasible and prudent alternative or concept that would avoid the use of the Section 4(f) property, and the concept or alternative includes all possible planning to minimize harm to Section 4(f) resources. If there is more than one alternative or concept with a use of Section 4(f) property with greater–than–*de minimis* impacts, UDOT must demonstrate that the alternative or concept would have the least overall harm in light of Section 4(f)'s preservation purpose.

Section 6(f) requires that the conversion of lands or facilities acquired with Land and Water Conservation Act funds be approved by the U.S. Department of the Interior. Approval requires consideration of whether there are practical alternatives or concepts that would avoid the conversion of the land and, if not, "substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location." A concept could be eliminated in Level 2 screening if that concept could not avoid Section 6(f) impacts or if there was not an opportunity to substitute converted land of equal value and reasonably equivalent usefulness and location.

The *Alternatives Development and Screening Methodology Report* (UDOT 2022a) provides additional information regarding the methodology and process for developing and screening alternatives for the I-15 Farmington to Salt Lake City Project.

1.4 Summary of the Project's Purpose and Need

The primary criterion for determining whether an alternative meets the various regulatory standards is whether it meets the purpose of the project. The purpose of the project is selected to address the needs for the project.

1.4.1 Need for the Project

I-15 between Farmington and Salt Lake City has aging infrastructure and worsening operational characteristics for current and projected (2050) travel demand, both of which contribute to decreased safety, increased congestion, lost productivity, and longer travel times. East-west streets that access or cross I-15 currently do not adequately address multimodal mobility. These streets are important to connect communities and support other travel modes such as biking, walking, and transit. When I-15 and its interchanges do not support travel demand, traffic is added to the local streets, which affects both the regional and local transportation system as well as safe, comfortable, and efficient travel by other modes. Additional details regarding the needs for the project are provided in the *Draft Purpose and Need* (UDOT 2022b).

What is travel demand?

Travel demand is the expected number of transportation trips in an area. Travel demand can be met by various modes of travel, such as automobile, bus, light rail, carpooling, and bicycling.

1.4.2 Purpose of the Project

The purpose of the I-15 Farmington to Salt Lake City Project is to improve safety, replace aging infrastructure, provide better mobility for all users, strengthen the state and local economy, and better connect communities along I-15 from Farmington to Salt Lake City. The project purpose consists of the following objectives, which are organized by UDOT's Quality of Life Framework categories of Good Health, Connected Communities, Strong Economy, and Better Mobility.

Improve Safety

- Improve the safety and operations of the I-15 mainline, I-15 interchanges, bicyclist and pedestrian crossings, and connected roadway network.

Better Connect Communities

- Be consistent with planned land use, growth objectives, and transportation plans.
- Support the planned FrontRunner Double Track projects and enhance access and connectivity to FrontRunner, to regional transit and trails, and across I-15.

Strengthen the Economy

- Replace aging infrastructure on I-15.
- Enhance the economy by reducing travel delay on I-15.

Improve Mobility for All Users

- Improve mobility and operations on the I-15 mainline, I-15 interchanges, connected roadway network, transit connections, and bicyclist and pedestrian facilities to help accommodate projected travel demand in 2050.

Table 2-1, *Level 1 Screening Criteria and Measures*, in Section 2.3.1, *Level 1 Screening*, provides the Level 1 screening measures for each of these items.

2.0 Alternatives Development and Screening Process

2.1 Study Area and Logical Termini

The study area for the I-15 EIS extends on I-15 from the U.S. Highway 89 (U.S. 89)/Legacy Parkway/Park Lane interchange (I-15 milepost 325) in Farmington to the Interstate 80 (I-80) West/400 South interchange (I-15 milepost 308) in Salt Lake City (see Figure 1-1 above). The boundaries for the study area shown in Figure 1-1 extend north of the north terminus and south of the south terminus to include ramps that begin or end at these interchanges.

What are logical termini?

Logical termini are the rational end points for evaluating proposed transportation improvements. Generally, they are the points of major traffic generation such as intersecting roads.

Pursuant to 23 CFR Section 771.111(f), UDOT developed the logical termini for the I-15 EIS to include areas that would influence the proposed project's transportation operations. These logical termini are also an adequate distance apart to assess the environmental impacts on a broad scope, and they are located at rational end points for evaluating proposed transportation improvements. The identified logical termini for the study area are sufficiently broad and do not prevent UDOT from considering a reasonable range of alternatives that could meet the identified needs for the project.

2.2 Development of Initial Concepts

The first phase in the alternatives development and screening process was identifying a list of initial concepts. To be considered an initial concept, a concept needed to be applicable to the study area defined above and needed to present a type of solution that could meet the project's purpose and identified transportation needs. The initial concepts were developed with input from existing transportation plans, the public, local municipal governments, stakeholders, and resource agencies

UDOT developed the initial concepts based on previous planning studies and through input collected during the EIS public scoping period (April 11 to May 13, 2022) and outreach processes.

Initial concepts related to pedestrian and bicyclist improvements were identified from existing plans and from the input gathered during the Smart Growth America workshops in spring 2022. The Smart Growth America workshop attendees included local government officials and other community stakeholders and were focused on identifying bicyclist and pedestrian needs and concepts that could address these needs along the I-15 corridor.

2.2.1 Previous Studies and Plans

UDOT identified potential concepts from the following previous transportation plans and studies (listed in chronological order):

- I-15 North Corridor Downtown Salt Lake City to Kaysville – Draft Environmental Impact Statement (UDOT 1998)
- I-15 North and Commuter Rail Collaborative Design Planning Study (UDOT and UTA 2009)
- Salt Lake City Pedestrian and Bicycle Master Plan (Salt Lake City 2015)
- Wasatch Front Central Corridor Study (UDOT and others 2015)
- I-15 and Parrish Lane Single-point Urban Interchange (SPUI) Concept Report (UDOT 2016)
- I-15; 400 South, SLC and 2600 South, Woods Cross Traffic Study (UDOT 2017)
- Future of FrontRunner Final Report (UTA 2018)
- I-15 Northbound; I-215 South Interchange Murray and 600 North Traffic Study (UDOT 2019)
- Wasatch Front Regional Council 2019–2050 Regional Transportation Plan (WFRC 2019)
- Davis County I-15 Study (UDOT 2020)
- South Davis County Active Transportation Plan (APD and TR 2020)
- 600/700 North Mobility, Safety, and Transit Improvements Study (Salt Lake City 2021)

A summary of prior studies and recommendations is included in Appendix A.2 of the *Draft Purpose and Need* (UDOT 2022b).

2.2.2 Scoping

UDOT used the scoping process to identify and review the purpose of and need for the project and alternatives to consider in the EIS. UDOT used several methods to involve agencies and the public during the development of alternatives, including meetings, open houses, a project website, and newsletters to advertise and allow reviews of project materials. In addition, the study team sought engagement that included equitable outreach, affordable-housing interests, and outreach in areas of the study area that historically might have been underserved due to language or other outreach barriers. The team has collaboratively worked with local elected officials and community leaders to build a list of key stakeholders representing local residents, business owners, and other interested participants.

What is scoping?

NEPA scoping is a formal EIS outreach and coordination process to determine the scope of issues to be addressed and to identify significant issues related to the proposed action. UDOT conducted an early scoping process in 2020, prior to initiating the EIS. Another formal scoping process was conducted when UDOT published, in April 2022, the notice of intent to prepare the I-15 EIS.

Scoping and Notice of Intent

The Notice of Intent (NOI) to prepare the I-15 EIS was published on March 28, 2022, which initiated the formal scoping period. The *Scoping Summary Report* (UDOT 2022c) summarizes public and agency input gathered during the formal scoping period. The NOI and scoping materials presented the following initial concepts for comment:

- No action;
- Capacity improvements to I-15 such as adding general-purpose, high-occupancy, or auxiliary lanes and interchange improvements;
- Additional or modified accesses to and from I-15;
- Additional or modified road, bicyclist, and pedestrian crossings of I-15;
- Additional or modified bicycle and pedestrian connections to FrontRunner stations and regional trails;
- Transportation System Management (TSM); and
- Combinations of any of the above.

As part of the scoping process, UDOT conducted an inclusive notification process during the spring of 2022. This inclusive notification process included efforts such as community canvassing and engagement, virtual flyers, signage, social media, project website notices, and press releases to attempt to gather feedback from everyone who may be interested in the project. As discussed in the *Scoping Summary Report*, UDOT received comments during the 24 city council presentations and 2 equity working group meetings, as well as 900 individual comment submissions. Comments addressed a variety of issues, including access to Glovers Lane from I-15 or West Davis Corridor, bicycle and pedestrian accommodations across I-15, new interchanges or interchange modifications, pavement quality, noise impacts, grade-separating rail lines and local streets, and other concept ideas relating to transit, transportation system management, travel demand management, tolling, and lane restrictions. A summary of the outreach efforts and comments received is included in the *Scoping Summary Report* (UDOT 2022c).

2.2.3 Consideration of Transit, Travel Demand Management, and Transportation System Management Concepts

No standalone transit, travel demand management (TDM), or transportation system management (TSM) concepts were identified for the I-15 Farmington to Salt Lake City Project because these alternatives would not meet the purpose of the project. As standalone options, transit, TDM, or TSM concepts would not address aging infrastructure on I-15, improve safety on I-15, or meet the projected travel demand in 2050.

However, the alternatives for the I-15 Farmington to Salt Lake City Project considered by UDOT will accommodate all current and proposed transit projects identified in WFRC's *2019–2050 Regional Transportation Plan* (including the planned UTA FrontRunner Double Track projects and a new Davis–Salt Lake bus service project). To ensure that the project's alternatives support all planned transit projects, UDOT's Level 1 screening criteria for this project include the criterion to "support the planned FrontRunner Double Track projects and enhance access and connectivity to FrontRunner and regional transit." TDM is also included in the 2050 no-action conditions as part of the planned I-15 managed motorways project.

2.2.4 Range of Initial Concepts

The initial concepts were developed for I-15 mainline, interchanges, and bicyclist and pedestrian crossings to provide facilities that benefit all users and address the needs for the project. The interchanges and bicycle and pedestrian crossings concepts were evaluated for five separate geographic areas in the study area:

- Salt Lake County (400 South to Davis County boundary)
- North Salt Lake/Woods Cross (Salt Lake County boundary to 1500 South)
- West Bountiful/Bountiful (1500 South to 1600 North/Pages Lane)
- Centerville (1600 North/Pages Lane to Farmington boundary)
- Farmington (Centerville boundary to U.S. 89)

UDOT first evaluated the I-15 mainline, interchange, and bicyclist and pedestrian crossings concepts for each geographic area before combining these concepts into alternatives. The interchange and bicyclist and pedestrian crossings concepts in one geographic area can be combined with interchange and bicyclist and pedestrian crossings concepts in the other geographic areas and with the I-15 mainline concepts.

2.3 Screening Process Overview

2.3.1 Level 1 Screening

Level 1 screening was based on the project purpose. Each of the initial concepts was evaluated using criteria that identified whether the concept would meet the purpose of the project. Concepts that were determined to not meet the purpose of the project were screened from further consideration by UDOT because they would also not satisfy the standards under NEPA, the Clean Water Act, Section 4(f), and Section 6(f). As a result, these concepts were not carried forward for further analysis.

What is the purpose of Level 1 screening?

Level 1 screening eliminates concepts that do not meet the purpose of the project.

The initial concepts were screened against criteria pertaining to travel demand, safety, and pedestrian and bicyclist access and connectivity (Table 2-1). To accommodate Level 1 screening, UDOT developed the initial concepts in enough detail to allow them to use the Wasatch Front Regional Council's (WFRC) travel demand model to forecast the future traffic volumes and associated congestion for I-15. Not all measures in Table 2-1 apply to all project elements considered in the EIS. For example, delay and congestion measures do not apply to bicyclist and pedestrian crossings improvements.

Table 2-1. Level 1 Screening Criteria and Measures

Quality of Life Category	Criterion	Measure
Improve Safety	Improve the safety and operations of the I-15 mainline, interchanges, bicyclist and pedestrian crossings, and connected roadway network.	• Does the concept meet UDOT's safety standards (such as curvature, lane and shoulder widths, access, and sight distance)? (Yes/No) • Does the concept meet UDOT's operational standards (such as traffic weaving, ramp operations, queuing, etc.)? (Yes/No) • Can the concept be designed to reduce conflicts between motorized and bicycle and pedestrian modes? (Yes/No) • Does the concept improve bicyclist and pedestrian accommodations at cross streets or interchanges? (Yes/No)
Better Connect Communities	Be consistent with planned land use, growth objectives, and transportation plans.	• Is the concept consistent with land use and transportation plans? (Yes/No)
	Support the planned FrontRunner Double Track projects and enhance access and connectivity to FrontRunner, to regional transit and trails, and across I-15.	• Does the concept provide sufficient space for the Utah Transit Authority (UTA) to construct the planned FrontRunner Double Track projects? (Yes/No) • Can the concept be designed to improve connectivity to FrontRunner stations? (Yes/No) • Can the concept be designed to enhance bicyclist and pedestrian access across I-15 and connectivity to regional trails? (Yes/No)
Strengthen the Economy	Replace aging infrastructure on I-15.	• Does the concept address I-15 aging infrastructure needs? (Yes/No)
	Enhance the economy by reducing travel delay on I-15.	• Does the concept reduce daily hours of delay on I-15, interchanges, and cross streets in 2050?[a]
Improve Mobility for All Users[b]	Improve mobility and operations on the I-15 mainline, I-15 interchanges, connected roadway network, transit connections, and bicyclist and pedestrian facilities to help accommodate projected travel demand in 2050.	• Does the concept decrease through-traffic travel time on I-15 during the AM and PM peak periods?[a,c] • Does the concept improve average speed on I-15 during the AM and PM peak periods?[a,c]

[a] UDOT will determine whether concepts meet these three measures when comparing the concepts' modeled metrics versus the no-action conditions in 2050.

[b] Measures for improving the mobility of transit and bicycle and pedestrian modes are included in the "Improve Safety" and "Better Connect Communities" categories. These measures would improve mobility for transit and bicycle and pedestrian modes. To avoid duplication, they are not repeated in the "Improve Mobility for All Users" category.

[c] Both of these metrics will compare traffic conditions with the concepts versus the no-action conditions during the AM and PM peak 4-hour periods in 2050. Peak periods are the periods of the day with the greatest amounts of traffic. For the I-15 project, the AM (morning) peak period is from 6 AM to 10 AM, and the PM (afternoon) peak period is from 3 PM to 7 PM.

2.3.2 Level 2 Screening

Level 2 screening identifies and then eliminates concepts that are not practicable and reasonable. During Level 2 screening, UDOT collectively evaluated the concepts that passed Level 1 screening against criteria that focus on the concepts' impacts to the natural and built environment, estimated project costs, logistical considerations, and technological feasibility.

What is the purpose of Level 2 screening?

Level 2 screening identifies and then eliminates concepts that are not practicable and reasonable.

Public and agency comments received during the formal scoping period were particularly relevant during Level 2 screening because several of the Level 2 screening criteria focus on local and community elements and regulated resources. Table 2-2 lists the Level 2 screening criteria.

Table 2-2. Level 2 Screening Criteria and Measures

Criterion	Measure
Impacts to the natural environment	• Acres and types of aquatic resources (wetlands, streams, and springs)[a] • Linear feet of ditches and creeks affected • Acres of floodplains affected
Access to transit, bicycle, and pedestrian facilities	• Number and relative quality of connections to regional transit facilities and regional trails
Impacts to Section 4(f) and Section 6(f) resources	• Number and type of Section 4(f) uses[b] • Number and type of Section 6(f) conversions[b]
Impacts to the built environment	• Number and area of parks, trails, and other recreation resources affected • Number of community facilities affected • Number of potential property acquisitions, including residential and business relocations • Number of cultural resources (for example, historic and archaeological resources) affected • Potential impacts and benefits to low-income or minority populations (environmental justice populations)[c]
Cost, technology, and logistics	• Estimated project cost (general) • Constructability given available technology • Logistical considerations

[a] Consistent with the avoidance and minimization concepts of the Clean Water Act, a concept with the potential to impact a substantially greater number of delineated aquatic features could be eliminated from detailed study in the EIS. However, UDOT will not eliminate a concept from detailed study in the EIS unless it is clear that the concept would not comply with the Section 404(b)(1) Guidelines. For more information, see Section 1.3.2, *Clean Water Act Requirements.*

[b] Based on the requirements of Section 4(f) of the Department of Transportation Act of 1966 and Section 6(f) of the Land and Water Conservation Fund Act of 1965, a concept with substantially greater Section 4(f) or Section 6(f) impacts could be eliminated from detailed study in the EIS. For more information, see Section 1.3.3, *Section 4(f) and Section 6(f) Requirements.*

[c] Areas with higher percentages of low-income or minority populations are identified using U.S. Census data.

The criteria listed above in Table 2-2 were selected based on applicable federal regulations—such as Section 4(f) of the U.S. Department of Transportation Act of 1966 and Section 404 of the Clean Water Act—and comments received during agency and public outreach. Waters of the United States and Section 4(f) properties were given special consideration during screening because federal laws require UDOT to consider and analyze alternatives that avoid or minimize impacts to these resources. See Section 1.3,

Reasons Why an Alternative Might Be Eliminated during the Screening Process, for more information regarding Section 4(f) and Section 404 of the Clean Water Act.

The overall process for Level 2 screening includes the following steps:

1. Develop basic alignments and footprints, including rights-of-way, for the concepts carried forward from Level 1 screening. The concept design will try to minimize impacts to natural resources and the built environment while meeting design standards. Concepts that pass Level 2 screening will be further refined during the engineering process.
2. Review the concepts to make sure they continue to meet basic requirements for roadway design and safety.
3. Evaluate the concepts for costs, logistical considerations, and technological feasibility and determine whether any of the concepts would have substantially greater impacts or costs without having substantially greater benefits.
4. Convert the concepts' footprints to geographic information systems (GIS) format, and perform GIS analysis to determine the amount of resource impacts for each concept.
5. Compare the concepts' effects on the resources listed above in Table 2-2 to determine the reasonable concepts that will be advanced for detailed analysis in the Draft EIS.

Using the information gathered from Level 2 screening, UDOT will determine which concepts should be combined into corridor-wide alternatives to study in detail in the EIS. More information about each of these steps is provided below.

Estimate Impacts to Natural Resources and the Built Environment. Using GIS software, UDOT will estimate how each concept that passed Level 1 screening might affect resources such as wetlands and other waters of the United States, Section 4(f) and Section 6(f) resources, existing and planned parks and trail systems, cultural resources, and community facilities such as schools, senior centers, fire stations, and community gathering places. The number of impacts will be determined by overlaying the estimated right-of-way for each concept on the GIS datasets for these resources. UDOT will use the same approach to identify the expected number of impacts to homes and businesses, property acquisitions, community resources, and environmental justice concerns. As part of this effort, UDOT will research and use various data sources and tools (for example, the U.S. Environmental Protection Agency's Environmental Justice and Screening Tool) to identify potentially sensitive groups and assess, during Level 2 screening, impacts to these groups.

Compare Impacts and Costs to Benefits. UDOT will use the screening results to determine whether any concepts would have the same or similar benefits as other concepts but would have substantially greater impacts or costs. Those concepts would be considered unreasonable for NEPA purposes and will be eliminated.

Evaluate Concepts for Consistency with Permitting Requirements and Agency Approvals. UDOT will evaluate the concepts independently for their consistency with applicable permitting requirements. If the impact assessment indicates that an individual Clean Water Act Section 404 permit could be required for one or more concepts, UDOT will consider whether a concept is likely to be practicable for Section 404(b)(1) purposes. If UDOT determines that the concept is likely to be practicable and could have fewer adverse impacts to the aquatic environment than other concepts, it will be retained for detailed analysis in the EIS.

If the impact assessment found that a Section 4(f) use with greater–than–*de minimis* impact could be required for one or more concepts, UDOT will consider whether a concept is prudent and feasible for Section 4(f) purposes. If a concept is found by UDOT to be prudent and feasible and to have fewer adverse impacts to Section 4(f) resources than other concepts, it will be retained for detailed analysis in the EIS.

For more information, see Section 1.3, *Reasons Why an Alternative Might Be Eliminated during the Screening Process*.

2.4 Concept Evaluation

The initial concepts were developed for the I-15 mainline, interchanges, and bicyclist and pedestrian crossings to provide facilities that benefit all users and address the needs for the project. The interchanges were evaluated for five separate geographic areas in the study area:

- Salt Lake County (400 South to Davis County boundary)
- North Salt Lake/Woods Cross (Salt Lake County boundary to 1500 South)
- West Bountiful/Bountiful (1500 South to 1600 North/Pages Lane)
- Centerville (1600 North/Pages Lane to Farmington boundary)
- Farmington (Centerville boundary to U.S. 89)

The following sections provide the draft Level 1 screening evaluation and results for the I-15 mainline concepts, and the interchange and bicyclist and pedestrian crossings concepts at each geographic area. For the concepts that did not meet the Level 1 screening criteria, the tables summarize the reasons why the concept was eliminated.

2.4.1 I-15 Mainline Concepts Level 1 and Level 2 Screening

The existing I-15 mainline in the study area generally has three general-purpose (GP) lanes and one high-occupancy-vehicle (HOV) lane in Salt Lake County and four GP lanes and one HOV lane in Davis County in each direction. In addition to the through travel lanes, there are also auxiliary lanes (lanes that start at an on-ramp and continue to the next off-ramp) in several locations in the project study area.

Level 1 Screening for Mainline Concepts

Five concepts for the I-15 mainline were considered by UDOT in Level 1 screening. These concepts considered the project needs to address aging infrastructure, safety, and travel demand in 2050. The mainline concepts included designs with GP and HOV lanes and designs with express lanes (including reversible express lanes). Table 2-3 summarizes the I-15 mainline concepts and relevant Level 1 screening criteria, such as measures for safety and traffic operations, that were evaluated for each mainline concept. Figure 2-1 through Figure 2-5 show the typical sections of the concepts.

Daily network delay includes delay on roads near the project study area (I-15, I-215, U.S. 89, Legacy Parkway, and connecting arterial roads). The travel demand model shows a large reduction in overall network delay with any of the five I-15 mainline concepts compared to the 2050 no-action conditions. Because this metric is looking at a large transportation network and high vehicle volumes, the travel demand model did not show meaningful differences in daily network delay among the five I-15 mainline concepts.

All concepts described in Table 2-3 passed Level 1 screening.

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Table 2-3. Level 1 Screening of I-15 Mainline Concepts

Concept	Description	Typical Section Pavement Width	Meets Safety Standards?	Meets Operational Standards?	Space for FrontRunner Double Track Project?	Average Speed SB[a] (mph)	Average Speed NB[a] (mph)	Average Travel Time SB[b] (minutes)	Average Travel Time NB[b] (minutes)	Daily Network Delay?[c] (hours)
Existing conditions (2019)	The existing configuration is three GP lanes and one HOV lane in Salt Lake County and four GP lanes and one HOV lane in Davis County in each direction.	180 to 205 ft	Meets previous standards	Approaching failing conditions	Yes	60	57	18	19	18,000
I-15 no-action (2050)			No	No	Yes	20	16	55	66	95,000 [c]
Express Lane and Reversible Express Lane Concepts										
Widen I-15 to 3 Express Lanes and 3 to 4 GP Lanes[d] (Figure 2-5)	Widen I-15 to 3 express lanes and 3 to 4 GP lanes in each direction. I-15 in Salt Lake County would have 3 GP lanes, and I-15 in Davis County would have 4 GP lanes.	286 ft (widest option reviewed)	Yes	Yes	Yes	61	60	18	18	50,000 [c]
I-15 5 GP Lanes Each Direction and 2 Reversible Lanes [d] (Figure 2-1)	Widen I-15 to 5 GP lanes in each direction. Widening includes 2 reversible lanes from 400 South in Salt Lake City to just north of Parrish Lane in Centerville (no intermediate access to the reversible lanes in between). The reversible lanes would allow southbound travel in the morning and northbound travel in the afternoon.	242 ft	Yes	Yes	Yes	51	49	21	22	50,000 [c]
General Widening Concepts										
Widen I-15 to 5 GP Lanes and 1 HOV Lane[d] (Figure 2-2)	Widen I-15 to a roadway cross section of 5 GP lanes and 1 HOV lane (5+1) in each direction. This is the project proposed in Utah's long-range plan.	226 ft (narrowest option reviewed)	Yes	Yes	Yes	39	36	28	30	50,000 [c]
Widen I-15 to 5 GP Lanes and 2 HOV Lanes[d] (Figure 2-3)	Widen I-15 to a roadway cross section of 5 GP lanes and 2 HOV lanes (5+2) in each direction.	250 ft	Yes	Yes	Yes	47	43	23	25	50,000 [c]
Widen I-15 to 6 GP Lanes and 1 HOV Lane[d] (Figure 2-4)	Widen I-15 to a roadway cross section of 6 GP lanes and 1 HOV lane (6+1) in each direction.	250 ft	Yes	Yes	Yes	47	40	23	27	50,000 [c]

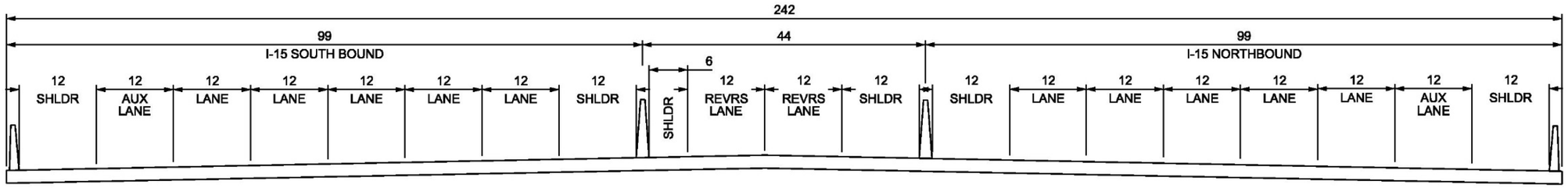
[a] Average speed is calculated over a 4-hour peak period for both southbound (SB) and northbound (NB) travel. Southbound peak period is the morning, and northbound peak period is in the evening.

[b] Average travel time is calculated over a 4-hour peak period for both southbound (SB) and northbound (NB) travel. Southbound peak period is the morning, and northbound peak period is in the evening.

[c] Daily network delay includes delay on roads in the vicinity surrounding the project (I-15, I-215, U.S. 89, Legacy Parkway, and connecting arterial roads). The travel demand model shows a large reduction in overall network delay with any of the five I-15 mainline concepts compared to the 2050 no-action conditions. Because this metric is looking at a large transportation network and high vehicle volumes, the travel demand model did not show meaningful differences in daily network delay among the five I-15 mainline concepts.

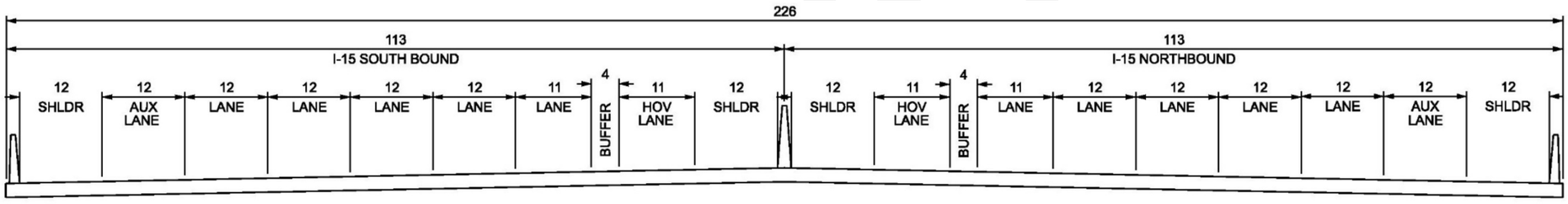
[d] All five I-15 mainline concepts passed Level 1 screening.

Figure 2-1. I-15 Mainline Reversible Lane Typical Section



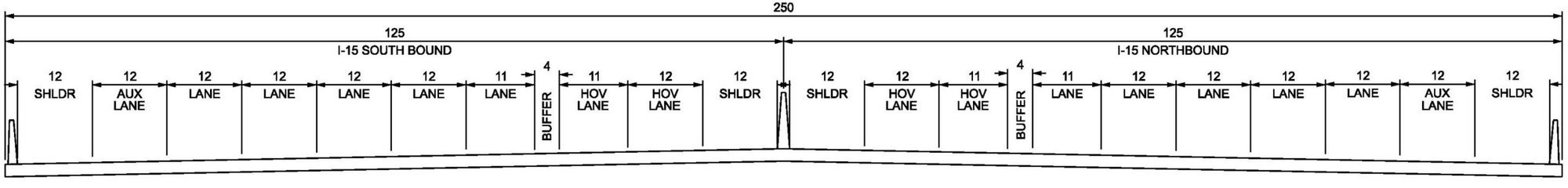
REVERSIBLE LANE OPTION
2 REVERSIBLE + 5 GP + 1 AUX

Figure 2-2. I-15 Mainline General Widening, 5 GP and 1 HOV Typical Section



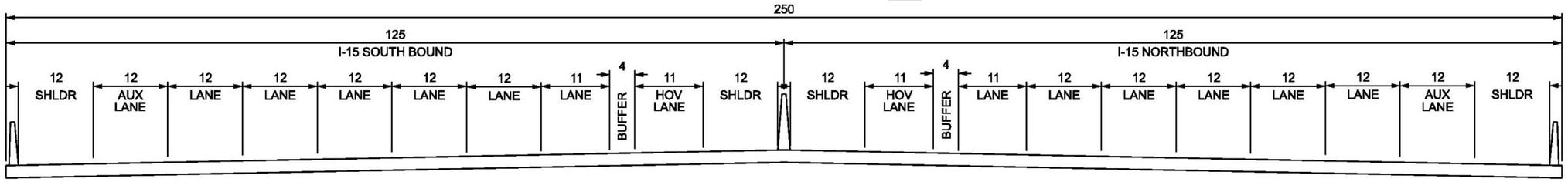
6 LANE OPTION
1 HOV + 5 GP + 1 AUX

Figure 2-3. I-15 Mainline General Widening, 5 GP and 2 HOV Typical Section



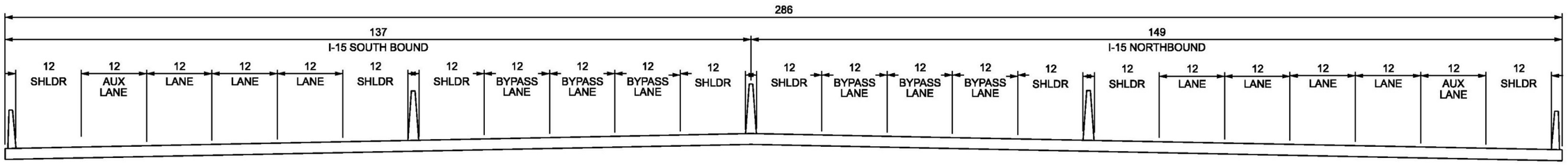
7 LANE OPTION
2 HOV + 5 GP + 1 AUX

Figure 2-4. I-15 Mainline General Widening, 6 GP and 1 HOV Typical Section



7 LANE OPTION
1 HOV + 6 GP + 1 AUX

Figure 2-5. I-15 Mainline Express Lane Option Typical Section



BYPASS LANE OPTION
3 BYPASS + 3/4 GP + 1 AUX

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Level 1 Screening for Mainline Concepts Results

All I-15 mainline concepts would reduce travel time by 49% to 72% and improve average speed by 95% to 275% compared to 2050 no-action conditions. Additionally, the I-15 mainline concepts evaluated meet safety and operational needs and could be designed to accommodate the planned FrontRunner Double Track projects. Therefore, all of the I-15 mainline concepts passed Level 1 screening and were advanced to Level 2 screening.

Level 2 Screening for Mainline Concepts

As shown above in Table 2-3, the I-15 mainline concepts would have different pavement widths and result in different levels of improvements to travel times and average speeds compared to the 2050 no-action conditions. UDOT relied primarily on the pavement widths for Level 2 screening of the I-15 mainline concepts since the pavement widths would be a proxy for potential impacts to key Level 2 resources adjacent to I-15 [for example, homes, businesses, environmental justice communities, historic properties, Section 4(f) resources, Section 6(f) resources, and wetlands] and costs associated with such impacts. Generally speaking, a wider pavement width and/or mainline section would result in more impacts to the resources listed above and more costs. As an example, every 10 additional feet of width needed to widen I-15 would require over an acre (52,800 square feet) of additional impact for each mile of length. For the entire project corridor, this extra 10 feet of width would equate to over 20 acres of additional impact to adjacent resources.

Concepts were screened out in Level 2 screening for either having more impacts without providing more benefit or for having similar levels of benefits while having more impacts.

As shown above in Table 2-3, the range of typical section pavement widths for the five concepts ranged from 226 feet with the 5 GP and 1 HOV lane concept to 286 feet with the 3 express lanes and 3/4 GP lanes concept. Of the five concepts, the 3 express lanes and 3/4 GP lanes concept and the 5 GP and 2 reversible lanes concept provided the best improvements in average speed and reductions in travel time during both the AM and PM peak periods. All three of the express lane and reversible express lane concepts provided better improvements in average speed and reductions in travel time during both the AM and PM peak periods compared to any of the three general widening concepts.

What are peak periods?

Peak periods are the periods of the day with the greatest amounts of traffic. For the I-15 project, the AM (morning) peak period is from 6 AM to 10 AM, and the PM (afternoon) peak period is from 3 PM to 7 PM.

A discussion of the Level 2 screening evaluation for each I-15 mainline concept is provided below.

5 GP and 1 HOV Lane Concept Evaluation. The 5 GP and 1 HOV lane concept would reduce travel time by about 50% and increase average speeds by over 100% during both the AM and PM peak periods compared to the 2050 no-action conditions. The typical section pavement width for the 5 GP and 1 HOV concept is 226 feet, which is the smallest width of the I-15 mainline concepts evaluated. The 5 GP and 1 HOV lane concept is also consistent with the WFRC 2019–2050 Regional Transportation Plan assumptions for I-15.

Reversible Express Lanes Concept Evaluation. The 5 GP and 2 reversible lanes concept would have a 242-foot-wide typical section pavement width and would provide the second-best improvements to average speed and reductions in travel time out of the five I-15 mainline concepts evaluated. The 5 GP and 2 reversible lanes concept would reduce travel time by 62% to 67% and would increase average speeds by over 150% during both the AM and PM peak periods compared to the 2050 no-action conditions. Compared to the 5 GP and 1 HOV lane concept, it would require 16 more feet of width, but it would reduce travel time by 30% to 35% and increase average speeds by over 25% during both the AM and PM peak periods.

5 GP and 2 HOV Lanes and 6 GP and 1 HOV Lane Concepts Evaluation. Compared to the 5 GP and 1 HOV lane concept, the 5 GP and 2 HOV lanes concept and the 6 GP and 1 HOV lane concept would provide additional reductions in travel time and improvements in average speed during both the AM and PM peak periods. However, compared to the 5 GP and 2 reversible express lanes concept, the 5 GP and 2 HOV lane concept, and the 6 GP and 1 HOV lane concept would provide fewer reductions in travel time and improvements in average speed during both the AM and PM peak periods and would have a wider typical section pavement width (250 feet compared to 242 feet).

UDOT determined that the 5 GP and 2 HOV lanes concept and the 6 GP and 1 HOV lane concept did not pass Level 2 screening because they would have more impacts to adjacent resources [for example, homes, businesses, environmental justice communities, historic properties, Section 4(f) resources, Section 6(f) resources, and wetlands] and less benefit compared to the 5 GP and 2 reversible express lanes concept.

3 Express Lanes and 3/4 GP Lanes Concept Evaluation. The 3 express lanes and 3/4 GP lanes concept would provide better levels of reduction in travel time and improvements to average speed compared to the 5 GP and 2 reversible lanes concept but would have a typical section pavement width of 286 feet, which is the widest, most impactful footprint out of all six mainline I-15 options evaluated. The 3 express lanes and 3/4 GP lanes concept was eliminated in Level 2 screening because it would have greater impacts to adjacent resources [for example, homes, businesses, environmental justice communities, historic properties, Section 4(f) resources, Section 6(f) resources, and wetlands] due to the additional 44 feet of pavement width in the typical section as the 5 GP and 2 reversible lanes concept.

Level 2 Screening for Mainline Concepts Results

When evaluating the five I-15 mainline concepts' travel times, average speeds, and pavement widths, UDOT determined that the **5 GP and 1 HOV lane concept** and the **5 GP and 2 reversible lanes concept** were the two I-15 mainline concepts that best met the purpose of the project while minimizing the pavement width and, by proxy, the impacts to Level 2 screening resources adjacent to I-15. These two concepts were advanced through Level 2 screening for consideration in the EIS.

2.4.2 I-15 Interchange and Bicyclist and Pedestrian Crossings Concepts Level 1 and Level 2 Screening

Bicyclist and Pedestrian Crossings Design Considerations at Interchanges

Two of the primary project purposes (and the basis for Level 1 screening criteria) are to "better connect communities" and "improve mobility for all users." To understand these needs in the study area, UDOT hosted walking tours and held workshops to identify bicyclist and pedestrian needs along I-15 in 2021 and 2022. UDOT also analyzed data to determine trip mode, origins and destinations of bicyclist and pedestrian travel, demographics such as the race or income level of users, trip directness, short vehicle trips to FrontRunner stations, and frequency of use at each I-15 crossing. Travel patterns were different for each crossing of I-15. This effort and information are summarized in the *Mobility Memorandum for I-15 Environmental Impact Statement from Farmington to Salt Lake City* (UDOT 2022d).

Each concept considered by UDOT was reviewed for its ability to meet these project purposes in addition to the traditional, vehicle-focused purposes. Bicyclist and pedestrian crossings design accommodations were reviewed prior to alternatives design phase to identify comfortable facility types and accommodations for pedestrians and bicyclists. These design accommodations, which were used to guide the preliminary evaluation of concepts in screening, included:

- **Design considerations to improve bicyclist and pedestrian crossings:**
  - Incorporated stop-controlled movements for vehicles; that is, no "free right-hand turn" movements at the ends of ramps. Free turning movements do not slow vehicles down as they enter the neighborhood streets and therefore reduce drivers' ability to see slower-moving bicyclists and pedestrians.
  - Incorporated "squared-up" intersections to increase visibility between bicyclists and pedestrians and vehicles existing I-15; that is, ramps and intersections are not skewed, which would encourage higher speeds by vehicles, but instead they intersect at 90-degree angles and therefore encourage slower vehicle speeds.
  - Incorporated bicycle and pedestrian facilities in all project interchanges to better connect the east and west sides of I-15.
  - Identified locations of new and dedicated bicycle and pedestrian crossings in areas between project interchanges to increase the permeability across I-15 for residents. Many of these locations were identified during the community workshops during the summer of 2021.
  - Designed bicyclist and pedestrian crossing connections to be as direct as possible between destinations to encourage more use.
  - Incorporated wider sidewalks and buffered bicycle lanes meeting standards where feasible.

- **Interchange type considerations:**
  - Diamond interchanges are the most pedestrian- and bicyclist-friendly because they consolidate crossings and support stop-controlled movements for vehicles. In a typical diamond interchange, pedestrians must make two crossings, one at an on-ramp and one at an off-ramp, to get to the other side of the interchange. The pedestrian crossings of the diamond interchange on- and off-ramps are also typically shorter in distance because the ramps are more perpendicular with the cross street. This interchange type is the least efficient for vehicles and has the lowest vehicle capacity of the options considered for I-15. All interchanges were designed as tight diamonds first and then reviewed for traffic.
  - An example of a diamond interchange is the interchange at Rosa Parks Way and Interstate 5 in Portland, Oregon (Figure 2-6 and Figure 2-7).

Figure 2-6. Aerial View of Diamond Interchange Example from Portland, Oregon

Figure 2-7. Street View of Diamond Interchange Example from Portland, Oregon

- Single-point urban interchanges (SPUI) are the second best for pedestrians and bicyclists (after a tight diamond interchange)In a typical SPUI, pedestrians might need to make three or more crossings of ramps to get to the other side of the interchange. A SPUI moves more vehicle traffic than a tight diamond interchange. And, a SPUI often has a more compact design (smaller footprint) than a diamond interchange. Where it would be difficult to incorporate at-grade crossings through a SPUI due to local constraints, separated paths were designed by UDOT. If a diamond interchange did not work at a location for the projected travel demand in 2050, a SPUI was then considered.
  - An example is the interchange at Bangerter Highway and 11400 South in South Jordan, Utah (Figure 2-8 and Figure 2-9).

Figure 2-8. Aerial View of SPUI Example on Bangerter Highway and 11400 South in South Jordan

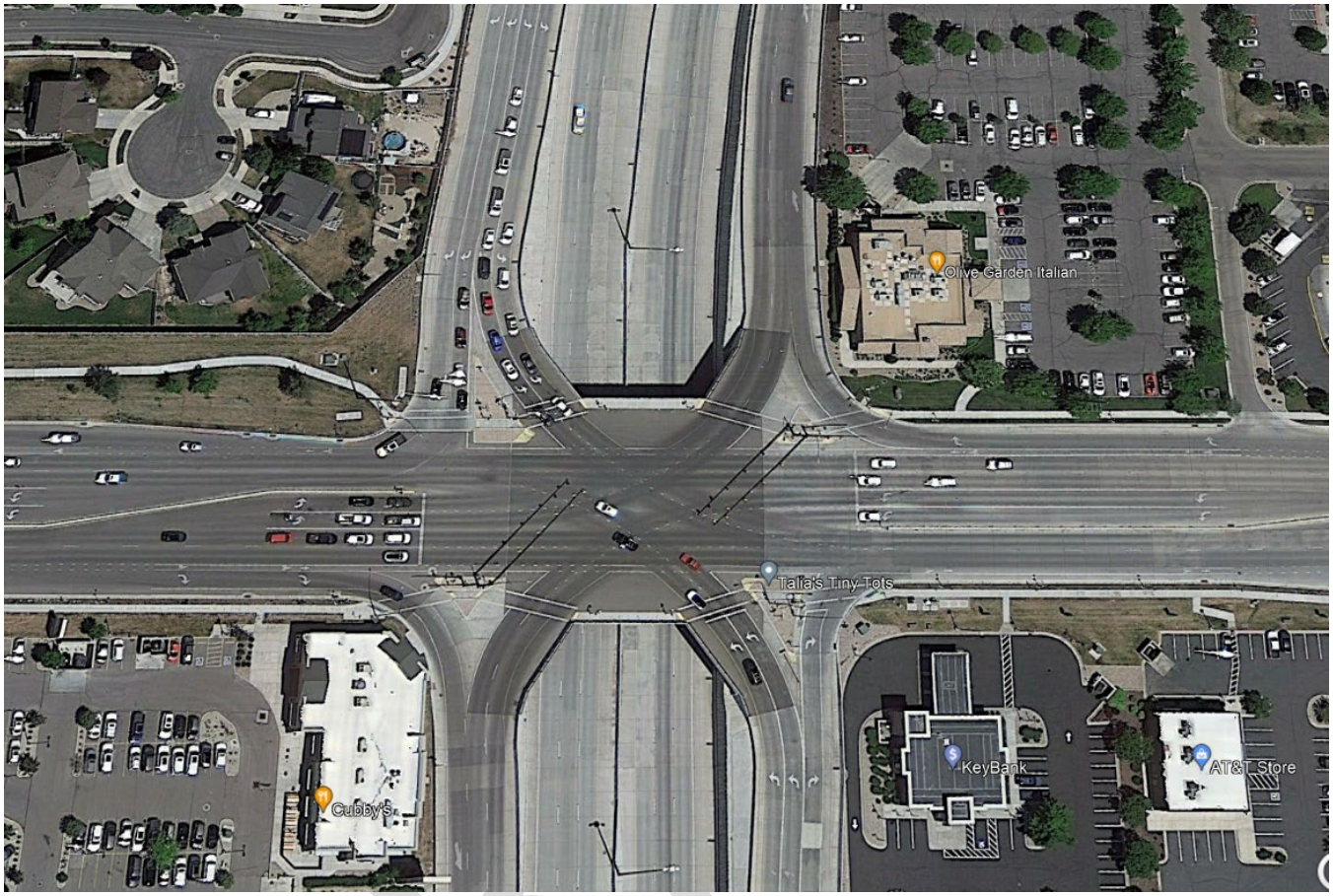


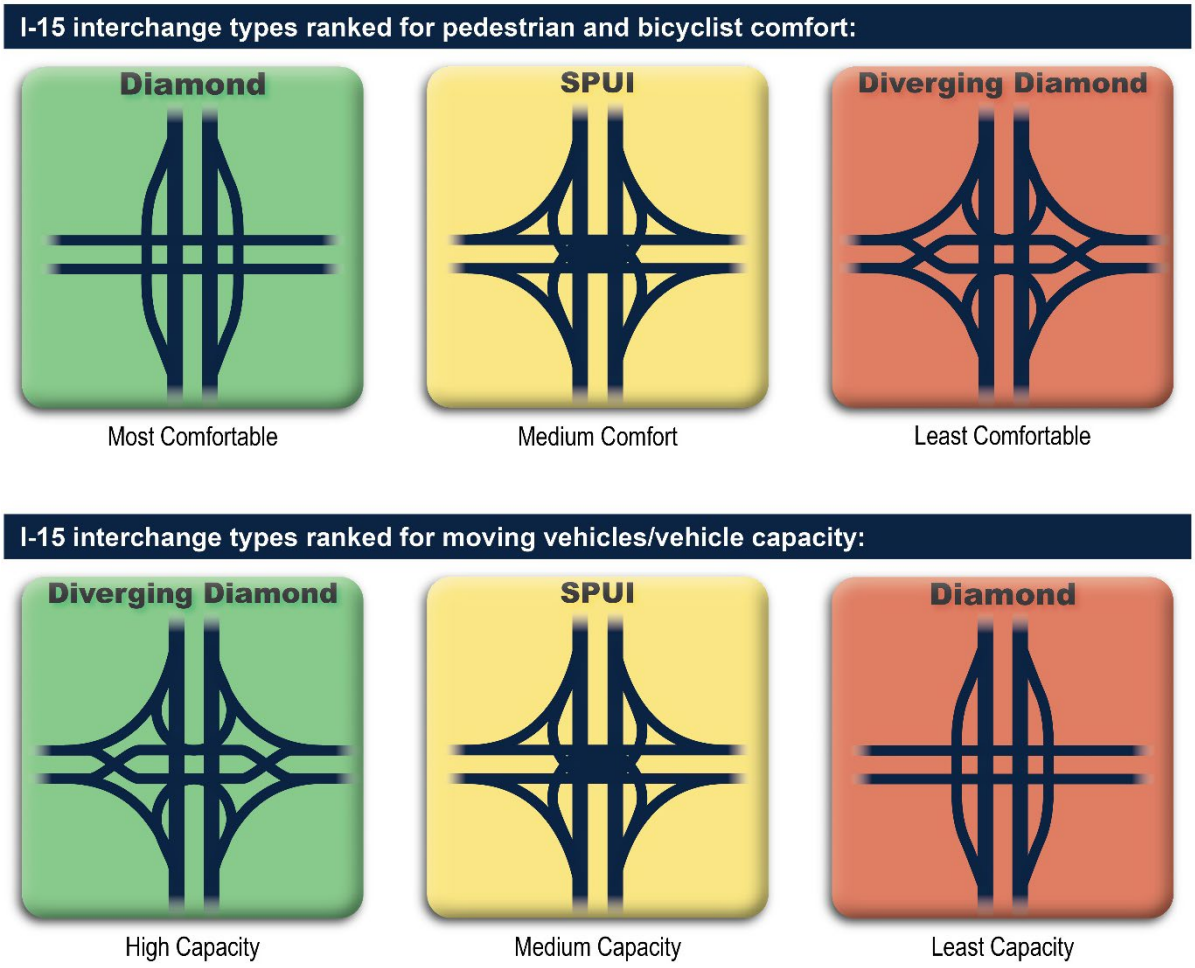
Figure 2-9. Street View of SPUI Example at Bangerter Highway and 11400 South in South Jordan

- Diverging diamond interchanges (DDI) are the most difficult for bicyclists and pedestrians and were considered only if a tight diamond interchange or SPUI could work at the location due to high vehicle traffic. In a typical DDI, pedestrians might need to make four crossings to get to the other side of the interchange. In addition, pedestrians are sometimes directed to a sidewalk in the center of the street before crossing again to a sidewalk on the side of the street.
  - 500 South in West Bountiful is an example of a DDI (Figure 2-10). At 500 South, pedestrians must make four crossings and traverse a sidewalk at the center of 500 South to get to the other side of the interchange. Each additional crossing that a pedestrian makes adds time to their travel and is a possible deterrent to walking (Figure 2-11).

Figure 2-10. Existing DDI at 500 South in Centerville

Pedestrians must traverse to the center of the DDI on 500 South and then cross again to reach the outside of 500 South where sidewalks are typically available.

Figure 2-11. I-15 Interchange Types Ranked for Pedestrians, Bicyclists, and Vehicles for This EIS



Level 1 Screening for Interchange and Bicyclist and Pedestrian Crossings Concepts

UDOT considered several interchange concepts for I-15 in Level 1 screening (Table 2-4). Before design began, the design team considered bicyclist and pedestrian crossings connections through and around the interchanges as well as the projected travel demand in 2050.

Diamond interchanges were proposed first at each location and were reviewed for traffic performance. If a diamond interchange could not handle the projected travel demand in 2050, then a SPUI was proposed. SPUIs and diamonds were both considered in locations where there were meaningful advantages and disadvantages for both interchange types (for example, when a SPUI would provide more traffic capacity and a smaller footprint with fewer property impacts when compared to a diamond interchange).

Through the concept development process, traffic modeling found that the 2050 interchange travel demand throughout the study area could be handled through diamond interchanges or SPUIs with a new interchange at I-215 and an improved, full-access interchange at Warm Springs Road (at either 1800 North or 2100 North in Salt Lake City). Traffic modeling showed that the I-215 and Warm Springs Road interchange improvements decreased future traffic volumes at the adjacent 600 North interchange in Salt Lake City and 2600 South interchange in North Salt Lake/Woods Cross, and these reduced 600 North and 2600 South interchange traffic volumes could be accommodated with either diamond or SPUI interchanges.

Because diamond interchanges or SPUIs could accommodate traffic at all interchanges, there was no need to include DDIs (which can accommodate higher traffic volumes more efficiently).

By considering only diamond interchanges and SPUIs throughout the study area, UDOT also increases consistency for all users (motorists, pedestrians, and bicyclists) through the I-15 corridor, improves connectivity, and enhances the level of comfort for bicyclists and pedestrians.

Table 2-4 describes the interchange concepts analyzed in Level 1 screening. All interchange concepts were designed to work with the 5 GP and 1 HOV lane concept and the 5 GP and 2 reversible lanes concept for the I-15 mainline that passed Level 1 and Level 2 screening (see Section 2.4.1 for descriptions of these mainline concepts).

The interchanges and bicyclist and pedestrian crossings improvements were evaluated for five separate geographic areas in the study areas described in Section 2.4. Figures for the options that passed Level 1 screening are included in Appendix A, *Alternative Concept Figures*.

The evaluated interchange and bicyclist and pedestrian crossing options are described in Table 2-4.

Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
Salt Lake Area Interchange Concepts							
600 North and 1000 North	CD Interchange at 600 North and 1000 North	A collector-distributor (CD) interchange divides access to I-15 between 600 North and 1000 North and connects the access points with a collector and distributor road system. This interchange design is paired with a new full-access interchange at Warm Springs Road (2100 North) to provide the best traffic operations.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes and 8-foot-wide sidewalks on both sides of 600 North. • 12-foot-wide shared-use path (SUP) on 1000 North that crosses under I-15 and connects to Warm Springs Road east of I-15.	Yes	Yes	Yes, if paired with an interchange at 2100 North.	Yes, combined with 2100 North Option.
600 North	Tight Diamond Interchange at 600 North	Tight diamond interchange with full access at 600 North. This concept does not include additional connections to 1000 North.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes and 8-foot-wide sidewalks on both sides of 600 North.	Yes	Yes	No. Requires connection at 1000 North to work for traffic. See CD option in row above.	No
600 North	Three-lane SPUI at 600 North	Rebuild the SPUI at 600 North without adding a full interchange at 2100 North. Without a full interchange at 2100 North, the SPUI at 600 North requires triple left-hand turning movements.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 600 North. • 8-foot-wide sidewalk on the south side of 600 North. • Grade-separated pathway on the north side of 600 North.	No. Crossing three lanes of traffic at intersections is not comfortable for bicyclists and pedestrians.	Yes	Yes	No
600 North	Two-lane SPUI at 600 North and West Side Frontage Road Connection to 1800 North	SPUI at 600 North with west side frontage road connecting the new Warm Springs Road full interchange at 1800 North. Adding a full interchange at Warm Springs Road allows a two-lane SPUI (instead of a three-lane SPUI) at 600 North.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 600 North. • 8-foot-wide sidewalk on the south side of 600 North. • 14-foot-wide grade-separated pathway on the north side of 600 North.	Yes	Yes	Yes, if paired with an interchange at 1800 North.	Yes, combined with 1800 North Option.
1800 North	Tight Diamond Interchange at 1800 North	New tight diamond interchange at 1800 North. This interchange is paired with the two-lane SPUI (600N-SPUI-3) at 600 North. This interchange does not pair with 600N-CD-1, the split diamond interchange at 600 North (600N-CD-1). This concept reduces truck traffic at 600 North.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • New 12-foot-wide SUP between 1000 North and 1800 North on new frontage road on the west side of I-15. New 12-foot-wide grade-separated SUP on the north side of 1800 North that crosses I-15 and the railroad lines to connect to SUP along U.S. 89.	Yes	Yes	Yes, if paired with an interchange at 600 North.	Yes, combined with two-lane SPUI at 600 North.
2100 North	Tight Diamond Interchange at 2100 North	New tight diamond interchange at 2100 North. This concept reduces truck traffic at 600 North.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on 1000 North that crosses under I-15 and connects to Warm Springs Road east of I-15.	Yes	Yes	Yes, if paired with an interchange at 600 North.	Yes, combined with split diamond interchange at 600 North.

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Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
2100 North	Rebuild Existing 2100 North Interchange	Existing interchange configuration rebuilt to support a wider I-15 mainline.	• SUP along U.S. 89.	No, because this option would not improve access at 2100 North, it would not reduce truck traffic and overall traffic volumes at the adjacent 600 North interchange. These higher truck and overall traffic volumes at 600 North would require a larger SPUI interchange at 600 North and would not enhance bicyclist and pedestrian access across I-15 at 600 North.	Yes	No, because this option would not improve access at 2100 North, it would not reduce truck traffic and overall traffic volumes at the adjacent 600 North interchange. These higher truck and overall traffic volumes at 600 North would not be consistent with the Salt Lake City goal to reduce truck traffic on 600 North.	No
North Salt Lake and Woods Cross Interchange Concepts							
U.S. 89	Rebuild Existing U.S. 89 Interchange	Existing interchange configuration rebuilt to support a wider I-15 mainline.	• SUP along U.S. 89.	Yes	Yes	No, because it would not provide access to I-215 for traffic coming from Bountiful and North Salt Lake it would not improve operations at the adjacent 2600 South interchange.	No
I-215	Full SPUI at I-215	New, full SPUI with access to I-15 and I-215 from U.S. 89. This option has a T intersection on U.S. 89 and no Center Street southbound off-ramp.	• SUP along U.S. 89.	Yes	Yes	Yes, if paired with interchange at 2600 South.	Yes, combined with options at 2600 South.
I-215	Tight Diamond Interchange at I-215	New tight diamond interchange without access to I-215 from U.S. 89. Includes new flyover ramps.	• SUP along U.S. 89.	Yes	Yes	No, tight diamond does not provide access to I-215. Tight diamond ramp spacing could not be accommodated in this location due to vertical and horizontal constraints and topography.	No

(*continued on next page*)

Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
Center Street Interchange Concepts							
Center Street	Quarter Interchange at Center Street	Quarter interchange at Center Street with southbound off-ramp.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes and 8-foot-wide sidewalks on both sides of Center Street.	No, keeping the Center Street southbound off-ramp would keep a conflict for pedestrians and bicyclists on the north side of Center Street.	Yes	No, UDOT the Center Street southbound off-ramp would be located between the 2600 South, I-215 and new I-215/U.S. 89 local interchange. Traffic analysis shows that adequate access to North Salt Lake (both east and west of I-15) can be provided with the improvements at 2600 South and the new I-215/U.S. 89 local interchange. Removal of the Center Street southbound off-ramp would improve operations on I-15 by reducing the number of exit ramps in North Salt Lake.	No
Center Street	I-15 Overpass (no access)	I-15 would go over Center Street with no access. Southbound I-15 access to North Salt Lake would be provided with the new I-215 interchange or 2600 South interchange.	• Upgrade to existing SUP on south side of Center Street between I-15 and 400 West. • Buffered bike lanes and 8-foot-wide sidewalks on both sides of Center Street. • Removing the off-ramp eliminates an at-grade intersection, thereby improving the corridor for bicyclists and pedestrians.	Yes, removing the Center Street southbound off-ramp would improve the use of Center Street for pedestrians and bicyclists.	Yes	Yes, adjacent 2600 South and I-215/U.S. 89 interchanges support travel demand with closure of off-ramp.	Yes
2600 South/1100 North Interchange Concepts (Woods Cross/North Salt Lake/Bountiful)							
2600 South	Tight Diamond Interchange at 2600 South	Tight diamond interchange at 2600 South.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes with 8-foot-wide sidewalk on north side of 2600 South and 12-foot-wide SUP on south side of 2600 South.	Yes	Yes	Acceptable, if paired with new interchange at I-215. SPUI operates better.	Yes, combined with full SPUI at I-215.
2600 South	Three-lane SPUI at 2600 South	SPUI at 2600 South without new SPUI at I-215. Without a SPUI at I-215, the SPUI at 2600 South requires triple left-hand turning movements.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 2600 South. • Sidewalk on north side of 2600 South. • Grade-separated pathway on north side of 2600 South	No. Crossing three lanes of traffic at intersections is not comfortable for bicyclists and pedestrians.	Yes	Yes	No

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Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
2600 South, 800 West, and I-215	Two-lane SPUI at 2600 South and 800 West Connection	SPUI at 2600 South with a new SPUI at I-215 and a grade-separated bicyclist and pedestrian crossing parallel to the interchange. Adding a new SPUI at I-215 allows for a two-lane SPUI (instead of a three-lane SPUI) at 2600 South.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 2600 South. • 8-foot-wide sidewalk on north side of 2600 South. • 14-foot-wide grade-separated SUP on south side of 2600 South. • Sidewalks added to both sides of 800 West crossing underneath I-15.	Yes	Yes	Yes, if paired with interchange at I-215. Operates better than tight diamond.	Yes, combined with full SPUI at I-215.
2600 South	Rebuild Existing DDI	Existing interchange configuration rebuilt to support a wider I-15 mainline.	• Buffered bike lanes and 8-foot-wide sidewalks on both sides of 2600 South.	No. DDIs are not comfortable for bicyclists and pedestrians to navigate.	Yes	Yes	No
Bountiful and West Bountiful Interchange Concepts							
500 South	Tight Diamond Interchange at 500 South	Tight diamond interchange at 500 South.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of 500 South. • New SUP connection from 500 South to Woods Cross FrontRunner station west of I-15	Yes	Yes	Yes	Yes, combined with options at 500 West and 400 North.
500 South	SPUI at 500 South	SPUI at 500 South with pedestrian corridors on both sides of 500 South.	• No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of 500 South.	Yes	Yes	Yes	No; since a tight diamond is sufficient for traffic and preferable for pedestrians and bicyclists, the SPUI was not advanced to Level 2.
500 South	DDI at 500 South	DDI at 500 South.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • SUP on both sides of 500 South.	No. DDIs are not comfortable for bicyclists and pedestrians to navigate.	Yes	Yes	No
500 South	Roundabout on 500 South	Roundabouts on 500 South and the existing interchange configuration rebuilt to support a wider I-15 mainline.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • SUP on both sides of 500 South.	No. Roundabouts can limit sight distance for vehicles and introduce out-of-direction travel for bicyclists and pedestrians.	Yes	No, the roundabouts would require 3 lanes to provide sufficient capacity.	No

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Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
400 North/500 South/500 West Interchange Concepts (Bountiful/West Bountiful)							
400 North	Tight Diamond Interchange at 400 North	Tight diamond interchange at 400 North and eliminate ramps at 500 West.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Bike lanes on both sides of 400 North. • SUP on the north side of 400 North.	Yes	Acceptable. Weaving issues remain on I-15 mainline.	Acceptable. Requires more improvements to 400 North and 500 West intersection to accommodate traffic demand.	No. Other options at this location better accommodate traffic and bicycle and pedestrian users.
400 North and 500 West	3/4 Partial Diamond Interchange at 400 North	Partial diamond interchange at 400 North. The interchange at 400 North would accommodate southbound on- and off-ramps and the northbound off-ramp. The northbound on-ramp would be at 500 West.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 400 North. • 12-foot-wide SUP on the north side of 400 North. Wider bridge over 1600 North/Pages Lane to accommodate future bike/pedestrian improvements	Yes	Yes	Yes	Yes, combined with tight diamond interchange at 500 South.
400 North and 500 West	Split Diamond Interchange at 400 North and 500 West	A split diamond interchange divides access to I-15 between 400 North and 500 West. The northbound off-ramp and southbound on-ramp would be at 400 North, and the southbound off-ramp and northbound on-ramp at 500 West. Southbound off-ramp would exit on right side instead of left side.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 400 North. • 12-foot-wide SUP on the north side of 400 North. Wider bridge over 1600 North/Pages Lane to accommodate future bike/pedestrian improvements.	Yes	Yes	Yes	Yes, combined with tight diamond interchange at 500 South.
400 North and 500 South	CD between 500 South and 400 North	CD concept combined with a full diamond interchange at 500 South, full diamond interchange at 400 North, and northbound on-ramp at 500 West.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 400 North. • 12-foot-wide SUP on the north side of 400 North. Wider bridge over 1600 North/Pages Lane to accommodate future bike/pedestrian improvements.	Yes	Yes. Enhances I-15 mainline operations and reduces weaving between 500 South and 400 North.	Yes	Yes, combined with northbound on-ramp at 500 West.
Centerville and Parrish Lane Interchange Concepts							
Parrish Lane	Tight Diamond Interchange at Parrish Lane and Frontage Road Connection	Tight diamond interchange at Parrish Lane with northbound off-ramp that connects directly to frontage road on north side of Parrish Lane. East-side Frontage Road connection for north-south travel.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of Parrish Lane. • Grade-separated 14-foot-wide SUP crossing over I-15 and railroad lines at 400 South/Porter Lane. • New grade-separated 14-foot-wide SUP crossing at Centerville Park over I-15/railroad lines/Legacy Parkway.	Yes	Yes	Yes	Yes

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Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
Parrish Lane and 200 North	SPUI at Parrish Lane and Frontage Road Connection	SPUI with northbound off-ramp that connects directly to frontage road on north side of Parrish Lane. Includes grade-separated bicyclist and pedestrian crossing at 200 North. East-side Frontage Road connection for north-south travel.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • 14-foot-wide SUP on the north side of Parrish Lane. • Grade-separated 14-foot-wide SUP crossing of I-15 and railroad lines at 200 North. • New grade-separated 14-foot-wide SUP crossing at Centerville Park over I-15/railroad lines/Legacy Parkway.	Yes	Yes	Yes	Yes
200 West/ Glovers Lane/ 500 South Interchange Concepts (Farmington)							
200 West	Rebuild Existing Half Diamond Interchange at 200 West	Existing interchange configuration rebuilt to support a wider I-15 mainline. Includes safety improvements to bring the interchange up to current UDOT design standards.	• Glovers Lane bridge over I-15 and the railroad lines is widened to include a 10-foot-wide sidewalk on the north side, a 6-foot-wide sidewalk on the south side, and buffered bike lanes on both sides to match the facilities going over Legacy Parkway. • State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway.	Yes	Yes	Yes	Yes
200 West	Half Diamond Interchange at 200 West with Roundabout	Existing interchange configuration rebuilt to support a wider I-15 mainline with an added roundabout on the east side of I-15. Includes safety improvements to bring the interchange up to current UDOT design standards.	• SUP connections on 200 West and Frontage Road. • Glovers Lane bridge over I-15 and the railroad lines is widened to include a 10-foot-wide sidewalk on the north side, a 6-foot-wide sidewalk on the south side, and buffered bike lanes on both sides to match the facilities going over Legacy Parkway. • State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway.	Yes	Yes	No, the roundabout does not have sufficient capacity to accommodate expected traffic.	No
200 West	New Full-access Interchange at 200 West	Full-access interchange at 200 West. Interchange would add a northbound on-ramp and a southbound off-ramp to 200 West near the current alignment.	• SUP connections on 200 West and Frontage Road. • Glovers Lane bridge over I-15 and the railroad lines is widened to include a 10-foot-wide sidewalk on the north side, a 6-foot-wide sidewalk on the south side, and buffered bike lanes on both sides to match the facilities going over Legacy Parkway. • State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway.	Yes	Yes	Yes	Yes

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Table 2-4. I-15 Interchange and Bicyclist and Pedestrian Crossing Concepts Evaluated in Level 1 Screening

Cross Street(s) and Concept Name		Concept Description	Bicyclist and Pedestrian Crossing Features	Supports Bicyclists and Pedestrians?	Meets Operational and Safety Standards?	Supports Travel Demand?	Advance to Level 2 Screening?
Glovers Lane	Tight Diamond Interchange at Glovers Lane	New tight diamond interchange with full access to I-15 at Glovers Lane. This option removes the 200 West ramp connections.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians.	Yes	Yes	No, the tight diamond does not have sufficient capacity to accommodate expected traffic. Tight diamond ramp spacing would have more impacts to local road network and neighborhoods east of I-15.	No
Glovers Lane	SPUI at Glovers Lane	New SPUI with full access to I-15 at Glovers Lane. Includes 200 West northbound off-ramp and southbound on-ramp.	• Perpendicular intersections with no free right-hand turns reduce the speed of traffic and provide better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • New grade-separated 14-foot-wide SUP on the north side of Glovers Lane. • Buffered bike lanes on both sides and 8-foot-wide sidewalk on north side of Glovers Lane. • State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway.	Yes	Yes	Yes	Yes

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In addition to the bicyclist and pedestrian crossings evaluated at interchange locations in Table 2-4, there were also 11 bicyclist and pedestrian crossing concepts in the study area that would reduce conflicts between modes and improve bicyclist and pedestrian accommodations and pass Level 1 screening. These 11 bicyclist and pedestrian concepts would work with any of the interchange concepts in each geographic area and would better connect communities and improve mobility and safety. The list of these bicyclist and pedestrian concepts is included below (from south to north) and shown in Appendix A, *Alternative Concept Figures*.

- Salt Lake City
  - 400 North new underpass for bicyclists, pedestrians, and vehicles
  - 500 North new underpass for bicyclists and pedestrians (no vehicles)
- North Salt Lake/Salt Lake City
  - New shared-use path (SUP) connecting U.S. 89 from Eagle Ridge Drive in North Salt Lake to Wall Street/200 West in Salt Lake City
- North Salt Lake/Woods Cross
  - Center Street SUP improvements between I-15 and 400 West
  - Wider I-15 bridge over Main Street to accommodate future bicycle and pedestrian improvements
  - 800 West – new underpass of I-15 with new pedestrian and bicyclist facilities that connect to Wildcat Way. New sidewalk/ SUP connections between 800 West and 2600 South on west side of I-15
  - Wider I-15 bridge over 1500 South to accommodate future bicycle and pedestrian improvements
- Bountiful/West Bountiful
  - New SUP connection between 500 South and the Woods Cross FrontRunner station on the west side of I-15
  - Wider I-15 bridge over 1600 North/Pages Lane to accommodate future bicycle and pedestrian improvements
- Centerville
  - New SUP crossing of I-15, the railroad lines, and Legacy Parkway by Centerville Community Park. This pedestrian crossing would connect with the Legacy Parkway Trail and D&RGW Trail on the west side of Legacy Parkway
- Farmington
  - State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway

The combined interchange and bicyclist and pedestrian crossing concepts in Table 2-4 that passed Level 1 screening, and the 11 bicyclist and pedestrian improvements listed above will be further analyzed in Level 2 screening. Table 2-5 lists these improvements by location and with the naming convention that will be used in the final screening report and Draft EIS. These interchanges will be designed to work with the 5 GP and 1 HOV lane concept and the 5 GP and 2 reversible lanes concept for the I-15 mainline that passed Level 1 screening (Table 2-3).

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Table 2-5. I-15 Interchange Concepts That Passed Level 1 Screening by Location

Geographic Area	Limits	Interchange and Bicyclist and Pedestrian Crossing Options			Bicyclist and Pedestrian Crossing Features (for all options in the geographic location)
		A	B	C	
Salt Lake County	400 South to county boundary	**600 North CD and 2100 North full diamond interchange (Figures A-1, A-5, A-8, and A-9) (Figure A-40 is the reversible I-15 mainline option)** • No free right-hand turns and better sight lines for vehicles, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes and 8-foot-wide sidewalks on both sides of 600 North. • 12-foot-wide SUP on 1000 North that crosses under I-15 and connects to Warm Springs Road east of I-15.	**600 North SPUI and 1800 North full diamond interchange (Figures A-2, A-6, A-7, A-8, and A-10) (Figure A-41 is the reversible I-15 Mainline option)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 600 North. • 8-foot-wide sidewalk on the south side of 600 North. • 14-foot-wide grade-separated SUP on the north side of 600 North. • New 12-foot-wide SUP between 1000 North and 1800 North on new frontage road on the west side of I-15. New 12-foot-wide grade-separated SUP on the north side of 1800 North that crosses I-15 and the railroad lines to connect to SUP along U.S. 89.	NA	• 400 North new sidewalks and roadway crossing under I-15 (Figure A-4). • 500 North new SUP crossing under I-15 (Figure A-3). • New U.S. 89 12-foot-wide SUP between Eagle Ridge Drive in North Salt Lake and Wall Street/200 West in Salt Lake City.
North Salt Lake and Woods Cross	County boundary to 1500 South	**New I-215/U.S. 89 local interchange and 2600 South diamond (Figures A-11 and A-15) (Figure A-42 is the reversible I-15 mainline option)** • At 2600 South, no free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes with 8-foot-wide sidewalk on north side of 2600 South and 12-foot-wide SUP on south side of 2600 South.	**New I-215/U.S. 89 local interchange and 2600 South SPUI (Figures A-12, A-16, and A-17) (Figure A-43 is the reversible I-15 Mainline option)** • At 2600 South, no free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • Buffered bike lanes on both sides of 2600 South. • 8-foot-wide sidewalk on north side of 2600 South. • 14-foot-wide grade-separated SUP on south side of 2600 South.	NA	• New U.S. 89 12-foot-wide SUP between Eagle Ridge Drive in North Salt Lake and Wall Street/200 West in Salt Lake City. • Center Street buffered bike lanes on both sides, 6-foot-wide sidewalk on north side, and 12-foot-wide SUP improvements on south side of Center Street between I-15 and 400 West (Figure A-13). • Wider bridge over Main Street to accommodate future bike/pedestrian improvements (Figure A-14). • 800 West – new underpass of I-15 with new 12-foot-wide SUP. 12-foot-wide SUP connection between 800 West and 2600 South on west side of I-15 (Figure A-18). • Wider bridge over 1500 South to accommodate future bike/pedestrian improvements (Figure A-19).
Bountiful and West Bountiful	1500 South to Pages Lane/ 1600 North	**500 South diamond and 400 North/500 West half diamond (Figures A-20 and A-23) (Figure A-44 is the reversible I-15 mainline option)** • No free-right hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of 500 South (Figure A-23). • Buffered bike lanes on both sides of 400 North (Figure A-24). • 12-foot-wide SUP on the north side of 400 North. (Figure A-24).	**500 South diamond and 400 North/500 West 3/4 diamond at 400 North with NB on-ramp at 500 West (Figures A-21 and A-24) (Figure A-45 is the reversible I-15 Mainline option)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of 500 South (Figure A-23). • Buffered bike lanes on both sides of 400 North (Figure A-24). • 12-foot-wide SUP on the north side of 400 North (Figure A-24).	**CD for 500 South/400 North with NB on-ramp at 500 West (Figures A-22 and A-25) (Figure A-46 is the reversible I-15 mainline option)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of 500 South (Figure A-23). • Buffered bike lanes on both sides of 400 North (Figure A-25). • 12-foot-wide SUP on the north side of 400 North (Figure A-25).	• New SUP connection from 500 S to Woods Cross FrontRunner station west of I-15. • Wider bridge over 1600 North/Pages Lane to accommodate future bike/pedestrian improvements (Figure A-26).

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Table 2-5. I-15 Interchange Concepts That Passed Level 1 Screening by Location

Geographic Area	Limits	Interchange and Bicyclist and Pedestrian Crossing Options			Bicyclist and Pedestrian Crossing Features (for all options in the geographic location)
		A	B	C	
Centerville	Pages Lane/ 1600 North to Farmington boundary	**Parrish Lane diamond with NB connection to east frontage road (Figures A-27, A-29, and A-31) (Figure A-47 is the reversible I-15 mainline option)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 12-foot-wide SUP on both sides of Parrish Lane. • Grade-separated 14-foot-wide SUP crossing over I-15 and railroad lines at 400 South/Porter Lane (Figure A-31).	**Parrish Lane SPUI with NB connection to east frontage road (Figures A-28 and A-30) (Figure A-48 is the reversible I-15 Mainline option)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • 14-foot-wide SUP on the north side of Parrish Lane. • Grade-separated 14-foot-wide SUP crossing of I-15 and railroad lines at 200 North.	NA	• New grade-separated 14-foot-wide SUP crossing at Centerville Park over I-15/railroad lines/Legacy Parkway.
Farmington	Centerville boundary to U.S. 89	**Existing 200 West SB on-ramp and NB off-ramp (Figures A-32, A-38, and A-39) (The reversible I-15 mainline option ends at Parrish Lane)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • Glovers Lane bridge over I-15 and the railroad lines is widened to include a 10-foot-wide sidewalk on the north side, a 6-foot-wide sidewalk on the south side, and buffered bike lanes on both sides to match the facilities going over Legacy Parkway (Figure A-39).	**Glovers Lane SPUI (Figures A-33, A-36, and A-37) (The reversible I-15 mainline option ends at Parrish Lane)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • New grade-separated SUP on the north side of Glovers Lane. • Buffered bike lanes on both sides and 8-foot-wide sidewalk on north side of Glovers Lane.	**200 West full interchange (Figures A-34 and A-39) (The reversible I-15 mainline option ends at Parrish Lane)** • No free right-hand turns for vehicles and better sight lines, thereby enhancing safety for bicyclists and pedestrians. • SUP connections on 200 West and Frontage Road. • Glovers Lane bridge over I-15 and the railroad lines is widened to include a 10-foot-wide sidewalk on the north side, a 6-foot-wide sidewalk on the south side, and buffered bike lanes on both sides to match the facilities going over Legacy Parkway (Figure A-39).	• State Street/Clark Lane bridge over I-15 and the railroad lines is widened to include buffered bike lanes and sidewalks on both sides that match the facilities going over Legacy Parkway (Figure A-35).

Level 2 Screening for Interchange and Bicycle and Pedestrian Concepts

The results of the Level 2 screening process for the interchange and bicycle and pedestrian concepts will be included in the future version of this report after the completion of the Level 2 screening process. The Level 2 screening process methodology is described in the *Alternatives Development and Screening Methodology Report*.

2.5 Summary of Screening Process (November 2022)

2.5.1 Concepts Eliminated in Screening

Three I-15 mainline concepts were eliminated during Level 2 screening. The eliminated options are summarized in Table 2-6.

Table 2-6. Initial Mainline Concepts Eliminated in Screening

Concept Name and Description	Reason for Elimination
I-15 Mainline General Widening Concepts	
Widen I-15 to 5 GP Lanes and 2 HOV Lanes	This concept would have more impacts and less benefit compared to the 5 GP and 2 reversible express lanes concept.
Widen I-15 to 6 GP Lanes and 1 HOV Lane	This concept would have more impacts and less benefit compared to the 5 GP and 2 reversible express lanes concept.
I-15 Mainline Express Lane and Reversible Express Lane Concepts	
Widen I-15 to 3 Express Lanes and 3 to 4 GP Lanes	This concept would have greater impacts due to the additional 44 feet of pavement width in the typical section compared to the 5 GP and 2 reversible lanes concept.

Fourteen interchange concepts were eliminated during Level 1 screening. The eliminated options are summarized in Table 2-7.

Table 2-7. Initial Interchange Concepts Eliminated in Screening

Concept Name and Description	Reason for Elimination
Salt Lake Area Interchange Concepts	
Tight Diamond Interchange at 600 North	Eliminated for poor traffic operations compared to other options.
Three-lane SPUI at 600 North	Eliminated for not meeting bicyclist and pedestrian crossings criteria.
Rebuild Existing 2100 North Interchange	Eliminated for poor traffic operations compared to other options. Does not provide full access to I-15 or provide better truck route for industrial users in northern Salt Lake City.
North Salt Lake and Woods Cross Interchange Concepts	
Rebuild Existing U.S. 89 Interchange	Eliminated for poor traffic operations compared to other options. Does not provide full I-15 access to North Salt Lake area.
Tight Diamond Interchange at I-215	Eliminated for poor traffic operations compared to other options. Tight diamond interchange does not have sufficient capacity to accommodate expected traffic.
Quarter Interchange at Center Street	Eliminated because the single southbound off-ramp would not provide full access to I-15 and would not meet FHWA's interstate access requirements.
Three-lane SPUI at 2600 South	Eliminated for not meeting bicyclist and pedestrian crossings criteria.
Rebuild Existing DDI	Eliminated for not meeting bicyclist and pedestrian crossings criteria.
Bountiful and West Bountiful Interchange Concepts	
SPUI at 500 South	Eliminated for not meeting bicyclist and pedestrian crossings criteria. A tight diamond interchange, a preferred configuration, would work for traffic at this location.
DDI at 500 South	Eliminated for not meeting bicyclist and pedestrian crossings criteria.
Roundabout on 500 South	Eliminated for poor traffic operations compared to other options.
Tight Diamond Interchange at 400 North	Eliminated for poor traffic operations compared to other options.
Farmington 200 West/ Glovers Lane/ 500 South Interchange Concepts	
Half Diamond Interchange at 200 West with Roundabout	Eliminated for poor traffic operations compared to other options. The roundabout does not have sufficient capacity to accommodate expected traffic.
Tight Diamond Interchange at Glovers Lane	Eliminated for poor traffic operations compared to other options. The tight diamond interchange does not have sufficient capacity to accommodate expected traffic.

2.5.2 Draft Concepts Passing Level 1 and Level 2 Screening for Public Review

From the basic concepts identified during scoping and screened with Level 1 criteria, UDOT developed the ideas into two I-15 mainline concepts and 12 combined interchange and bicyclist and pedestrian crossing concepts for the five different geographic areas.

UDOT determined that the **5 GP and 1 HOV lane concept** and the **5 GP and 2 reversible lanes concept** were the two I-15 mainline concepts that best met the purpose of the project while minimizing the pavement width and, by proxy, the impacts to Level 2 screening resources adjacent to I-15. These two concepts were advanced through Level 2 screening for consideration in the EIS.

The 12 combined interchange and bicyclist and pedestrian crossings concept for the five different geographic areas are summarized in Table 2-5 at the end of Section 2.4.2, *I-15 Interchange and Bicyclist and Pedestrian Crossings Concepts Level 1 and Level 2 Screening*. UDOT is requesting input on these concepts at meetings and during the public comment period from November 10 to December 16, 2022.

Note on November 2022 Preliminary Results. This November 2022 version of the *Alternatives Development and Screening Report* includes the draft Level 1 screening results for mainline, interchange, and bicyclist and pedestrian crossing concepts, and the draft Level 2 screening results for the mainline I-15 concepts. Following completion of the public comment period in December 2022, the screening results will be updated based on public and agency comments as necessary. UDOT will then conduct the Level 2 screening process for the interchange and bicyclist and pedestrian crossing concepts that pass Level 1 screening. A future version of this report will document the public and agency comments and the results of the Level 2 screening process.

3.0 References

[APD and TR] Alta Planning + Design and Township + Range

2020 South Davis County Active Transportation Plan: A Multi-jurisdiction Plan for the Cities of Bountiful, Centerville, and North Salt Lake. Adopted January 2020.

Salt Lake City

2015 Salt Lake City Pedestrian and Bicycle Master Plan. http://www.slcdocs.com/transportation/Master/PedestrianAndBicycleMaster/SLC_PBMPCompleteDocument(Dec2015)Clickable.pdf.

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- 600 North CD and 2100 North full diamond interchange
- 600 North SPUI and 1800 North full diamond interchange
- New I-215/U.S. 89 local interchange and 2600 South diamond
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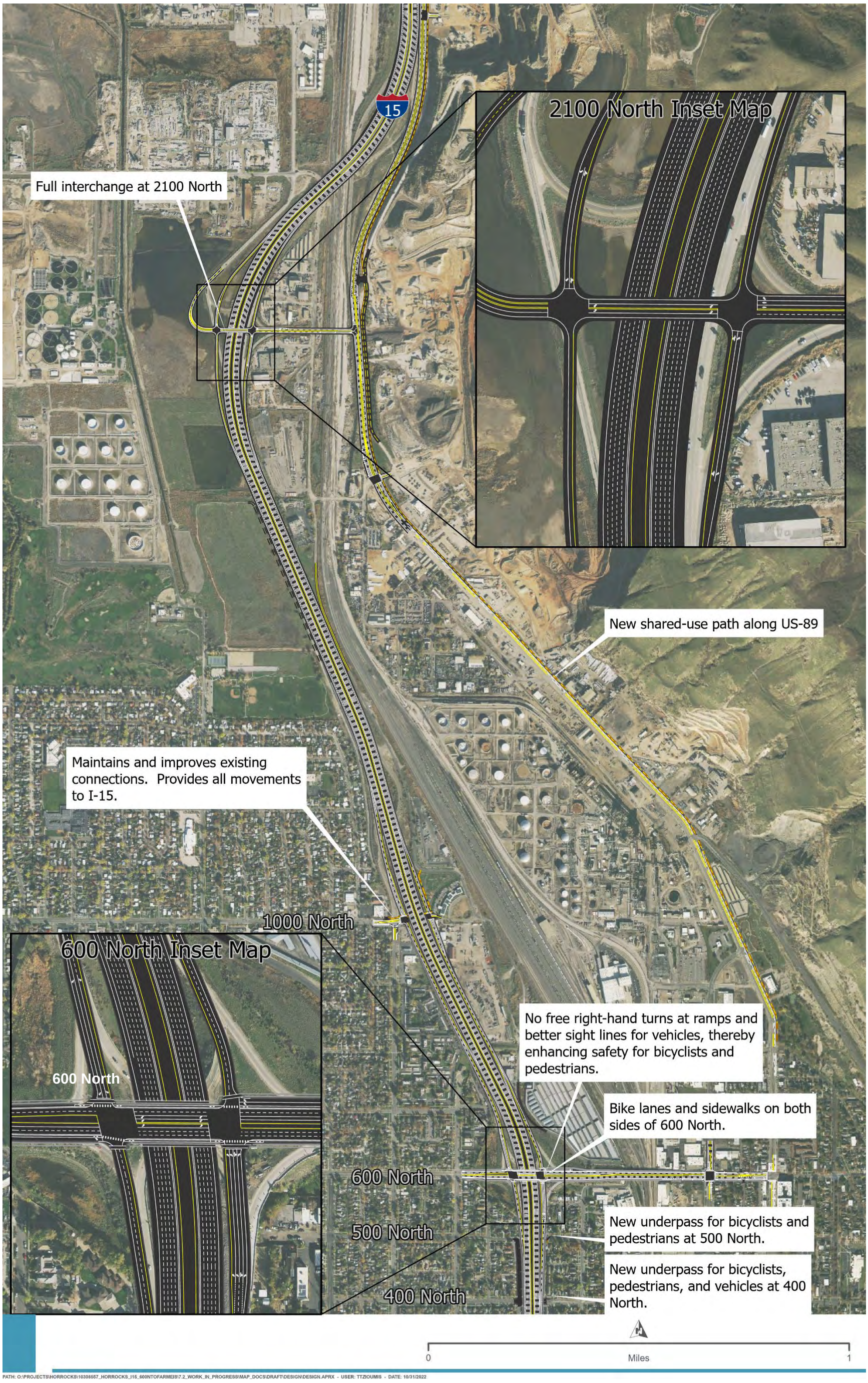

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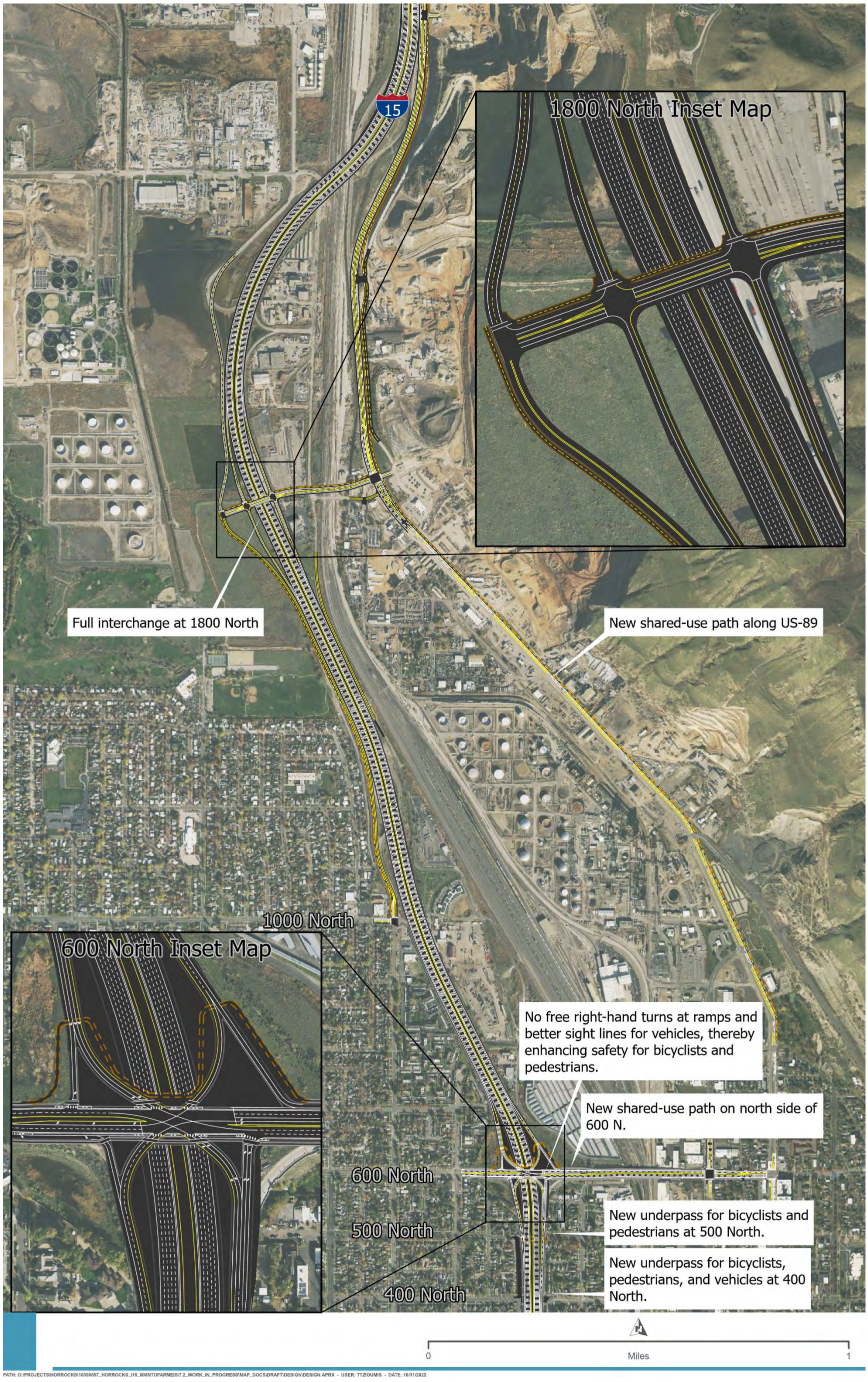

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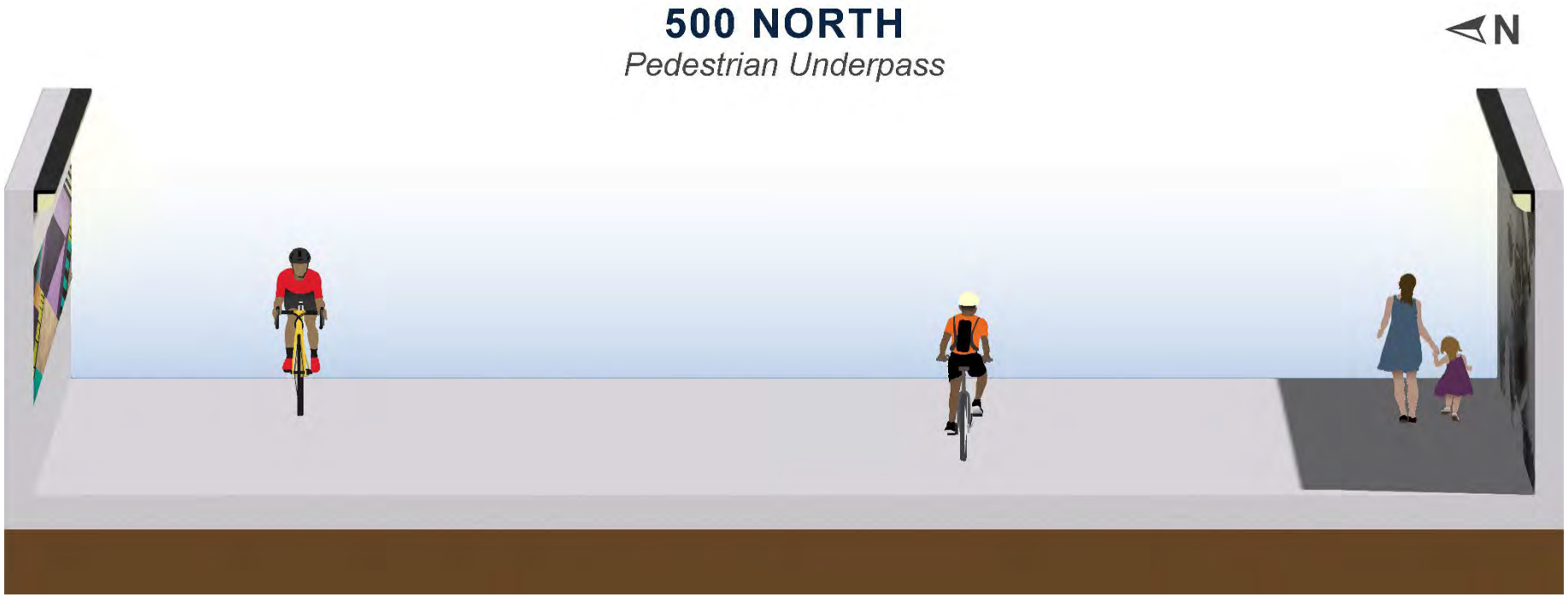

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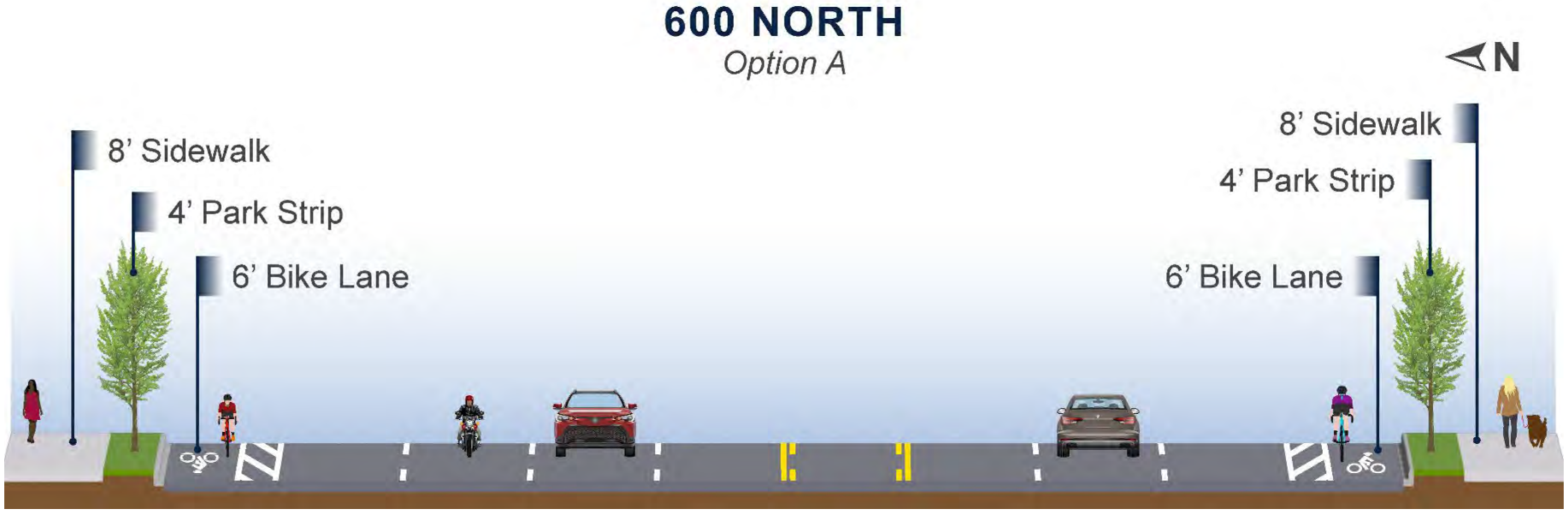

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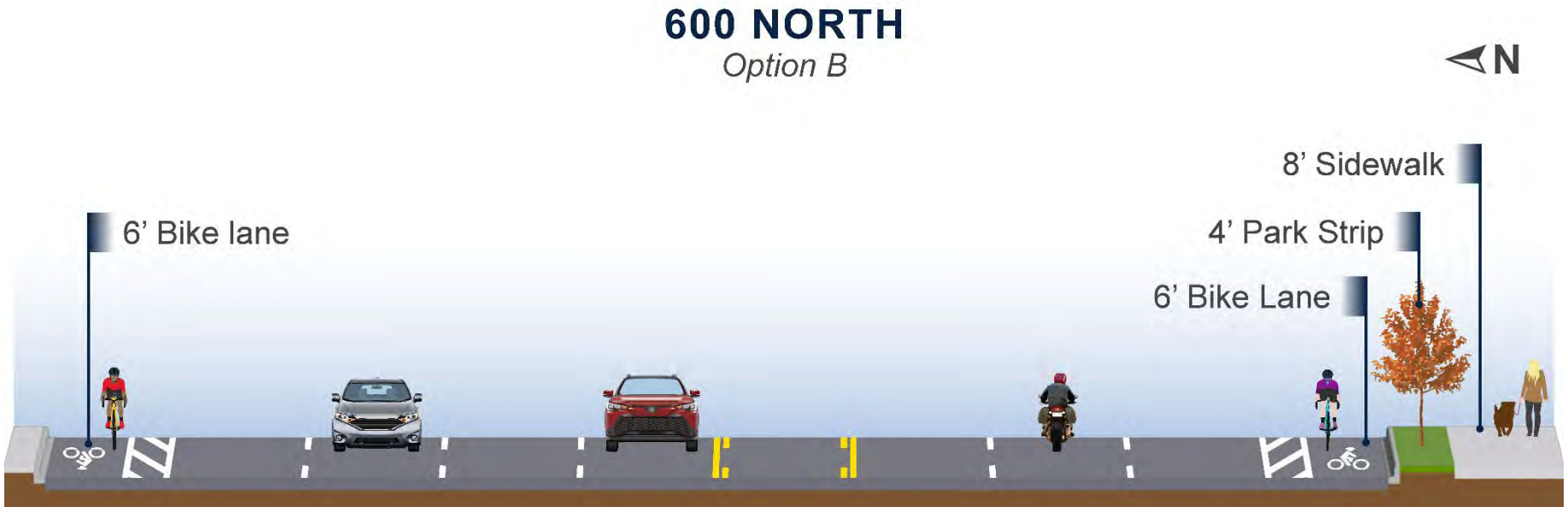

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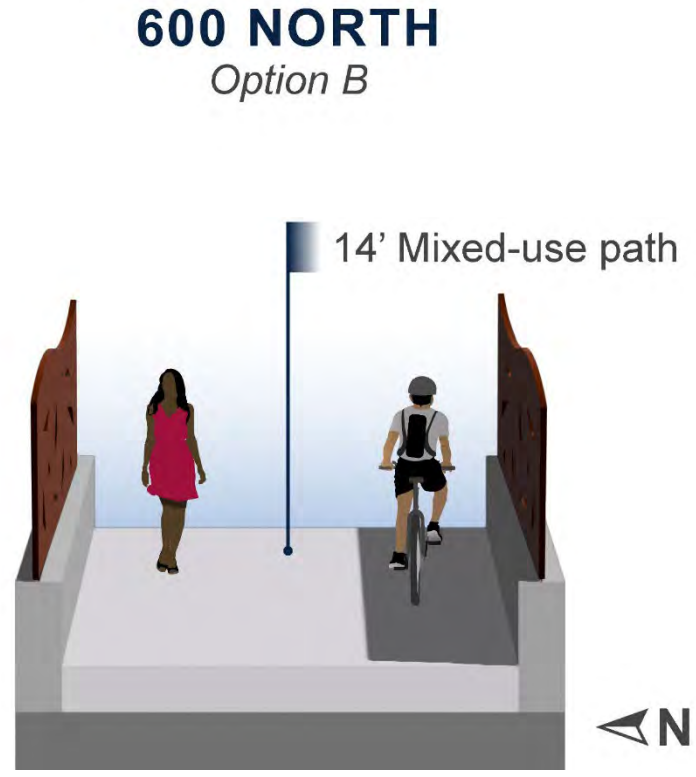

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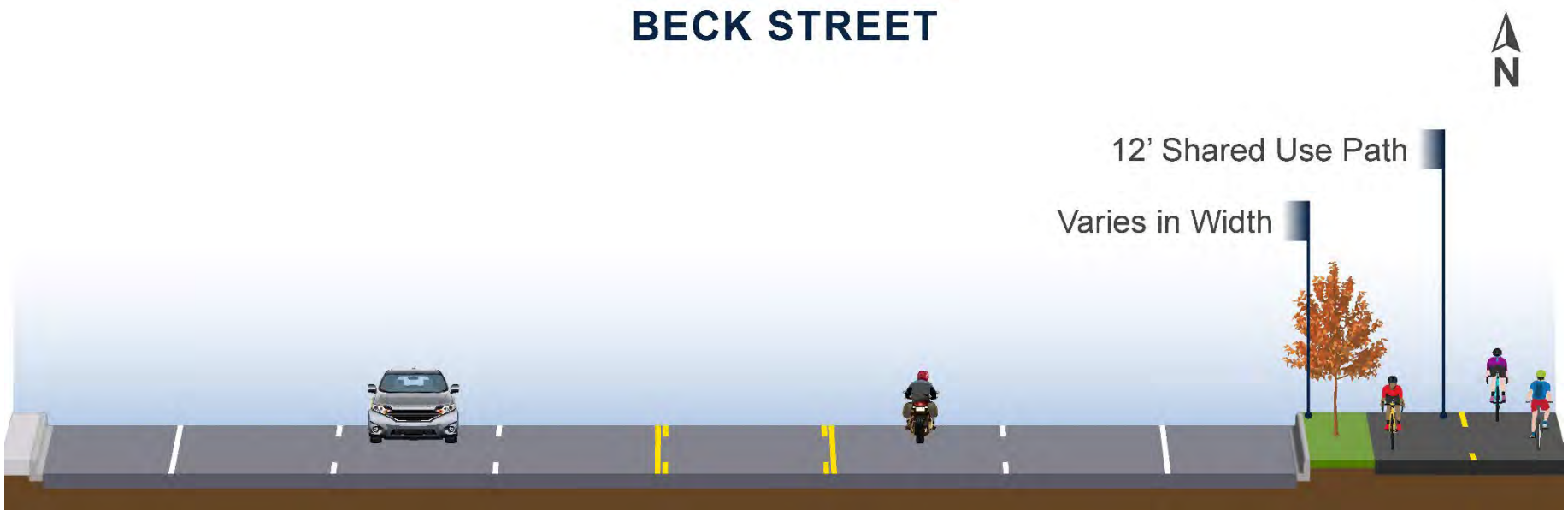

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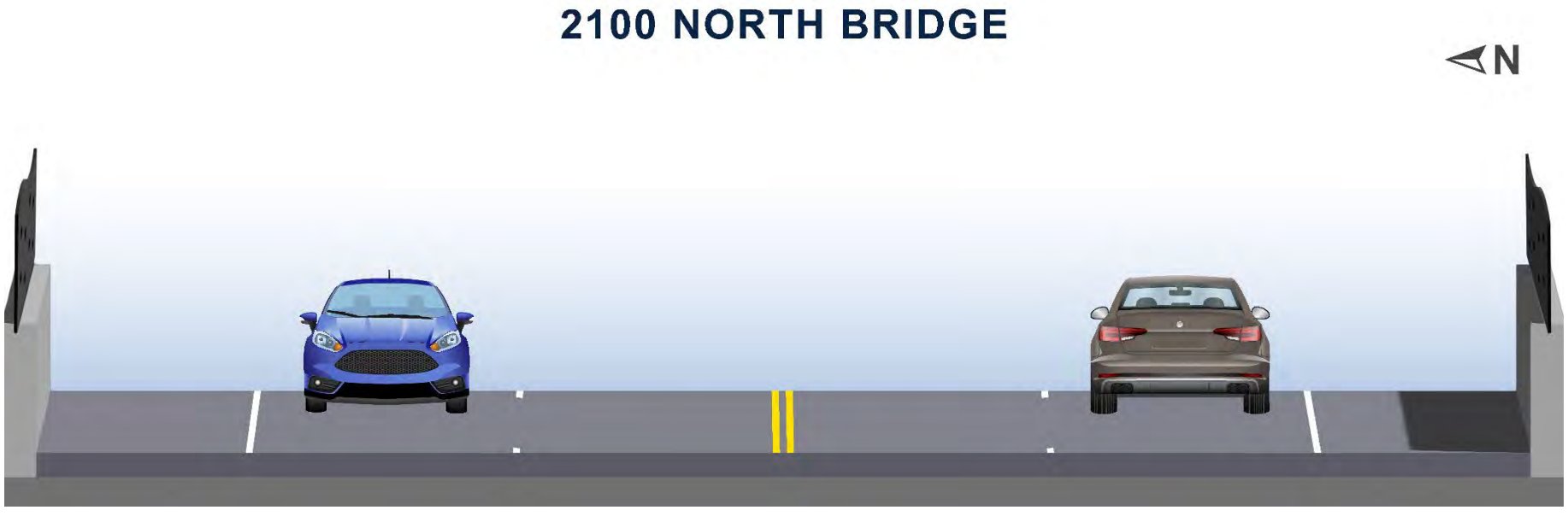

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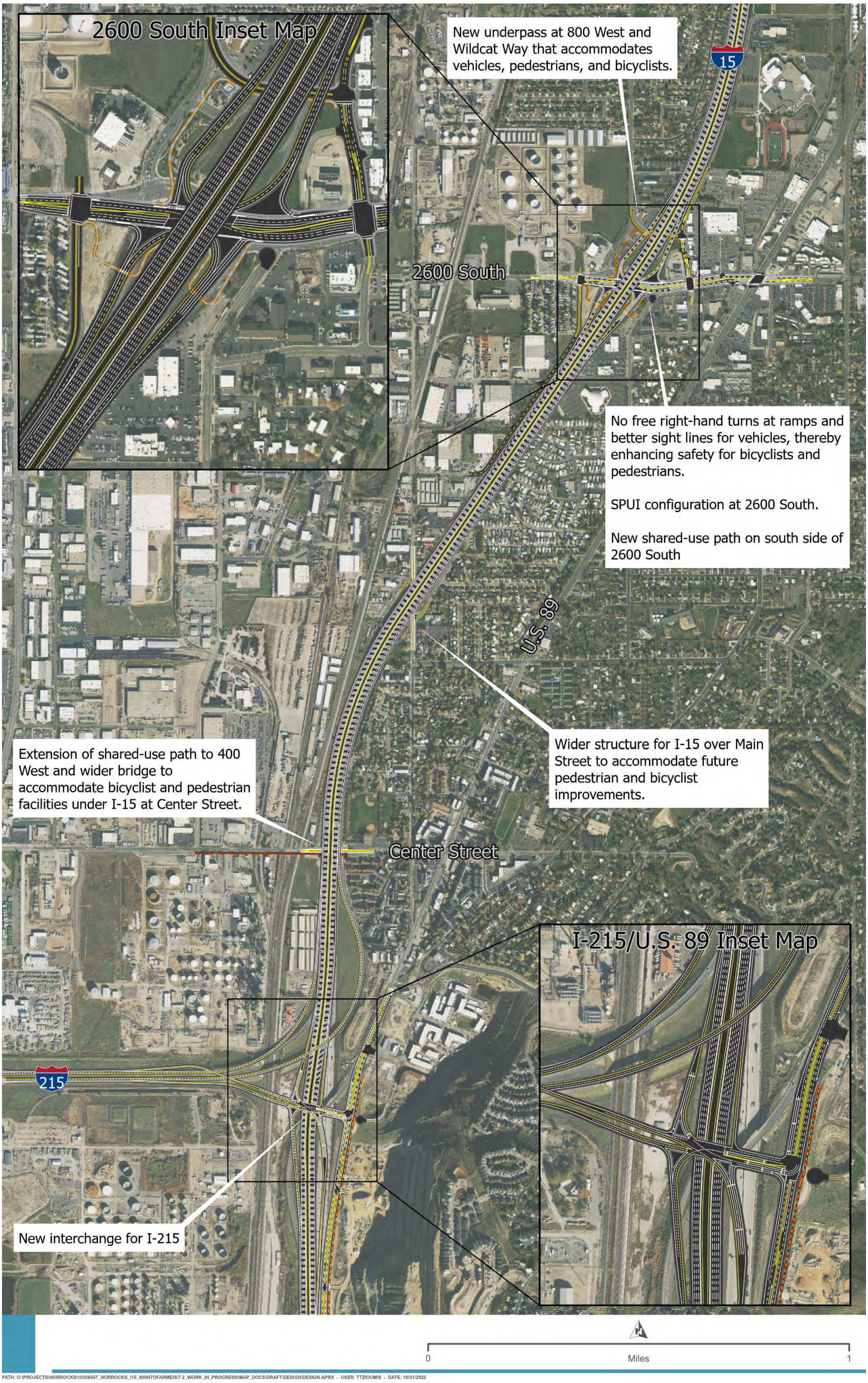

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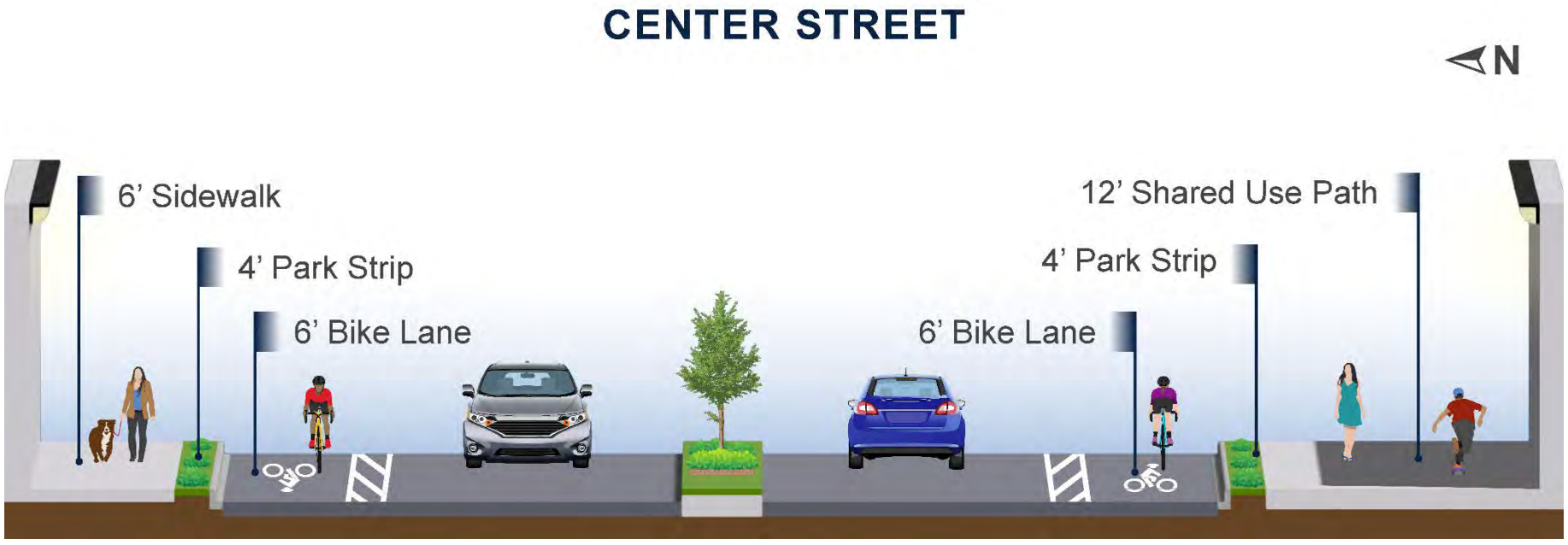

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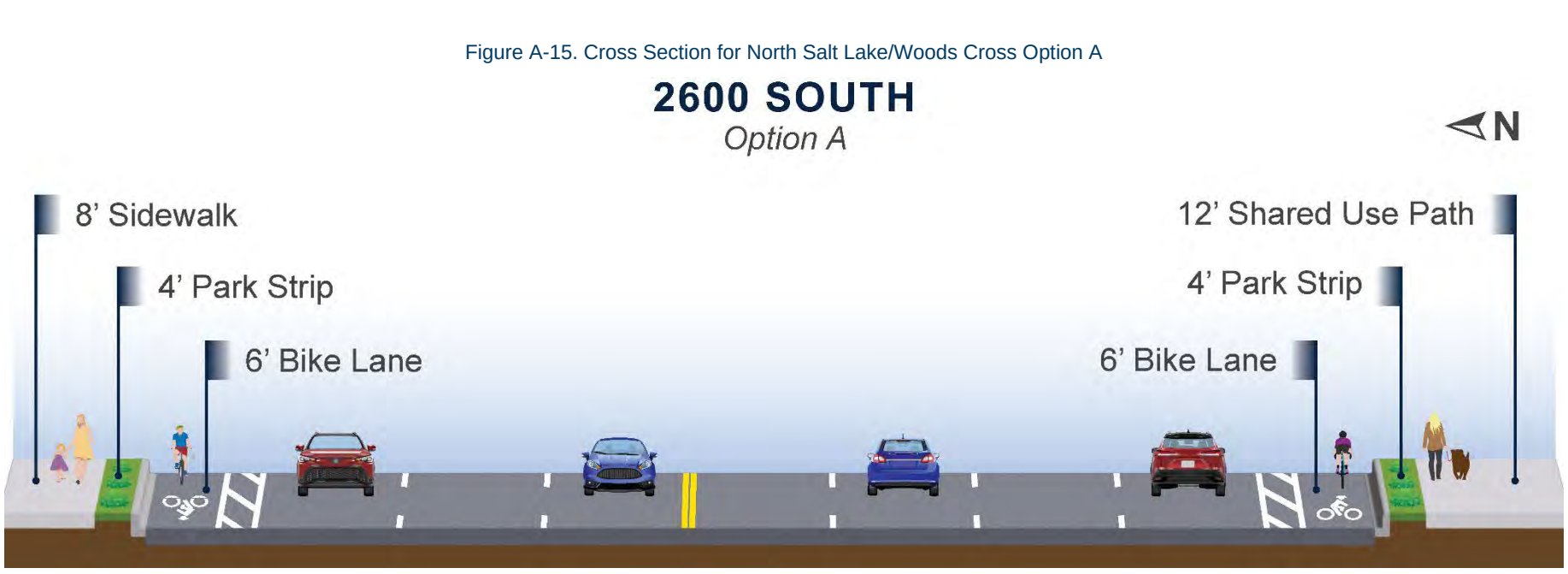

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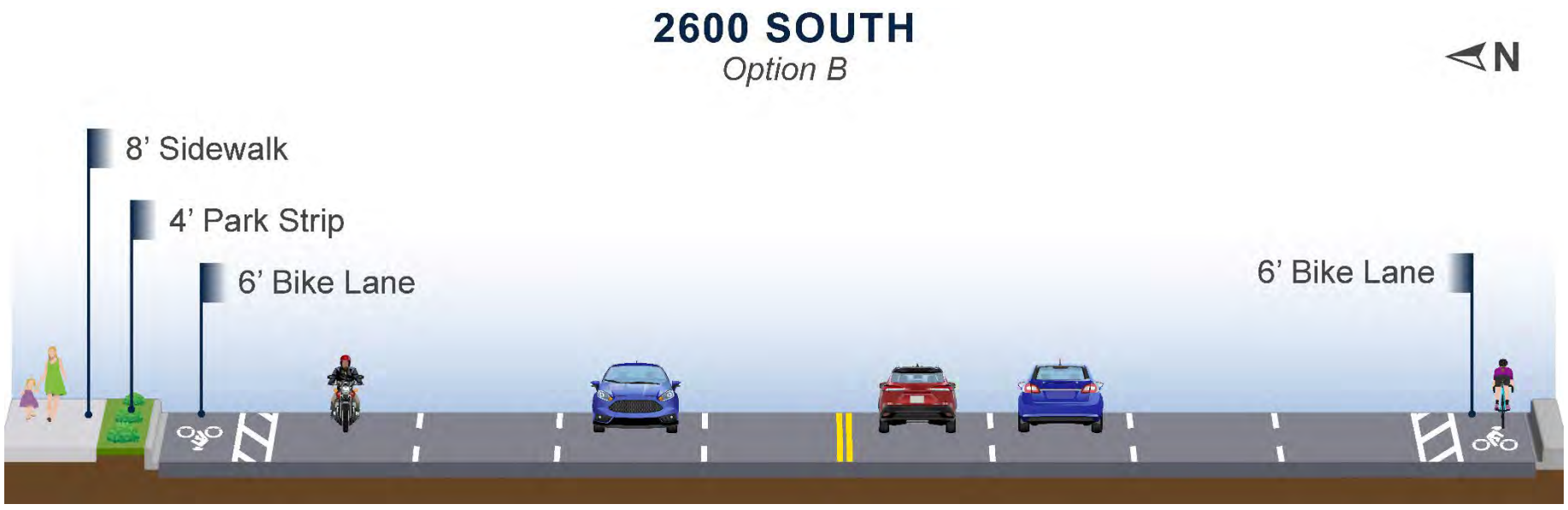

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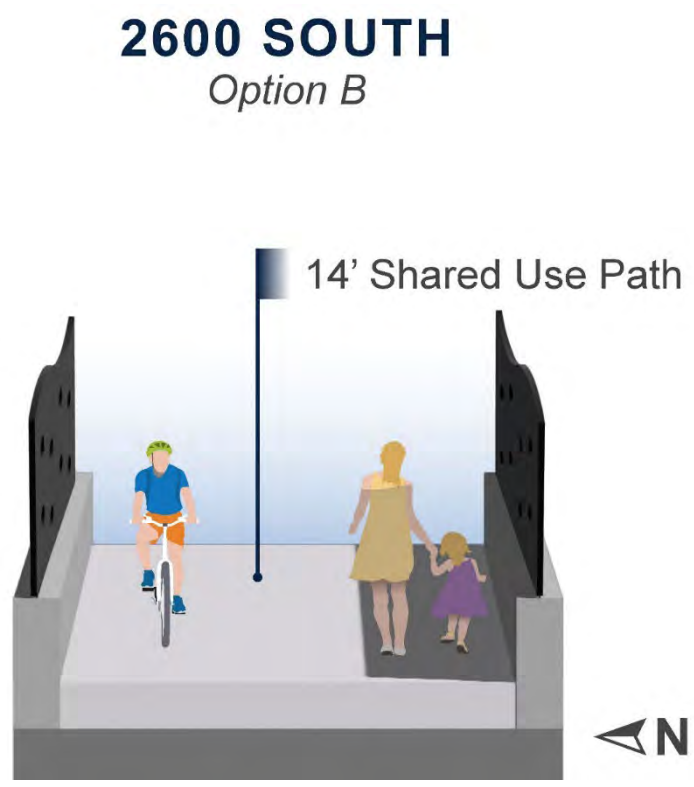

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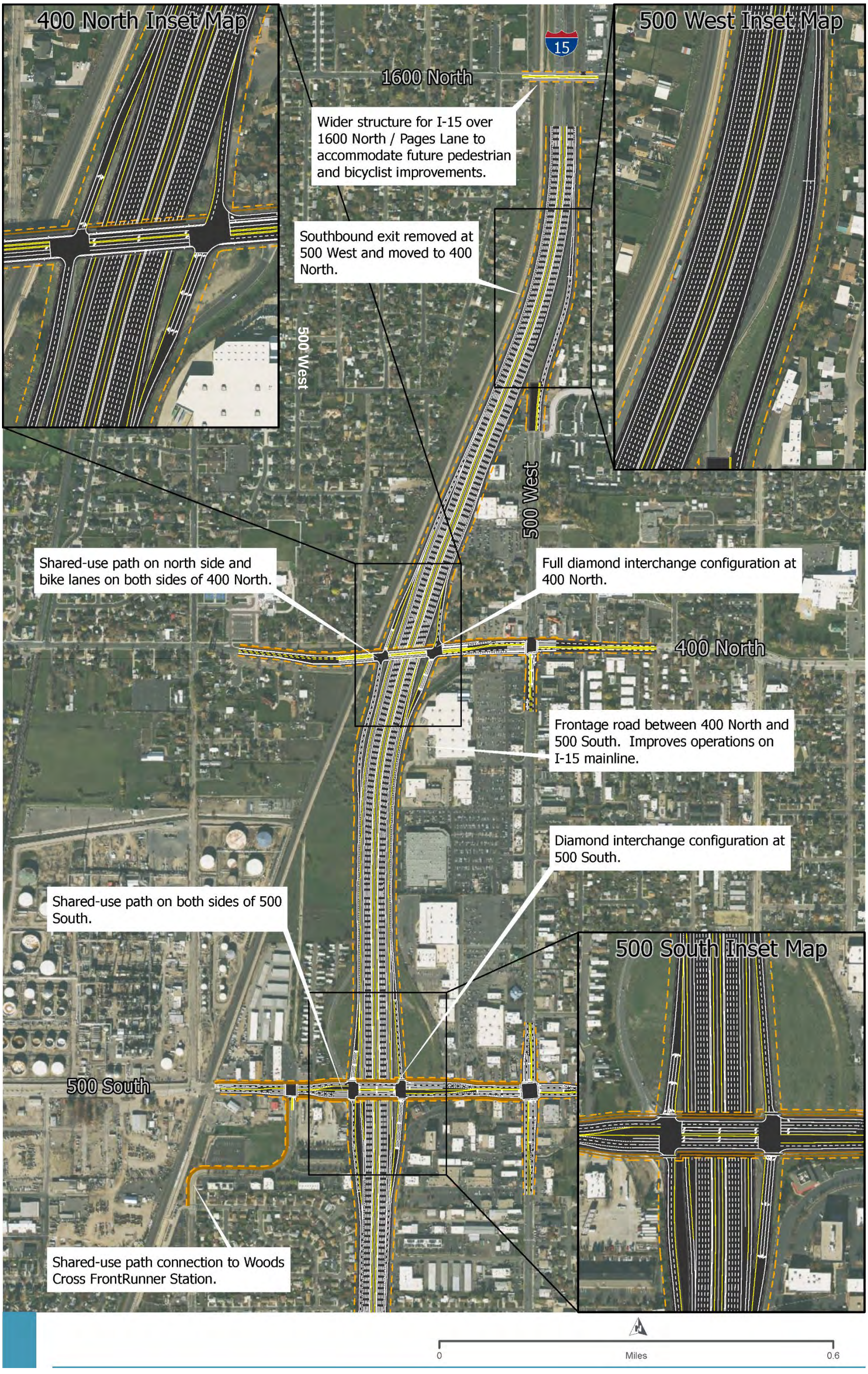

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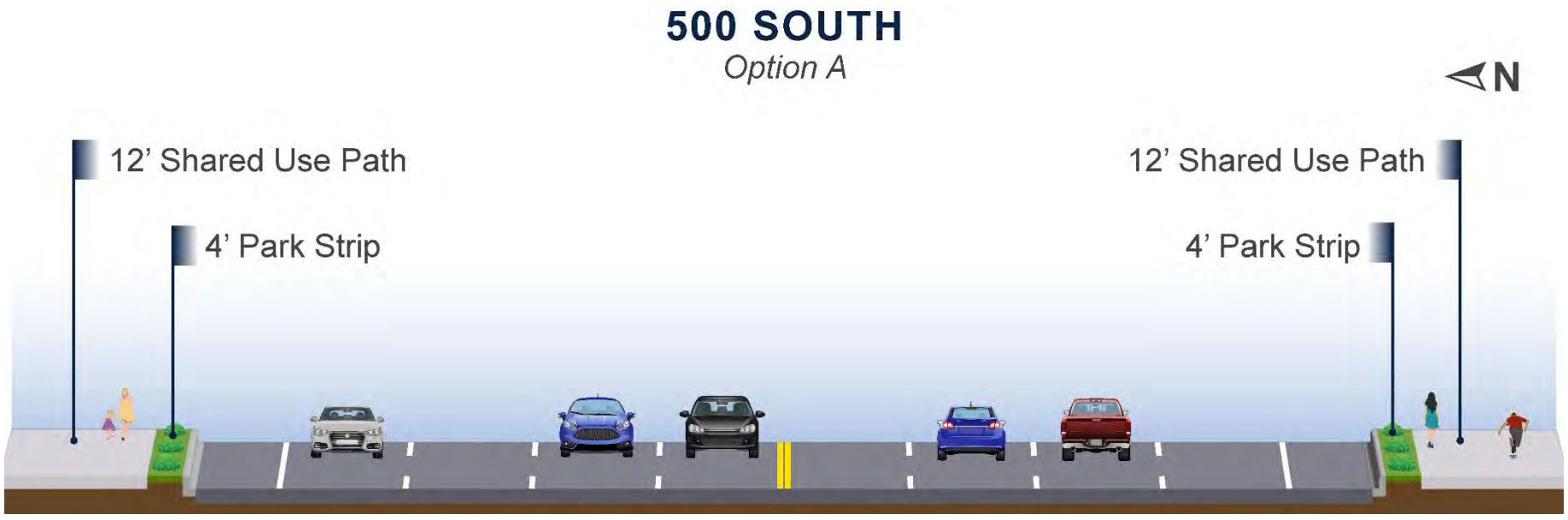

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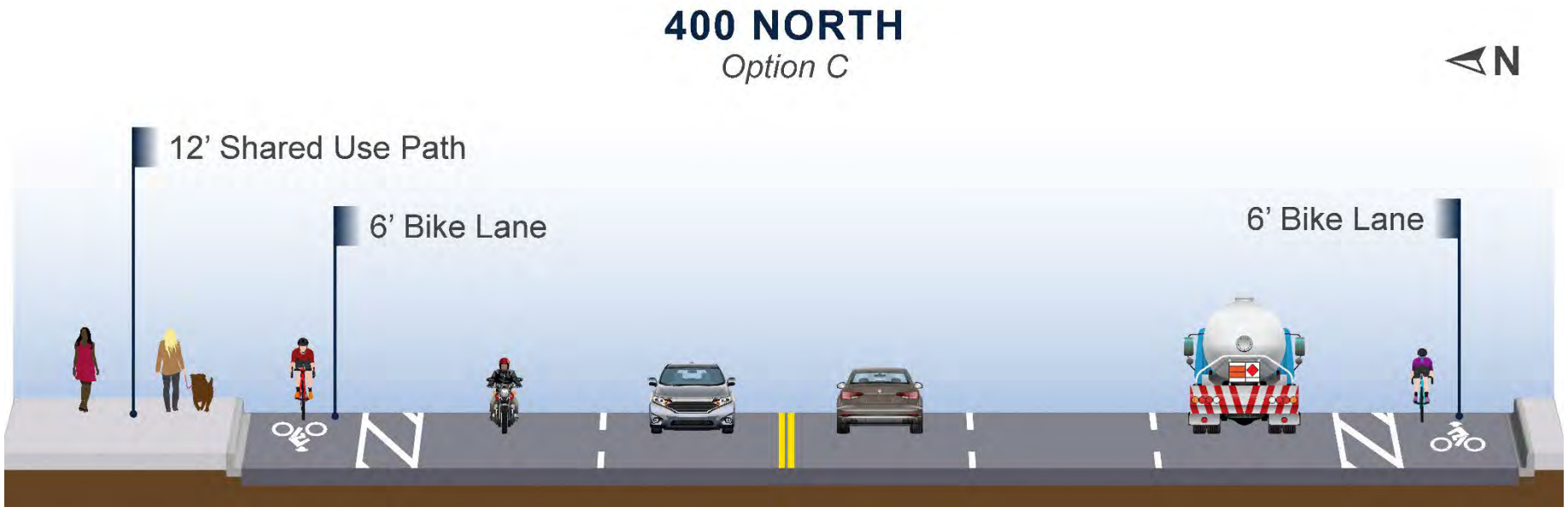

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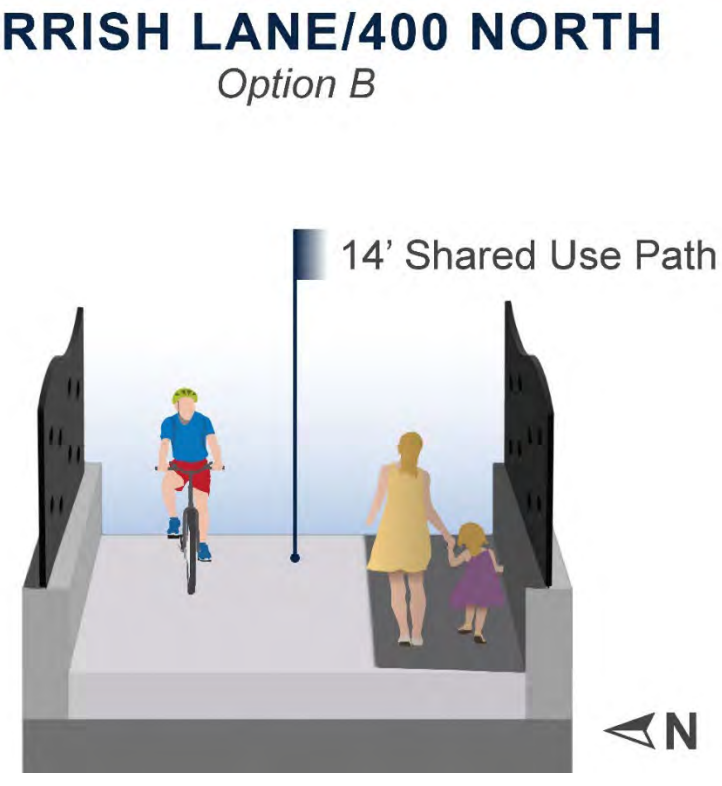

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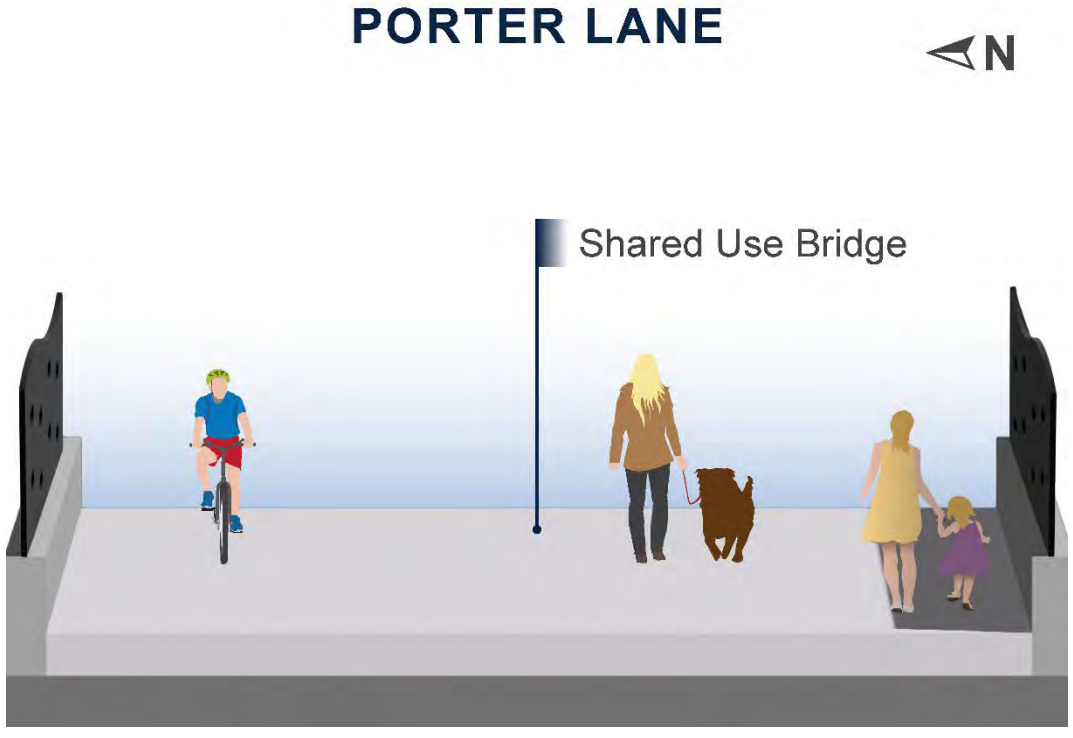

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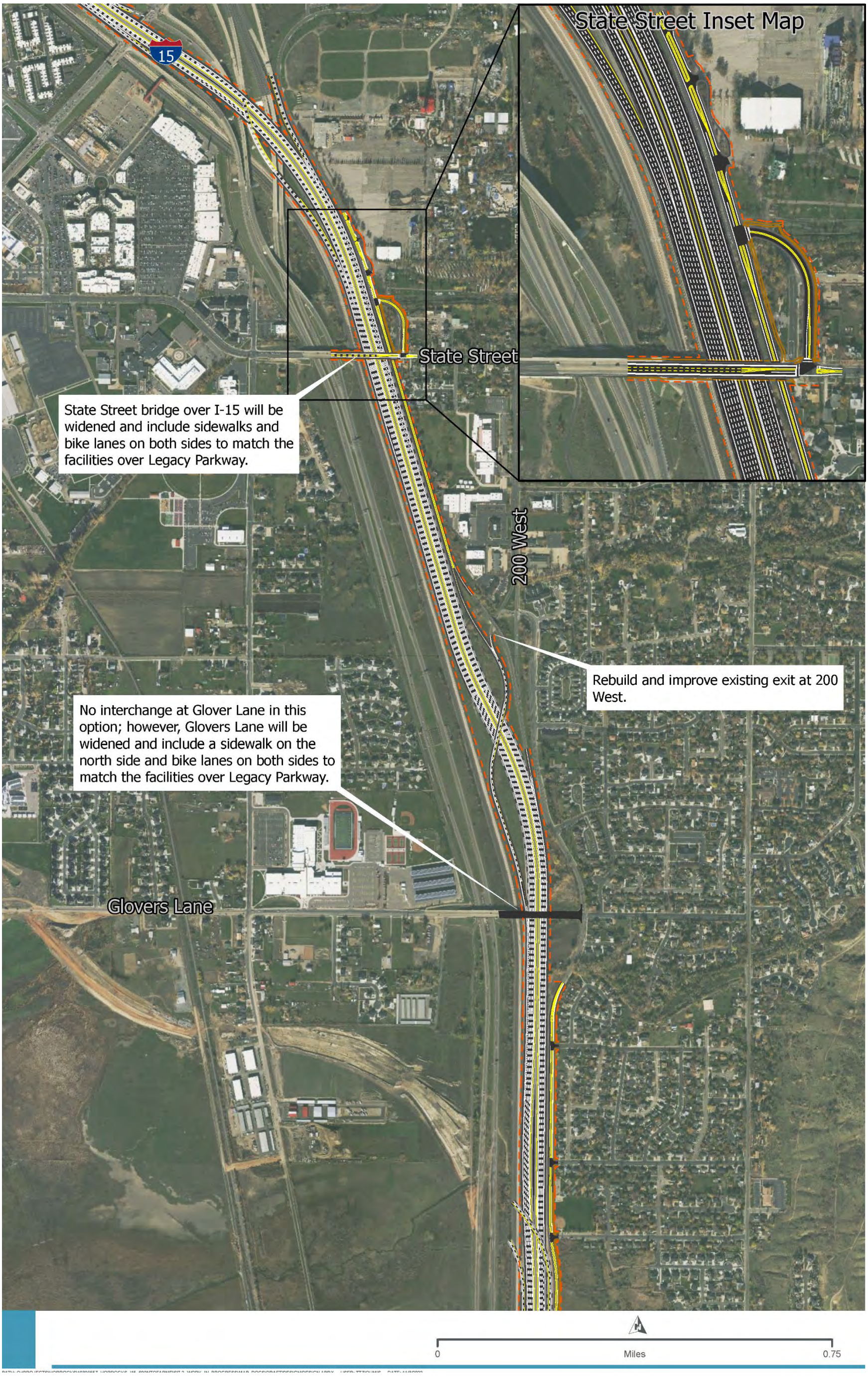

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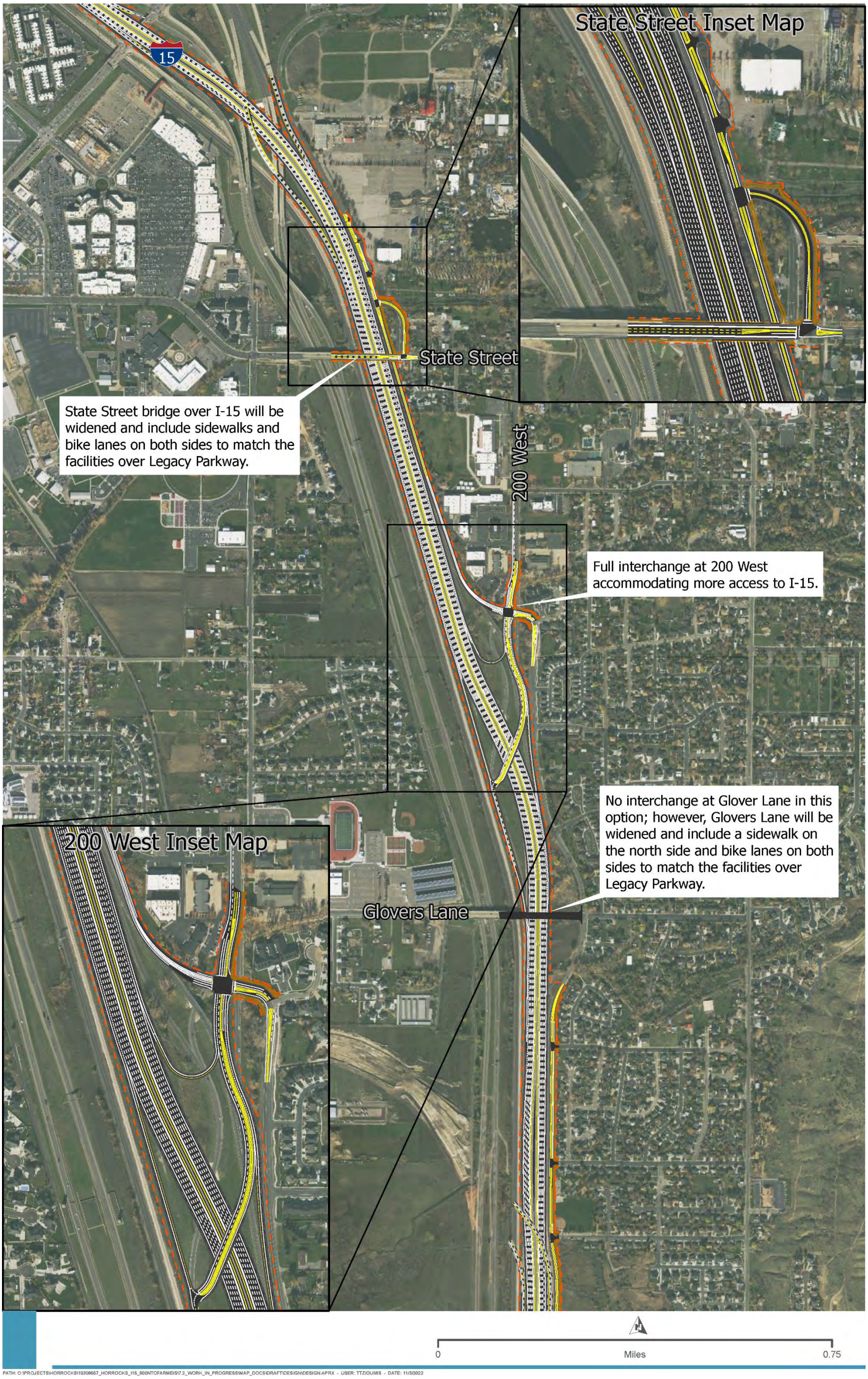

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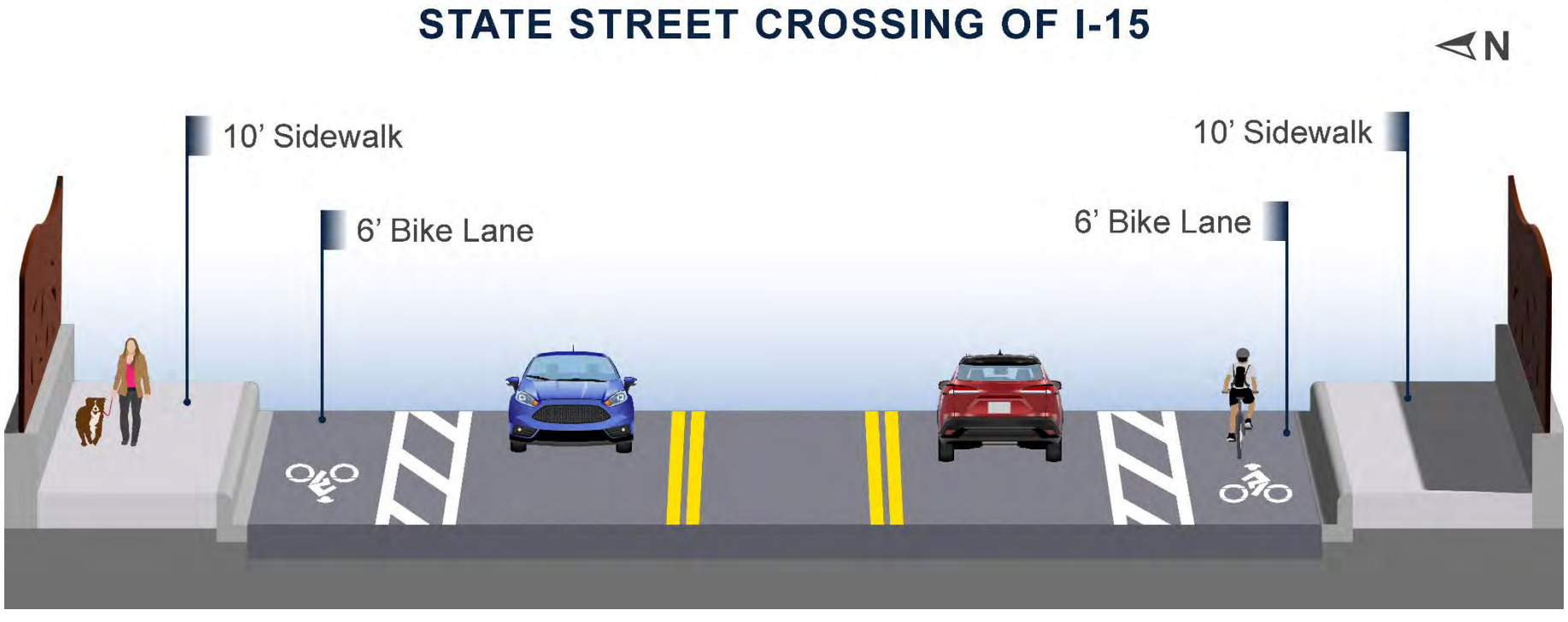

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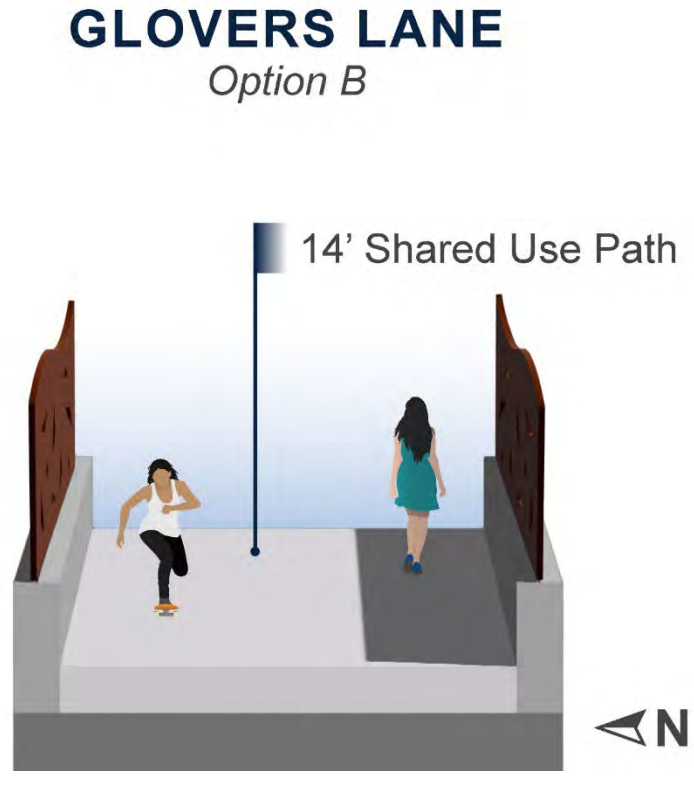

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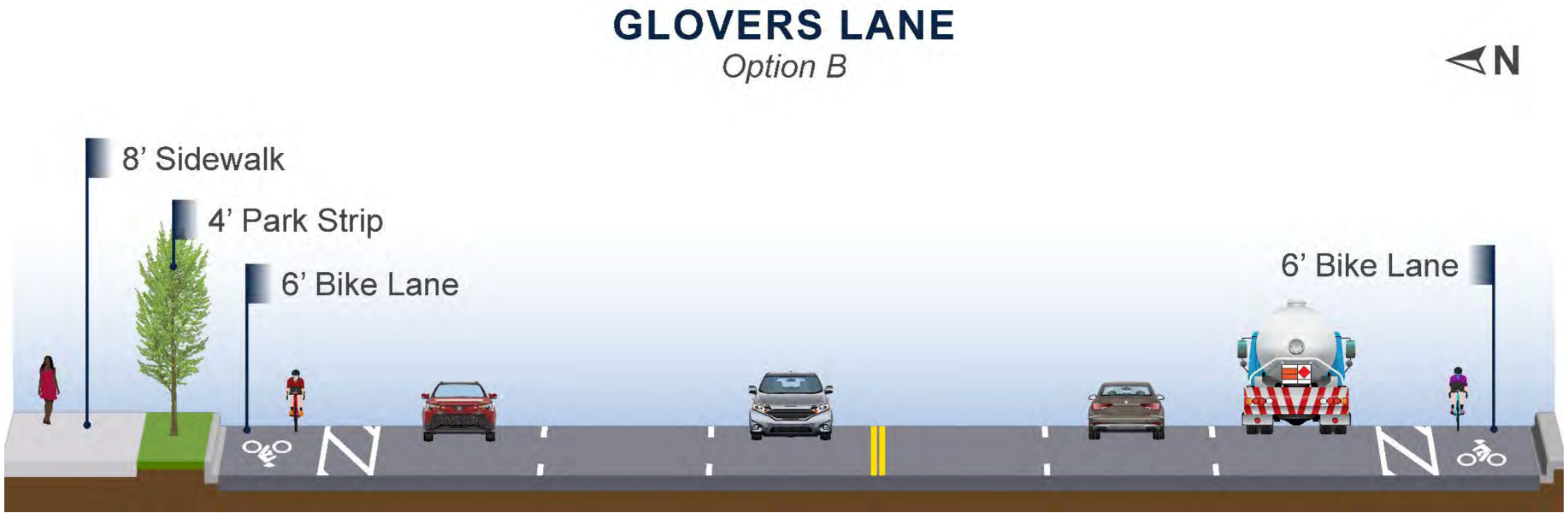

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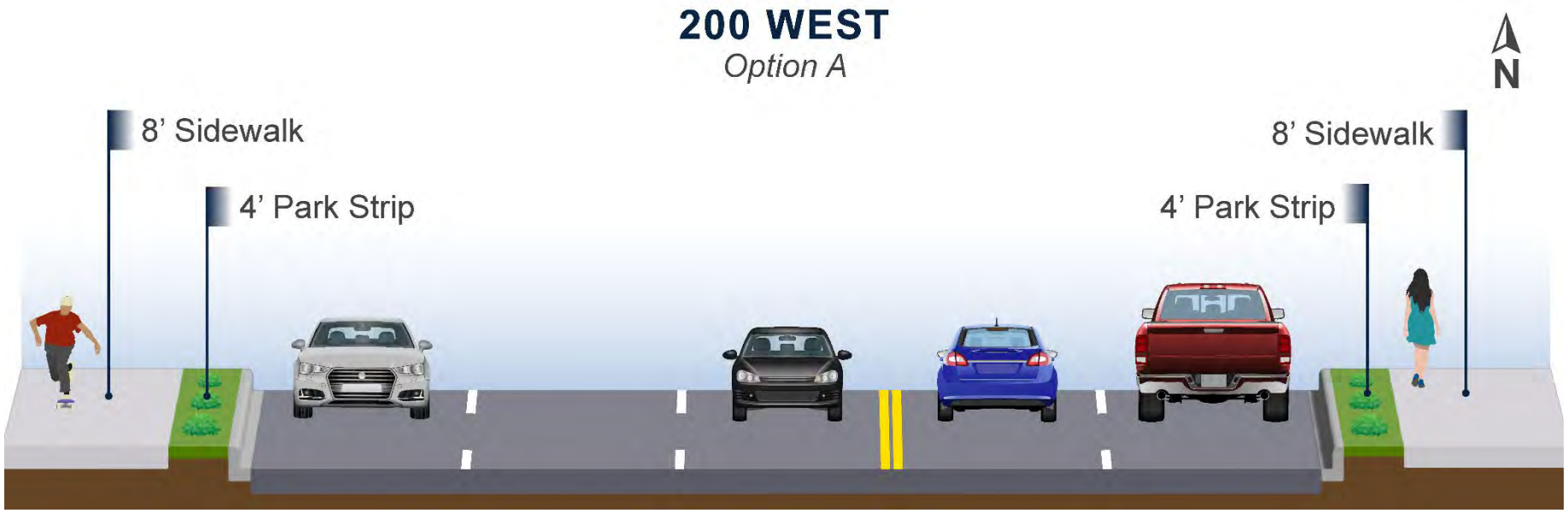

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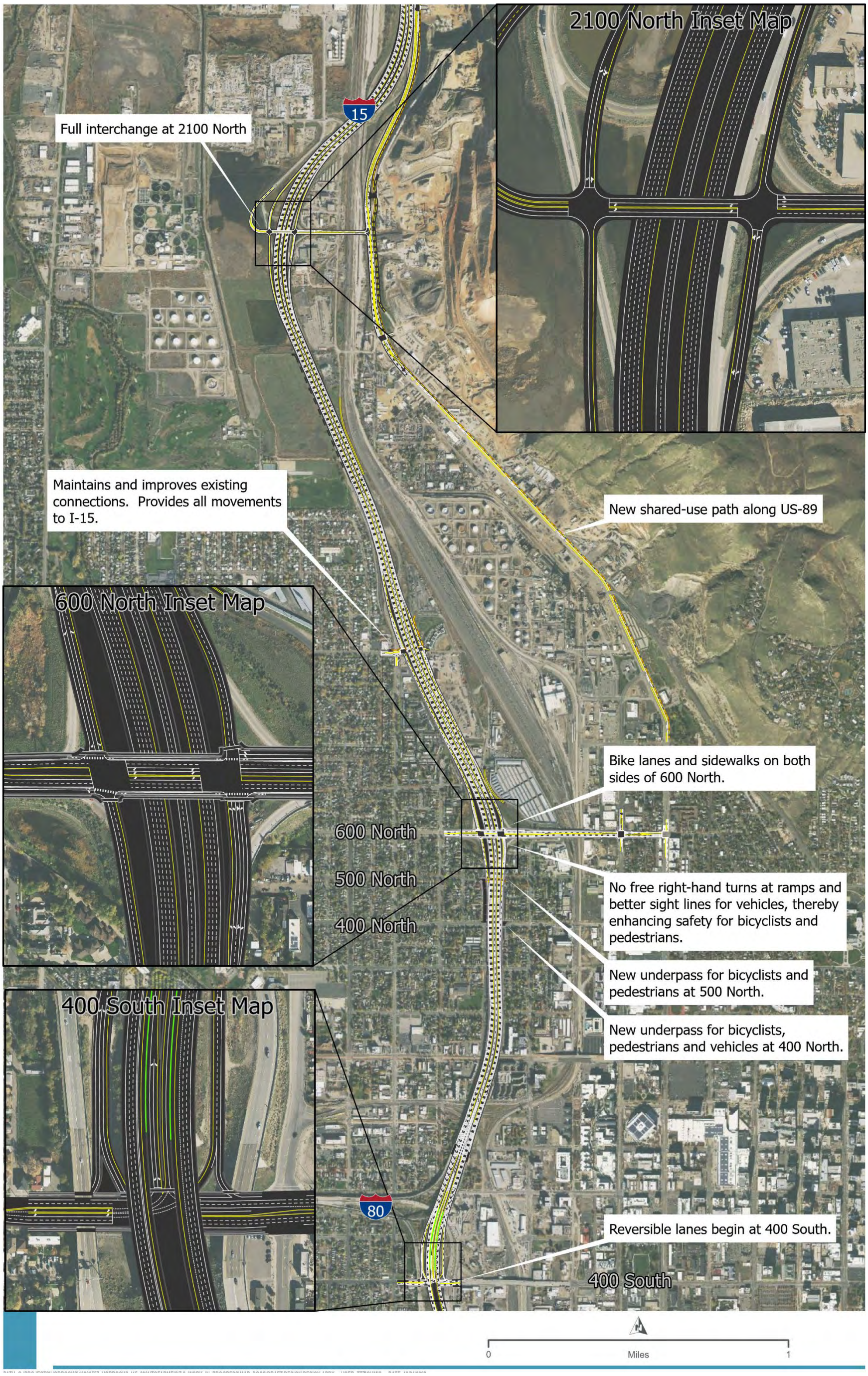

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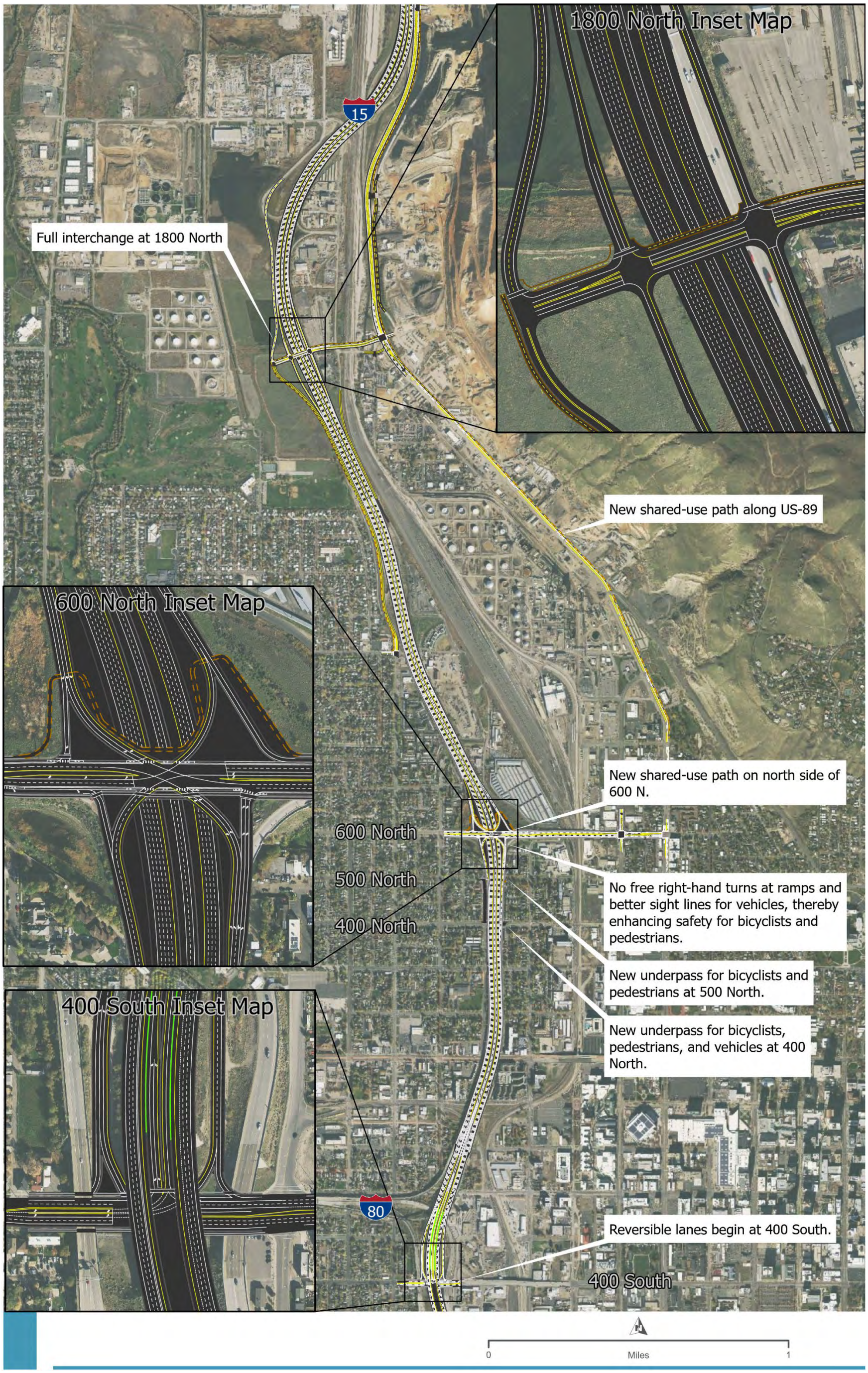

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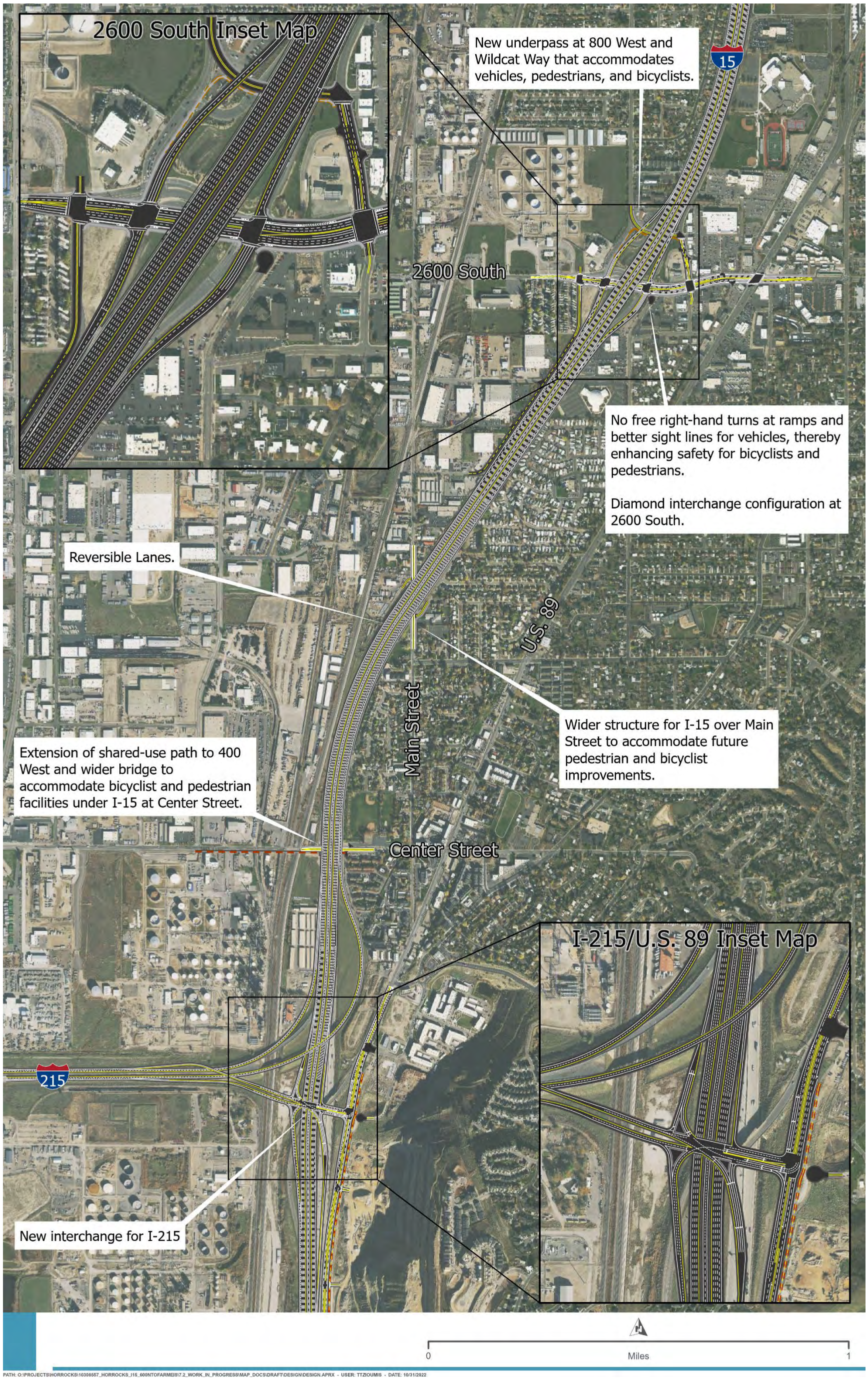

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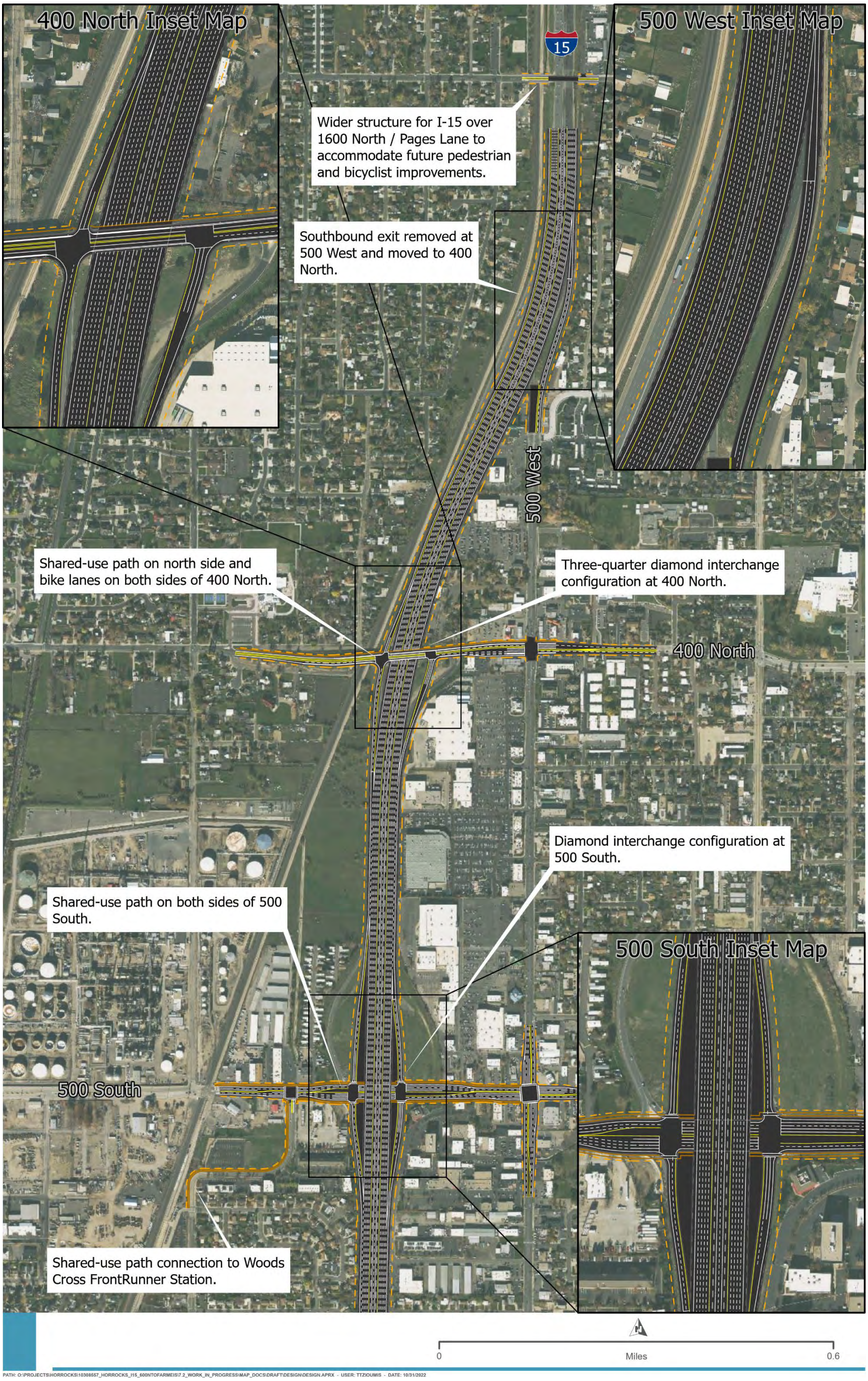

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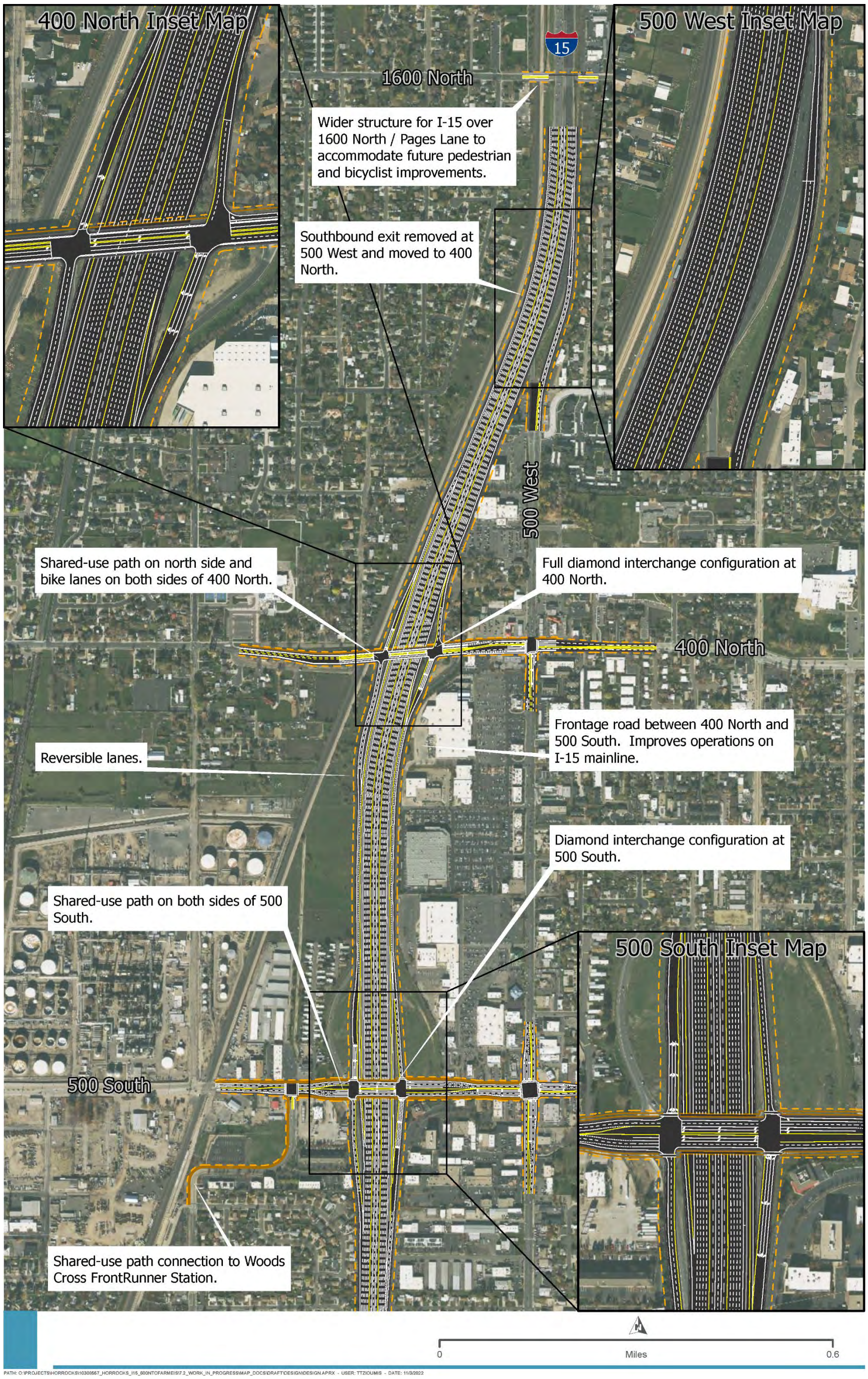

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